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Evidence review: The effect of education programs on violence, crime, and related outcomes

With support

Children and youth continuously learn and develop social-emotional skills, promoting positive outcomes.

Academic pathways

Vocational pathways

Alternative educational opportunities and support for children and youth outside the traditional system

Without support

Children and youth lack opportunities to learn and develop social-emotional skills, promoting violence and crime.

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ACKNOWLEDGEMENTS

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ACRONYMS

ABE	Adult Basic Education
AEP	Accelerated Education Programs
ASP	After-school program
CAI	Computer-assisted instruction
CARSI	Central America Regional Security Initiative
CBE	Complementary Basic Education
CBT	Cognitive and behavioral therapy
CPTED	Crime prevention through environmental design
ECE	Early childhood education
GCSE	Google custom search engine
GDP	Gross domestic product
HIC	High income country
HDI	Human development index
ICT	Information and communication technology
ISCED	International Standard Classification of Education
LAC	Latin American and Caribbean
LMIC	Low- and middle-income country
LN	Literacy and numeracy
MBS	Merit-based scholarship
NEET	No education, employment or training (*nini* in Spanish)
NGO	Nongovernmental organization
OOSCY	Out-of-school children and youth
PAL	Peer-assisted learning
PBIS	Positive behavior interventions and support
PTA	Parent teacher associations
QED	Quasi-experimental design
RCT	Randomized control trial
RDD	Regression discontinuity design
RP	Restorative practices
SBCC	Social and behavioral change communication
SBM	School-based management

SEL	Social-emotional learning
SMC	School management committees
SRGBV	School-related gender-based violence
SRH	Sexual and reproductive health
SSI	Single sex instruction
SWPBIS	School-Wide Positive Behavioral Interventions and Supports
TaRL	Teaching at the right level
TVET	Technical and vocational education and training
UN	United Nations
UNDP	United Nations Development Program
USAID	United States Agency for International Development
WFD	Workforce development
WWC	What Works Clearinghouse

GLOSSARY

Cohort studies	In education, studies that follow the path of a group of students to assess their progress through subsequent grades.
Counterfactual	In an impact evaluation, the counterfactual is the estimate of what would have happened to program participants if they had not participated in the program being evaluated. In a randomized experiment, the counterfactual is estimated using outcomes for the randomized control group.
Difference in difference	A quasi-experimental impact evaluation approach that estimates a program's causal effects as the difference between the before-after difference in outcomes for participants and the before-after difference in outcomes for non-participants, potentially with other control variables or in combination with other methods.
Ex-post	Any evaluation conducted after an intervention has already taken place. This is in contrast to prospective evaluations like randomized controlled trials that are designed and implemented before an intervention begins.
Fixed effects models	Fixed effects regression models attempt to control for omitted variable bias by controlling for sample characteristics that are fixed, such as group means.
Impact evaluation	An evaluation that uses a counterfactual, or a representative comparison group, to estimate an intervention's causal impacts on outcomes of interest.
Incapacitation effect	The phenomenon in which an increase in participation in productive activities reduces participation in less desirable behaviors, such as risky or criminal behaviors.
Income effect	The phenomenon in which improved or increased employment with a higher income increases the cost of participating in crime by reducing their ability to work for money and increasing their risk of losing their employment.
Instrumental variables analysis	In impact evaluation, an instrumental variable is a variable that is correlated with participation in the intervention being evaluated, but is not correlated with the outcomes of interest beyond its correlation with participation in the intervention. Under certain assumptions, such a variable can be used to estimate an intervention's causal impacts on outcomes of interest.
Likert scale	A numeric scale used in surveys to allow respondents to indicate how strongly they feel about something.

Mediating factors	Factors that influence how one variable affects another. For example, social skills could be a mediating factor influencing how an individual's environment affects their likelihood of participating in crime.
Meta-analysis	A statistical method that pools estimates from different studies of similar programs with similar outcomes. Typically, each study's contribution is weighted by a measure of the strength of its contribution.
Opportunity cost	The cost of a lost potential gain from choosing one option over another. For example, when a person chooses to spend more of his or her time in school, he or she loses the opportunity to spend that time working for pay.
Peer effects	The effects of an individual's peers on his or her own outcomes. In education literature, this refers to the study of how a classroom or school composition affects individual students' outcomes, including behavioral, academic, and other outcomes.
Pre-post	An evaluation method that approximates the impact of an intervention by comparing participant outcomes before and after the intervention. This method relies on the strong assumption that outcomes would remain unchanged in the absence of treatment.
Propensity score matching	A quasi-experimental impact evaluation approach that estimates a program's causal effects by matching participants with non-participants who are similar based on their propensity scores. Propensity scores estimate each individual's probability of participating in the intervention being evaluated. The differences in outcomes between intervention participants and individuals with whom they are matched, based on their propensity scores, represent the estimated impact of the intervention.
Protective behaviors	Behaviors that can reduce the likelihood that an individual would engage in or be affected by crime.
Quasi-experimental evaluation	An impact evaluation that creates a counterfactual to estimate causal impacts without randomizing assignment to treatment. Methods include instrumental variables analysis, regression discontinuity design, propensity score matching, difference in difference, among others.
Random effects models	Random effects regression models control for group means that are considered a random sample from the population. This is in contrast to a fixed effects model that assumes that group means are fixed.

Randomized controlled trial	An experimental evaluation method in which subjects of the evaluation, such as schools, teachers or individual students, are randomly assigned to a treatment group that is invited to participate in the treatment or a control group that is not offered treatment. Differences in outcomes between the treatment group and the control group represent the estimated causal impact of the intervention on outcomes.
Regression discontinuity design	Regression discontinuity design analysis is possible when a discrete cutoff applied to a continuous variable determines access to an intervention either in whole or in part. This method creates a counterfactual for program participants based on the idea that participants on one side of the cutoff are similar to non-participants on the other side of the cutoff in all ways other than their access to treatment. The treatment effect is estimated as the difference in outcomes for participants on the two sides of the cutoff, though specific estimation methods vary.
Risky behaviors	Behaviors that increase an individual's likelihood of participating in criminal or socially undesirable activities in the short, medium, and long run. These include drug use, alcohol use, smoking, missing school, dropping out of school, and unprotected sex, among others.
Self-regulation	A skill characterized by the absence of impulsivity, response inhibition, an ability to delay gratification, self-control, emotion regulation, behavior regulation, and affect dysregulation.
Social skills	Skills that include interpersonal skills, the ability to take pro-social approaches to conflict, and the ability to perceive the intentions of others positively.
Social-emotional skills	Skills related to motivation, integrity, and interpersonal interaction, including personal attributes, temperament, and attitudes.
Sub-groups	A portion of a population or sample with a common characteristic. For example, subgroup analysis might examine how a program's impacts vary between males and females.
Systematic review	A type of literature review that uses a structured approach to collecting, assessing, and synthesizing literature on a given topic. Such reviews rate the quality of the studies available in the literature, and sometimes synthesize study findings using statistical techniques such as meta-analysis.

EXECUTIVE SUMMARY

This report summarizes available global evidence on the potential of education sector programs and policies to prevent and mitigate violence and crime in the Latin America and the Caribbean region. The United States Agency for International Development (USAID) commissioned this review and evaluation of evidence to help education development stakeholders to make informed education programming decisions. The report synthesizes the available evidence, identifies programs that show potential to mitigate crime and violence and identifies gaps for future research.

A. Conceptual framework

The education system can help children and youth lead productive lives and prevent divergence onto negative pathways where violence and crime play a part. The conceptual framework, or theory of change, on how this happens is based on evidence showing that children and youth are most likely to avoid violence and crime if they remain safely engaged in school and continue their learning, while developing the social-emotional skills that will help them to avoid involvement in risky behaviors, violence, and crime (Figure ES.1).

Figure ES.1. Conceptual framework
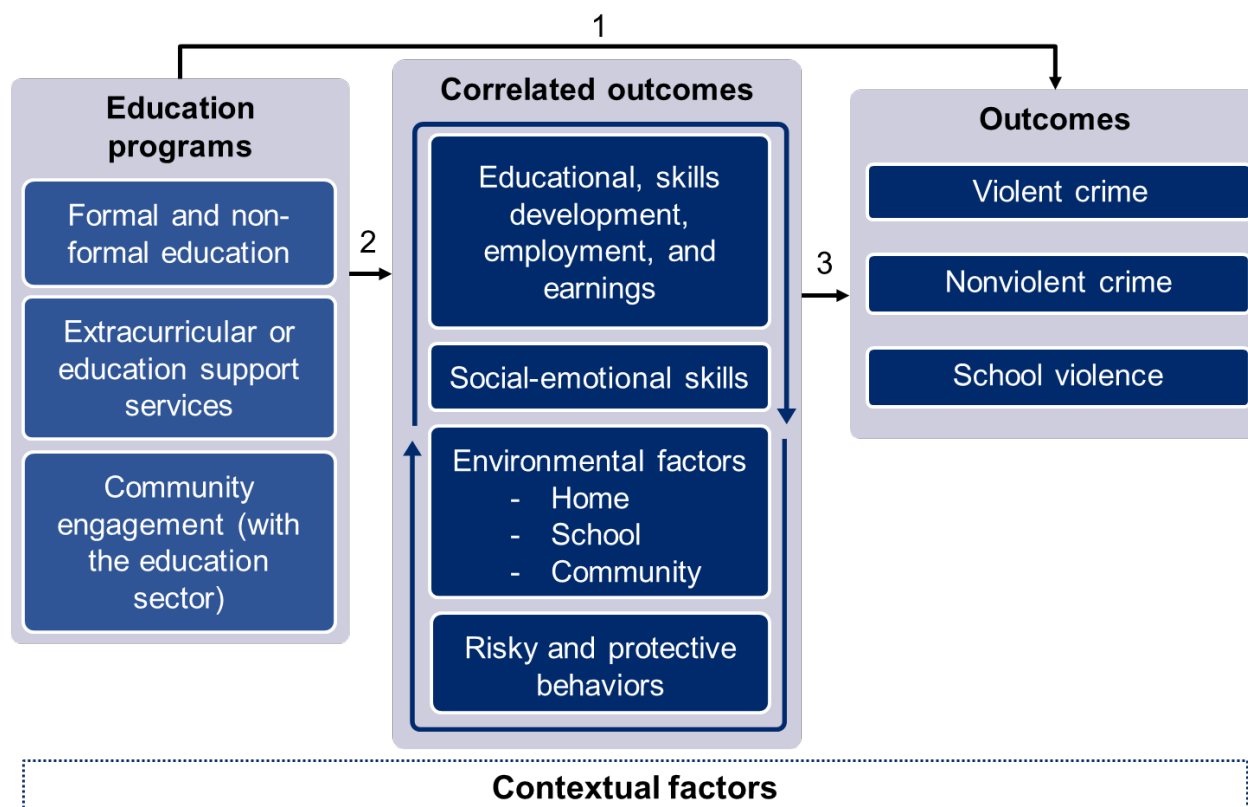
Table ES.1 summarizes how these outcomes are correlated with reducing violence and crime. These outcomes associated with violence and crime are malleable throughout an individual's development, including from ages 3 to 29.

Table ES.1. Outcomes correlated with violence and crime that education programming can impact

Correlated outcomes	Mechanisms through which outcomes can affect violence and crime
• School engagement, educational attainment, learning, employment, and earnings*	Cognitive skills alone can reduce one's likelihood of engaging in violence and crime.
	How individuals allocate their time (time use) affects engagement in violence and crime: when in school, training, or at work, one is not engaging in (most) violent or criminal behavior.
	Students' interest in school activities (school engagement) increases their participation in school activities and motivation to attend and remain enrolled in school—reducing risky behaviors and increasing learning and educational attainment, improving employment and earnings, and reducing violence and crime.
	Cognitive skills can improve educational attainment, learning, and/or employment and earnings outcomes, each of which can reduce one's likelihood of engaging in violence and crime.
	Cognitive skills can reduce one's likelihood of engaging in risky behaviors, which in turn can reduce one's likelihood of engaging in violence and crime.
	Educational attainment and learning improve employment and earnings outcomes, which can reduce one's likelihood of engaging in violence and crime.
	Better employment and higher earnings increase the opportunity cost of violence and crime, can have an incapacitation effect by crowding out violence and crime, and can reduce violent and criminal behaviors through peer effects.
• Social-emotional skills	Social-emotional skills can affect the likelihood of engaging in violent and criminal behaviors by strengthening one's ability to control their behavior, enable them plan ahead to avoid criminal activity, or help them to think through problems in ways that lead to solutions that avoid violence, and also through potential peer effects.
	Social-emotional skills can affect one's likelihood of engaging in risky or protective behaviors, which can in turn affect engagement in violence and crime.
	Improved social-emotional skills can improve educational attainment and learning, which can in turn affect employment and earnings and likelihood of direct engagement in violence and crime.
	Social-emotional skills can improve one's likelihood of obtaining and retaining better employment and of better earnings, which can in turn affect the likelihood of engaging in violence and crime.
• Environmental factors	The home environment, including within-household relationships (such as attachment or conflict), parent behaviors towards the child (such as warmth, bonding, or discipline), parent behaviors with each other (such as domestic violence), can contribute to child or youth social-emotional skill development and behaviors, which can contribute to violence and crime through a variety of pathways, as described above.
	The school environment, including teacher behaviors (such as attendance), teacher-student relationships, violence in schools, and peer effects, can contribute to child or youth learning, as well as social-emotional skill development and behaviors, each of which can contribute to violence and crime through a variety of pathways, as described above.
	The community environment including pro-social cohesion, peer effects, perceptions of and willingness to engage with public and community institutions and officials to prevent and report crime, can contribute to child or youth social-emotional skill development and behaviors, which can contribute to violence and crime through a variety of pathways, as described above.
	Risky, aggressive, and antisocial behaviors can increase the incidence of violent and criminal behavior.

Correlated outcomes	Mechanisms through which outcomes can affect violence and crime
• Risky and protective behaviors	Protective behaviors can decrease engagement in violent and criminal behaviors, either directly or indirectly through reductions in risky behaviors that may reduce engagement in violent and criminal behaviors.

* These standard education literature outcomes are not the focus of this report, which focuses on searching the non-standard outcomes.

B. Methodology

The purpose of this review was to identify the global literature on the role of education programming in mitigating violence and crime, with a focus on identifying studies that were relevant to and conducted in the LAC region. Our approach to conducting this review began with building a foundational knowledge base for the study, which was important in developing a focused protocol for the comprehensive bibliographic and grey literature search. We then conducted the comprehensive literature search and review. We identified relevant literature from LAC countries, but also from low- and middle-income countries (LMICs) that face many similar development challenges. While the motivation of this review is based on the situation in the LAC region, it is relevant for LMICs in other regions, and much of the relevant literature is global in nature. It also was important to include literature from high income countries (HICs), as many potentially promising programs do not have a large evidence base in LAC countries or LMICs.

Key outcomes correlated with violence and crime include the focal outcomes of most education programs (educational attainment, learning, employment, and earnings), social-emotional skills, environmental factors, and risky and protective behaviors. In this review, we focused on the outcomes that are not typically included in education studies, and we didn't include educational attainment, learning, employment, and earnings in our search. Because education programming at USAID focuses on children and youth ages 3 through 29, we too focus on those ages.

This evidence review focuses on the effects of education programming on violence, crime, and outcomes correlated with violence or crime, incorporating a systematic search for literature and review of the evidence. We conducted systematic bibliographic searches (in nine databases) for evidence from LAC countries and LMICs and grey literature searches (across 33 websites) for global evidence that were built on global foundational literature reviews of 43 education programming programs. We then used a common protocol to identify and review eligible qualitative and quantitative studies from the approximately 49,000 search results. We reviewed 475 studies across the different education programs using a common protocol (Figure ES.2).

Figure ES.2. Literature search process

**Foundational Literature Review Across 28 Program Categories
(over 800 studies)**

Comprehensive search terms developed for search of education programs' effects on violence, crime, and correlated outcomes

Comprehensive bibliographic search (9 databases)

Comprehensive grey literature search (33 websites)

11,639 results screened

37,324 results screened

221 studies eligible

150 studies eligible

104 studies eligible

**Review eligible studies
(475 studies reviewed)**

Limitations. This evaluation of the evidence has several limitations. The main limitation is the scant evidence available on the topic—particularly evidence from LMICs and LAC. However, in addition to synthesizing what we do know about education programs' ability to reduce violence and crime, this review also serves to highlight key gaps in the evidence base which still need to be addressed.

Due to the breadth of the research questions and scope of the review, we were unable to conduct a Spanish-language bibliographic literature search and may have missed some important studies relevant for LAC countries and LMICs. Fortunately, many Spanish-language journals translate abstracts to English, which would have been identified in the bibliographic literature search. Test searches of Spanish language databases confirmed this - several studies available in Spanish language journals had already been identified by our primary search process. This suggests that a Spanish language search was unlikely to provide much additional information. The majority of the key findings in the evidence were likely identified, and the overall conclusions about the evidence base would not change with an additional search in Spanish.

Although we used consistent criteria to define levels of evidence in each findings chapter and in this conclusions chapter, assessing the strength of each study and the body of evidence for

each intervention requires judgment about where to draw the line between the evidence levels. Reasonable reviewers could disagree about how to assess evidence, but the conclusions about the overall evidence base would not vary greatly.

Finally, we opted for a landscape analysis of the overall existing research, rather than a review focused exclusively on rigorous quantitative analysis. Given the dearth of existing causal research on many of the programs included in this review, we considered high-quality qualitative research valuable to provide early indications of what programs held promise or should be prioritized for future research. However, due to this gap in causal evidence, for many programs, we were not able to provide conclusive recommendations around implementation.

C. Findings and Conclusions

There is very little evidence on what types of education sector programming work to prevent violence, crime, and mitigate correlated factors in LAC or in LMICs more broadly. Even in HICs, there is little rigorous research estimating causal effects.[1] Not only is there a wide gap in the literature on the impacts of education programs on violence and crime, but also on evidence of impacts on outcomes that are correlated with violence and crime. Due to this dearth of rigorous research, there is also a lack of understanding of the cost effectiveness of various programs or intervention components.

> **Challenges to researching the effects of education programming on violence and crime**
> - Most education programs affect outcomes that are precursors to or correlates of eventual violence or criminal behavior.
> - Impacts on violence and crime may take place years—sometimes up to 10 to 20 years—after the intervention, and longitudinal research takes time, funding, and commitment.
> - Measurement of violence and crime outcomes is difficult.

This section synthesizes the findings by the amount of evidence that is available by geographic location and by level of evidence. First, this section presents programs that provide compelling global evidence, including some evidence from LAC countries and LMICs, to consider implementing in LAC countries or LMICs (subsection 1). Second, this section presents programs that have generated compelling evidence in HICs only (subsection 2). These programs are grouped separately because programs that have been shown to work well in HICs will not necessarily work in a potentially very different developing country context. Then, this section presents findings for programs with insufficient evidence to draw conclusions about their effectiveness at improving violence, crime, and related outcomes (subsection 3). While there is more known about the effects of some programs than others, there are opportunities to contribute to the evidence base going forward for all programs included in this review.

1. Promising programs with evidence from LAC countries or LMICs

This section presents findings for the 21 programs with an evidence base that suggests they have promise for working to improve violence, crime, or correlated outcomes in LAC countries

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[1] By rigorous causal research, we mean impact evaluations, including experimental and quasi-experimental designs, that are designed to reduce concerns about internal and external validity.

or LMICs. The evidence base for these programs may include those with emerging or better evidence from HICs with suggestive evidence from LAC countries or LMICs, or emerging or better evidence from LAC countries or LMICs. Table ES.2 summarizes the bodies of evidence for programs' effects on the correlated outcomes and violence and crime, and from LAC countries or LMICs.

By providing young children a safe environment where they can begin learning and developing social-emotional skills at an early age, **early childhood education** (ECE) sets children up for success in the long run. Early childhood education has a strong evidence base for improving social-emotional skills in childhood and violence and crime outcomes in adulthood, generated by the well-known longitudinal studies in HICs. There is moderate evidence for ECE's improvements in social-emotional skills in LAC. ECE is a promising approach to reduce violence and crime, although the benefits would not be realized until years after the intervention.

Table ES.2. Strength of evidence and correlated outcomes: Promising programs with evidence from LAC countries and LMICs

Program (Chapter, Section)	Overall evidence		Evidence from LAC/LMICs
	Correlated outcomes	Violence and crime outcomes	
Formal and non-formal education			
Early childhood education (ECE) (IV)	●(blue full)	●(blue full)	○(empty)
Literacy and numeracy (V)	◑(blue half)	⊘(crossed)	○(empty)
Teaching at the right level: Tracking (VI, 1)	○(empty)	○(empty)	○(empty)
Classroom-based social and emotional learning (SEL) (VII)	◑(blue half)	●(yellow full)	◐(gray half)
School-wide positive behavioral interventions and supports (SWPBIS) (X, 1)	◑(blue half)	○(empty)	◐(gray half)
Restorative practices (RPs) (X, 2)	◑(blue half)	◑(blue half)	◑(blue half)
Classroom management (XI)	◑(blue half)	◐(gray half)	◑(blue half)
School-based anti-bullying (XIII, 1)	◐(gray half)	◑(blue half)	◐(gray half)
School-related gender-based violence (SRGBV) prevention programs (XIII, 2)	◐(gray half)	◑(blue half)	◐(gray half)
Dropout prevention programs (XIV, 1)	○(empty)	○(empty)	○(empty)
Class time (XV)	○(empty)	●(yellow full)	○(empty)
Cash transfers (conditional and unconditional) (XVI, 1)	◑(blue half)	◑(blue half)	◑(blue half)
School feeding, take-home rations and other in-kind transfers (XVI, 3)	○(empty)	⊘(crossed)	○(empty)
Vouchers (XVII, 1)	◑(blue half)	◑(blue half)	○(empty)
Merit-based scholarships (MBS) (XVII, 3)	○(empty)	⊘(crossed)	○(empty)
Single sex instruction (SSI) (XVII, 4)	◑(blue half)	○(empty)	○(empty)
Workforce development (XX)	●(yellow full)	●(yellow full)	●(yellow full)

Program (Chapter, Section)	Overall evidence		
	Correlated outcomes	Violence and crime outcomes	Evidence from LAC/LMICs
Adult basic education (ABE) (XXI, 3)	◖	○	○
Extracurricular or education support services			
After-school programming (ASP) (XXII, 3)	○	○	○
Responsive services (XXIII, 2)	◖	◗	○
Community engagement			
Parenting programs (XXIV)	◖	◯	◖

Notes: Each program is discussed in detail in the noted chapters in the report. LAC = Latin American and Caribbean; LMIC = low-and-middle income country.

● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ◯ = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ∅ = no body of evidence.

By improving instruction, **literacy and numeracy programs** and **tracking programs** can improve learning. This can improve engagement in school and social-emotional skills, which can have effects on violence and crime through multiple pathways.

- Literacy and numeracy programs have a moderately strong evidence base from LMICs but a relatively weak base of evidence from HICs and LAC for improving social-emotional outcomes. There is a high likelihood that high-quality reading and literacy programming in schools will have positive impacts on social-emotional skills in addition to the desired learning outcomes. There is also evidence suggesting family and child-to-child literacy programs have similar effects, although we recommend further research to understand which components of family literacy programs produce desired social-emotional skills, protective behaviors, and family environmental outcomes.
- Tracking programs have an emerging evidence base from LMICs showing their potential to improve instruction and the school environment as teachers are more able to use instruction methods targeted to students' specific level. However, because evidence from HICs and LMICs is mixed on social-emotional skills, policymakers may wish to take steps to minimize stigma associated with being assigned a low track or feelings of being overwhelmed if placed in a high track and monitor impacts of such policies on students' social-emotional skills. We did not locate any evidence on tracking in LAC.

By fostering a positive school environment and working with children and youth to facilitate engagement in school and agency in life, programs—including **classroom-based social and emotional learning (SEL)**, **school-wide positive behavioral interventions and supports (SWPBIS)**, **restorative practices**, **classroom management**, **preventing school-based bullying** and **school-related gender-based violence (SRGBV)**, and **preventing dropout**—can improve engagement in school and social-emotional skills and, thus, encourage behavior change to reduce risky or violent behaviors.

- There is moderately strong evidence in HICs demonstrating positive or mixed effects of classroom-based SEL on crime and violence, social-emotional skills, and behaviors at different points in an individual's life. There is some support for early intervention (though programs implemented later in youths' lives have also succeeded), and there is strong evidence that skills are not fixed at a young age but are highly malleable throughout adolescence (National Academy of Sciences, Engineering, and Medicine, 2019). This review finds limited evidence of the effects of classroom-based SEL in LMICs and LAC; however, the available studies do show some short-term benefits for social-emotional skills and behavior among children and adolescents.

- Evidence from HICs and LMICs suggests that, when implemented with fidelity, SWPBIS may have positive effects on the school environment, risky and protective behaviors, and, ultimately, school violence. Evidence on social-emotional skills, violent crime, and nonviolent crime is only emerging. We did not identify evidence on the effects of SWPBIS in LAC. Based on the theory of change and existing evidence base, we recommend implementing SWPBIS to mitigate violence and crime in the shorter and longer run.

- Evidence from HICs and LMICs suggest that restorative practices programs may improve the school environment, behaviors, and school violence. Evidence on social-emotional skills, violent crime, and nonviolent crime is only emerging, but this evidence is largely positive in HICs. We did not identify evidence on its effects in LAC. Based on the theory of change and existing evidence base, we recommend implementing restorative practices programs to mitigate violence and crime in the shorter and longer run.

- Classroom management has a moderate base of evidence for improving social-emotional skills and risky and protective behavior outcomes in LAC, as well as a moderate evidence base in HICs. There is little evidence on the intervention's direct impacts on violence or crime but did find weak evidence of reductions in violent crime in HICs. Classroom management is a promising intervention to reduce violence and crime, both in the medium term as well as in the longer run, through prevention. By changing non-academic teacher practices and providing scaffolded support to students at risk in the school, student engagement in school can improve, social-emotional skills can develop, and behaviors can change. Different specific programs are required for different schooling levels, as the social-emotional skills as well as behaviors change as children develop.

- School-based anti-bullying programs have produced strong evidence of their potential to reduce school violence in HICs, as well as emerging evidence from LMICs and weak mixed findings from LAC. While there is strong and credible evidence for the effectiveness of bullying prevention programs in HICs, these studies do not guarantee that results will be easily replicated in LMICs or LAC. We recommend piloting anti-bullying programs before implementing them at scale in LMICs or LAC. A comprehensive, whole-school approach tends to work better at reducing bullying than programs that work individually with bullies or victims. Programs that incorporate firm disciplinary measures for tackling bullying, implement playground supervision, and last longer are also likely to have more positive results. When in doubt about features to include in a program, the Olweus Bullying Prevention Program can be a useful guide, but the model needs to be adapted to the context.

- The evidence for the ability of school related gender-based violence prevention programming to mitigate such violence in schools is well established for HICs, but not for LMICs or LAC. In HICs, the literature reveals that several gender-based violence prevention programs consistently yield positive impacts. These studies, however, do not guarantee that results will

be easily replicated in LMICs or LAC. We recommend piloting school-related gender-based violence prevention programs before implementing them at scale in LMICs or LAC.

- Evidence on dropout prevention programs suggests that they may reduce violence and crime, but the evidence is only emerging and relies on only two studies (one RCT in an HIC and one RCT in LAC). The emerging evidence on their impact on correlated outcomes is mixed in HICs but promising in LMICs. Based on the available body of evidence, we cannot provide recommendations on how best to use dropout prevention programs to improve violence, crime, or correlated outcomes aside from its direct effect on improving dropout, which can directly affect violence and crime.

By increasing the amount of time children and youth spend in high-quality schools (either formally through more **class time**, or encouraging attendance to and progression in schooling through **cash transfers**, **school feeding**, **take-home rations** and **other in-kind transfers**), children and youth will be in a safe environment more conducive to learning for a longer period of time and will have fewer opportunities to engage in risky or negative behaviors and more opportunities to continue to develop useful skills.

- Programs to increase class time**,** either through lengthening the school day or the school year, have an emerging evidence base for decreasing violence and crime as well as risky behaviors from LAC countries and LMICs. Because longer school days or years have a direct effect on students' time use, such policies could affect youth's participation in crime in the immediate term, so studies could be completed relatively quickly by measuring short-term impacts. In addition, if the additional time is used productively, it would influence school engagement among other outcomes. This is a particularly relevant policy in LAC as some countries move from a traditional half-day school model to a full-day model or extend the academic year.
- In the large evidence base on cash transfers, there is moderate evidence of reduction in violent crime in LAC. This finding is consistent with the moderate evidence of improvements on outcomes correlated with violence and crime identified in LMICs. By getting children or youth to enroll and attend school, they are spending their time in an environment that provides the opportunity to learn new skills (including academic and social-emotional skills) and limits opportunities to engage in risky behaviors or violence or crime.
- An emerging body of evidence in LMICs suggests that school feeding, take-home rations and other in-kind transfer programs reduce risky behaviors such as transactional sex or early marriage. However, the evidence from HICs is mixed, and there is no evidence from LAC.

By increasing access to high-quality schools or learning environments through **voucher programs**, **lotteries**, or **merit-based scholarships** or expanding access to **single-sex instruction**, students gain access to a better school environment. In addition to improving engagement in school and learning, an improved environment can reduce participation in risky behaviors for students who change peer groups to a group that is less likely to engage in risky behaviors.

- The evidence base on vouchers and lotteries shows reductions in risky behaviors in LAC and HICs and reductions in crime in HICs. Emerging research on voucher programs in LAC, largely based on Chile's longstanding voucher program, shows their potential for reducing students' participation in risky behaviors by changing their peer group. This is supported by moderate research from HICs showing improvements in school environment and reductions

in crime. This evidence is promising, but expansions of voucher programs should consider such programs' possible contribution to social stratification if private school remains out of the reach of relatively disadvantaged public-school students.

- Studies on merit-based scholarships found impacts on students' school environment and risky behaviors; this evidence base is entirely from LMICs, as there is no evidence from LAC or HICs. However, impacts on students' school environment were not limited to impacts resulting from students changing schools—rather, teacher attendance (considered part of the school environment) improved within schools that participated in a merit-based scholarship program. Merit-based scholarships programs may be an effective policy to improve access to high-quality schools for promising students and to improve teacher attendance for all students.
- There is evidence indicating that single-sex instruction has the potential to improve outcomes correlated with violence and crime, including school environment, social-emotional skills, risky behaviors, and—in one study—school violence. Although the large share of identified studies took place in HICs and some studies reported impacts for girls but not boys, there are positive impacts in studies LAC and one LMIC.

By helping out-of-school children and youth continue their learning, either by facilitating access to traditional academic schooling or to alternative schooling, **workforce development** and **adult basic education** programs facilitate learning and social-emotional skill development—which can have direct effects on behaviors and violence and crime as well as indirect effects on violence and crime through improved employment and earnings.

- Studies of workforce development programs have generated moderate but mixed evidence of impacts on violent and non-violent crime in LMICs, showing the promise of this intervention despite weaker evidence from LAC and HICs. Evidence from LAC and LMICs shows that workforce development components focused on SEL skills can influence SEL outcomes and that these outcomes are valued by employers.
- Adult basic education programs, which improve access to education for adults, have a moderate base of evidence for impacts on outcomes correlated with violence and crime in HICs, driven in part by stronger results for young women and mothers. These programs have moderate evidence of impacts on outcomes correlated with violence and crime in HICs, emerging evidence from LMICs, and weak evidence from LAC.

By providing structure and a safe positive space outside of school, **after-school programming** supports children and youth in their academic, physical, and/or social-emotional development. After-school programming has an emerging evidence base for decreasing violence and crime and improving correlated outcomes in LAC. The literature in HICs and other LMICs, however, is not well developed and shows mixed findings. Because of the wide variety of programs that can be incorporated into after-school programming (ASP), there is uncertainty about which combinations of extracurricular programs are most effective when combined into an ASP, as well as on the populations for whom and the contexts in which they are most effective. The evidence does suggest that integrating youth who are at the highest risk of committing violence or crime with youth who are at less risk could be more effective at reducing violence and crime among those high-risk youth than programs segregating them from other youth. However, caution should be taken in implementing such programs, because it is not entirely clear

whether there are secondary benefits or costs for the lower-risk youth who are included in the programs.

By improving non-academic school services that address an individual child's or youth's needs **responsive services** can improve social-emotional skill development, behaviors and school environments. Services are delivered in several modes (including individual counseling, skill building for strengthening students' management skills, group counseling, referrals, consultation, and peer assistance programs) and assist youths in addressing specific issues, concerns, and needs, whether related to students themselves, their family, or their neighborhood and community. There is a large body of evidence on responsive services; however, it is based mostly in HICs and other LMICs, with few studies from LAC. Responsive services generally yield positive effects on risk and protective behaviors and social-emotional skills, but the strength of the evidence varies for different specific services. The evidence base on the effects of responsive services on violence and crime is weak, as few studies measure these outcomes, and those that do report mixed effects. Implementation characteristics are an important factor in program outcomes, and evidence suggests that recruiting professional providers for some programs can be more effective. Teachers, trained volunteers, and school nurses have proven to be effective in referring students for mental health and other responsive services in resource-constrained environments, but evidence supporting their efficacy as implementers is mixed.

By improving the environment where children and youth spend their time outside of school, programs that work with parents support children's learning through social-emotional skill development and improving behaviors. **Parenting programs** have a moderate body of evidence across all three geographic regions for risky and protective behaviors, social-emotional skills, and environmental factors—specifically family environment factors. However, the consistency of the findings was low, with several evaluations finding mixed or no impacts within an outcome category. In addition, aside from a small handful of studies, the evidence of impacts on violence and crime and for other types of environmental factors was largely non-existent. We recommend that policymakers consider implementing parenting programs as an effective means of improving the home environment, as program efficacy seems to be sensitive to the local context or quality of implementation.

2. Promising programs with evidence from HICs, but insufficient evidence from LAC countries or LMICs

Based on the existing evidence, there are seven programs that seem worth investing in due to a strong evidence base in HICs, but they have not yet been sufficiently studied in developing country contexts. These programs should be considered for implementation. However, adaptation to the local context will be of primary importance, and implementation should be accompanied by studies to determine their effectiveness. These programs include: tutoring, class size reduction, lotteries, mentoring, organized sports, substance abuse prevention, and multicomponent counseling programs. Each intervention works through different mechanisms to facilitate engagement in school, as well as learning, social-emotional skill development, or improved behaviors. Table ES.3 summarizes the bodies of evidence for programs' effects on the correlated outcomes and violence and crime, and from LAC countries or LMICs.

Tutoring programs improve instruction by offering individualized instruction on specific issues with which students are struggling. Tutoring programs have a moderate evidence base for

impacts on outcomes correlated with violence and crime—with evidence of improvements in social-emotional skills and risky and protective behaviors and emerging evidence showing the potential of tutoring to reduce violent crime. Evidence from LAC countries and LMICs was insufficient to say how effective tutoring has been in LAC countries or LMICs at reducing violence, crime, or correlated outcomes. However, the theory of change is strong and the evidence from HICs and on learning impacts from LMICs suggests this is a promising intervention for reducing violence and crime in LAC.

Table ES.3. Strength of evidence: Promising programs with evidence from HICs, but insufficient evidence from LAC countries or LMICs

Program (Chapter, Section)	Overall evidence		Evidence from LAC/LMICs
	Correlated outcomes	Violence and crime outcomes	
Formal and non-formal education			
Teaching at the right level: Tutoring (VI, 4)	◖	○	◖
Class size reduction (XII)	◖	∅	∅
Lotteries (XVII, 2)	○	◖	∅
Extracurricular or education support services			
Mentoring (XXII, 1)	●	◖	◖
Organized sports (XXII, 2)	◖	○ (yellow)	○ (yellow)
Counseling: Substance abuse prevention program (XXIII, 3)	◖	∅	◖
Counseling: Multicomponent programs (XXIII, 4)	○ (yellow)	○	○ (yellow)

Notes: Each program is discussed in detail in the noted chapters in the report. HIC = high income country; LAC = Latin American and Caribbean; LMIC = low-and-middle income country.

● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ○ (yellow) = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ● (dark red) = strong body of evidence with negative findings; ◖ (dark red) = moderate body of evidence with negative findings; ○ (dark red) = emerging body of evidence with negative findings; ◖ (light) = weak body of evidence; ∅ = no body of evidence.

Class size reduction improves instruction and the classroom environment by enabling teachers to tailor instruction to their students and provide more individualized attention to students. The evidence on the role of class size reduction on violence, crime and correlated outcomes is scant and based entirely on evidence from HICs. Evidence from the United States and Sweden shows that class size reduction has the potential to improve social-emotional skills, behavior, and engagement in class in primary and lower secondary school, but these impacts did not always persist several years after the class size reduction. We did not find evidence from LAC countries or LMICs on social-emotional skills or other outcomes of interest. Given this weak body of evidence, we cannot provide recommendations on how to use class size reductions to improve violence, crime, or correlated outcomes in developing country contexts.

School assignment through **lotteries** expands students' access to higher quality schools, which may offer improved instruction as well as peer groups who are less likely to engage in

risky behaviors and more likely to be highly engaged in school. Lotteries have a moderate evidence base for improving violence and crime outcomes, and an emerging body of evidence shows their potential for reducing risky behaviors. However, the entire evidence base is from HICs. Although we have no information on which to base a recommendation or lotteries for LAC countries or LMICs, the theory of change for lotteries is promising for LAC countries and LMICs and operates similarly to vouchers (which show emerging evidence of reducing risky behaviors).

By improving non-academic school services, **mentoring** and **organized sports** provide students with structured and safe time outside of school to receive additional supports and develop connections with others—facilitating improved social emotional skills as well as academic learning (in the case of mentoring).

- The evidence for mentoring comes almost exclusively from HICs but is strong. HICs show moderate and strong evidence in all three categories of outcomes correlated with violence and crime, as well as moderate evidence of reductions in school violence and emerging evidence for crime reduction. However, we found only weak evidence of improvements in social-emotional skills in LMICs and no evidence for any outcome in LAC.
- Organized sports have a large evidence base from HICs, suggesting a relationship between organized sports activities and violence, crime, and correlated outcomes, though the evidence is somewhat mixed. The bulk of this suggestive evidence is focused on risky and protective behaviors and indicates that the relationship between sports activities and this outcome area is fairly heterogeneous—varying by type of sports, type of risky and protective behaviors, and across demographic groups. We also found some evidence from HICs of positive impacts of sports activities on social-emotional skills. Findings from LAC countries and LMICs are weak or mixed. We recommend implementing organized sports pilots that are evaluated for their effectiveness and incorporate research that explores the heterogeneity in impacts.

By providing counseling or training, **substance abuse prevention programs** and **multicomponent counseling programs** support students in addressing specific needs. Each may use different strategies to support students.

- Substance abuse prevention programs deliver structured lessons designed to prevent the use and/or abuse of alcohol, marijuana, tobacco, and other drugs. These lessons can be integrated into school curricula, taught by school counselors in collaboration with teachers and other school staff, or may take place in the space of just one classroom session or throughout the academic year. The moderate evidence base is almost entirely from HICs and shows positive effects on behaviors—with better results for interactive, skill-based programs and delivery during early adolescence. Efficacy varies depending on the targeted substance abuse, program design, timeline of the evaluation, and other factors. Substance abuse-specific programs are more beneficial when delivered in an individual rather than group format. We recommend prioritizing skills-based substance abuse prevention programs over approaches focused on generating knowledge or changing attitudes.
- The evidence base for multicomponent counseling services is moderate for behavioral outcomes in HICs, with some studies in LMICs and LAC. The effects of multicomponent programs on behaviors produced generally mixed results. In addition, we found limited,

mixed evidence on social-emotional skills and school environment. There are a few studies with positive effects (in HICs) or mixed effects (in HICs and LMICs) on their impacts on violence and crime. We recommend research exploring whether universal, group, or individual counseling programs are more beneficial and cost effective. Because at-risk students often do not take advantage of the available counseling services, programs should implement targeted supports for reaching such students.

3. Programs with insufficient evidence

There are 15 programs that have insufficient bodies of evidence to determine if they should be used to reduce violence and crime. These programs work in a variety of ways, including attempting to improve instruction, the school environment, non-academic teacher practices, and the environment where children spend their time. The specific programs include remedial education, computer-assisted instruction school infrastructure, school security measures and zero tolerance policies, expulsion prevention programs, scholarships, other student financial incentives, teacher pay-for-performance, contract teachers, secondary certification, complementary basic education, accelerated education programming, community outreach and awareness, and school-based management. Table ES.4 summarizes the bodies of evidence for programs' effects on the correlated outcomes and affect violence and crime, and from LAC countries or LMICs.

The theory of change behind **Teaching at the Right Level** programs—to enable teachers to tailor their instruction to their students' individual levels—is promising for supporting students who may be at risk of participating in violence, crime, or negative correlated outcomes. Evidence on **remedial education** shows it may improve violent crime and correlated outcomes (including in LAC), but this evidence base is weak. Similarly, the evidence base for **computer-assisted instruction** is weak, including only mixed findings on social-emotional skills. The evidence base is insufficient to draw conclusions about their effectiveness and justify recommending implementing remedial education or computer-assisted instruction to prevent violence and crime.

School climate measures that focus on **infrastructure**, **security measures**, **zero tolerance policies**, and **expulsion prevention programs** (that focus on systems change) are not well studied, despite their strong theory of change and potential to reduce violence in schools. The evidence that does exist, mainly from the United States, points to the unintended, negative consequences of zero tolerance policies. The most recent evidence signals no clear benefit in the use of metal detectors, school police officers, and surveillance cameras. Although the evidence base for security measures is based solely on research from the United States, the Gang Resistance and Education and Training (GREAT) program seems to have the potential to yield large, positive outcomes for students in LMICs. We advise caution in implementing other school security measures or zero tolerance policies in LAC countries or LMICs without first studying their effects further, particularly in developing country contexts.

Table ES.4. Strength of evidence: Programs with insufficient evidence

Program (Chapter, Section)	Overall evidence		
	Correlated outcomes	Violence and crime outcomes	Evidence from LAC/LMICs
Formal and non-formal education			
Teaching at the right level: Remedial education (VI, 2)	◖ weak	◖ weak	◖ weak
Teaching at the right level: Computer-assisted instruction (CAI) (VI, 3)	🟡 mixed	∅ no evidence	🟡 mixed
School infrastructure (VIII)	◖ weak	◖ weak	◖ weak
School security measures (IX, 1)	🟡 mixed	🟡 mixed	∅ no evidence
Zero tolerance policies (IX, 2)	◐ no impacts	∅ no evidence	∅ no evidence
Expulsion prevention programs (XIV, 2)	◐ no impacts	∅ no evidence	∅ no evidence
Transfer programs: Scholarships and other student financial incentives (XVI, 2)	🟡 mixed	∅ no evidence	🟡 mixed
Teacher incentives: Pay for performance (XVIII, 1)	🟡 mixed	∅ no evidence	∅ no evidence
Teacher incentives: Contract teachers (XVIII, 2)	○ emerging positive	∅ no evidence	∅ no evidence
Secondary certification (XIX)	🟡 mixed	○ emerging negative	◖ weak
Complementary basic education (CBE) (XXI, 1)	◖ weak	∅ no evidence	◖ weak
Accelerated education programs (AEPs) (XXI, 2)	🟡 mixed	◖ weak	🟡 mixed
Extracurricular or education support services			
Counseling: School counselors (XXIII, 1)	🟡 mixed	◖ weak	∅ no evidence
Community engagement			
Community outreach and awareness programs (XXV)	◐ no impacts	∅ no evidence	◖ weak
School-based management (XXVI)	🟡 mixed	∅ no evidence	🟡 mixed

Notes: Each program is discussed in detail in the noted chapters in the report. LAC = Latin American and Caribbean; LMIC = low-and-middle income country.

● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; 🟡 = mixed findings in emerging or larger body of evidence; ◐ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ∅ = no body of evidence.

Unlike the effects of cash and in-kind transfers, the effects of transfers in the form of **scholarships** and **other student financial incentives** on violence, crime, or correlated outcomes have not been well studied. The existing evidence is emerging and suggests they may have the ability to impact behaviors and social-emotional skill development, though the evidence is mixed and inconclusive.

The literature search identified no studies on the impacts of teacher incentives, including **pay-for- performance** and **contract teachers**, on violence or crime and few studies on outcomes correlated with violence or crime. The little available existing evidence was on the impacts of such arrangements on the school environment, suggesting that teacher incentives can

potentially be effective in improving teacher attendance and teachers' responsiveness to student needs. However, the evidence base was too weak to justify recommending implementing such policies to promote the reduction of violence and crime.

The overall evidence base for the effects of **secondary certification**, **complementary basic education,** and **accelerated education programming** (AEP) —three alternate pathways to learning—on violence, crime, and correlated outcomes is relatively weak, with mixed findings. Funder support will be particularly important for rigorous evaluations of AEP. In addition, evaluations that can rigorously identify the impact of adult literacy and numeracy programs alone or as part of larger programs would help policymakers compare the effects of literacy and numeracy initiatives on key outcomes to other program components or programs, such as vocational elements, workforce development programs, or parenting supports.

Evidence on the effect of **school counselors** comes only from HICs and generally has mixed findings on its impacts on behaviors, social-emotional skills, and the school environment. Evidence from HICs shows that school counselors can be effective in improving school violence and risk behaviors. However, studies of counselors' day-to-day activities demonstrate that guidelines mandating a focus on specific services are important for ensuring effectiveness. Service guidelines may be needed to ensure the effectiveness of broad-based counseling services.

There is a weak body of evidence—from LMICs only—of the effect of **community outreach and awareness** programs on family, school, and community environmental factors. The findings suggest that outreach programs may improve community members' knowledge and sensitivity to issues that affect schooling decisions and experiences of children and youth in their communities, but more research is needed to understand when and how such programs can have an impact.

There is an emerging body of evidence of the impacts of **school-based management** programs on the school environment from LAC countries and LMICs only. This evidence was weak and largely drew on studies that did not allow for separately identifying the impacts of school-based management from impacts of other programs occurring simultaneously.

D. Future research recommendations

Given the overall dearth of research on how programming in the education sector can affect violence and crime, we recommend additional research, particularly on those promising programs identified in this review, to fill the gap. In each chapter, across the 43 programs reviewed in this report, we have made recommendations for improving the evidence base. There are also several recommendations that are relevant for building the evidence base across programs. In this section, we discuss these cross-cutting research and evaluation recommendations.

Invest in expanding the evidence base in LMICs and LAC. As noted, evidence on most programs that have been shown to be effective at mitigating violence, crime, or correlated outcomes is heavily concentrated in HICs, and it is noticeably lacking in LMICs and LAC. Given the unique contexts and issues faced by children and youth in many of these countries, some of the existing evidence from HICs might not help much in understanding whether the

programs that worked in those countries will also work in LMICs, or specifically in the LAC region, without efforts to tailor the evidence on what works to those contexts.

Consider evaluating the longer-term impacts of programs. In our review, we found that a short follow-up period is an important limitation of many existing evaluations. Indeed, our assessment of the literature in LMICs and LAC reveals that conclusions are typically drawn from data collected immediately after the intervention and up to a few months later. Few of the evaluations examined looked at impacts beyond a year after completion of the intervention. This makes it difficult to establish whether the impacts, if any, are sustained over time, change in magnitude, or have important impacts on longer term outcomes associated with crime and violence over time. Understanding such longer-term impacts as well as validating the theory of change would be of interest to policymakers seeking to invest in these programs.

Invest in research to improve measurement of violence and crime outcomes. Measurement of such outcomes is challenging and is part of the reason why these outcomes have not been measured in some studies. We discuss this further in Appendix C.

Evaluate impacts on outcomes correlated with violence and crime for studies not designed to detect impacts on violence or crime. Detecting statistically significant impacts on violence or crime may require large sample sizes because violence and crime are relatively rare. Studies not powered to detect impacts on violence and crime should focus on detecting impacts on outcomes correlated with violence and crime, which are more likely to be detected with smaller sample sizes.

Support research and evaluations that disentangle the effects of specific components or different combinations of components in programs. For the most part, the existing evidence base on the impacts of multiple-component programs cannot isolate the effects of specific program components, and what information does exist suggests that some impacts may be context-specific. Additional research is needed to help policymakers better understand which components work best for which populations and why. From a cost-effectiveness perspective, it is important to determine which components or combinations of components are the most effective.

Support research and evaluations that explore the heterogeneity in impacts for different subgroups. Additional research is needed to understand if and how programs will impact the outcomes or subgroups that policymakers are interested in reaching.

Prioritize documenting the costs and cost-effectiveness of programs. Policymakers need to understand not only whether programs work, but whether they produce benefits that justify their costs. Documenting costs and cost-effectiveness would help decision makers determine the appropriate trade-offs in investing in human capital, particularly in resource-constrained settings such as low-income countries.

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I.   INTRODUCTION

The U.S. Agency for International Development (USAID) funds education programming globally because of its importance as an investment in development, including its contribution to two key goals: reducing poverty and promoting resilient, democratic societies. In Central America, education programming also responds to USAID's objectives for its work in the region: prosperity, governance, and security. Many USAID development programs across sectors share the goals of preventing violence, reducing crime, and mitigating migration—particularly in Central America and in Latin America and the Caribbean as a whole, but also in other parts of the world. The education sector can influence outcomes related to those three goals as well, but the question what education programming should be introduced when there is a desire to improve educational outcomes as well as other outcomes remains unanswered.

The purpose of this evidence review is to better understand and describe the link between education programing and violence and crime, and to understand which education programs are most effective in which contexts. We focus on programs that often appear in the education literature and are funded by USAID, and report what we know about them, exploring their underlying theories of change. Often, programming has an implicit theory of change that involves expectations about effects on violence and crime outcomes, and our goal is to make it explicit by identifying which programs or links in the theory of change have an evidence base. This review will therefore describe the literature that looks at the relationship education programs have to violence prevention and crime reduction. Because of the nascent evidence base on some programs' roles in preventing violence, this review also includes evidence on the link between promising programs and outcomes that are correlated with violence and crime.

A. Context: Education, violence, crime, and migration in The Northern Triangle relative to Central America and Latin America and the Caribbean

Central American countries have younger populations on average than the rest of the world (Dickerson et al. 2019), making an understanding of the links between education and crime particularly important for affecting the trajectories for growth and development in these countries. They also share many development challenges, including high levels of poverty, unemployment, insecurity (crime and violence), and migration, along with low levels of human capital development. El Salvador, Guatemala, and Honduras—the Northern Triangle—stand out in Central America and in the Latin America and the Caribbean (LAC) region as a whole for their poor performance on these indicators, as shown in Table I.1. Although all Northern Triangle countries are middle income,[2] they all also have high rates of persistent poverty and inequality, and inconsistent rates of economic growth (Acosta et al. 2017; World Bank 2018a). Data from 2014–2016 indicate that the proportion of families living below the national poverty line in El Salvador, Guatemala, and Honduras is 32, 59, and 63 percent, respectively (World Bank 2018). Honduras had the highest inequality in the Northern Triangle, with a Gini

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[2] According to the World Bank, for "the current 2019 fiscal year, low-income economies are defined as those with a GNI per capita, calculated using the World Bank Atlas method, of $995 or less in 2017; lower-middle–income economies are those with a GNI per capita between $996 and $3,895; upper-middle–income economies are those with a GNI per capita between $3,896 and $12,055; high-income economies are those with a GNI per capita of $12,056 or more." [GNI = gross national income]

coefficient of 57.0 in 2003–2012. Gini coefficients for El Salvador and Guatemala are also high, at 48.3 and 55.9 (World Bank 2018b).[3]

In Northern Triangle countries, the quality of education is poor, attainment levels are low, the amount of learning in school is limited, and there are high rates of youth unemployment, and at the same time investments in the education sector are lower per student than the global average (Dickerson et al. 2019). Educational attainment in Guatemala is particularly low, with an average of six years of completed schooling among the population ages 15–24. In 2015, completion rates for lower secondary school in El Salvador, Guatemala, and Honduras were 88, 63, and 53 percent, respectively (World Bank 2018b). Honduras and Guatemala participated in the most recent PISA-D, an international learning assessment, and results revealed learning levels well below proficiency in both reading and mathematics (Ward 2018). In 2017, youth unemployment was nearly 10 percent in El Salvador, 8.2 percent in Honduras, and 5.8 percent in Guatemala. Those who are employed are more likely to work in the informal sector.[4]

Crime and violence are serious issues in all three Northern Triangle countries. El Salvador has one of the highest homicide rates in the world; intentional homicides[5] per

> **Ninis: disengaged youth at risk of poor outcomes for violence and crime**
>
> Youth ages 15–24 who are not in school, working, or training (NEETs, for no education, employment, or training—or *ninis* in Spanish) are at a higher risk of exposure to violence than their employed or in-school peers are. According to the World Bank, the 20 million *ninis* in LAC are at risk of social and economic isolation, poor labor market outcomes, and recruitment into illicit economies and patterns of violence (Cardenas et al. 2015; De Hoyos et al. 2016). These risks are particularly acute in El Salvador, Honduras, and Guatemala, countries that have higher *nini* rates (27–28 percent) than the LAC average (22 percent) (ILO 2018). Male youth *ninis* living in low resource, high violence communities with organized gang presence are at the highest risk for violence.
>
> *Nini* rates among female youth are higher than they are among male youth in LAC. The gap is particularly wide in El Salvador, Guatemala, and Honduras, where 8–15 percent of male youth and 41–46 percent of female youth are *ninis*. Recent research from UNDP El Salvador (2018) suggests that these different rates are a result of familial expectations that young women stay at home and do caregiving, whereas young men are encouraged to seek training or employment. Such conditions may limit the degree to which young women are exposed to violence and crime outside the home, but may also limit the ability of young women to obtain education and formal employment.

100,000 inhabitants were at 105 in 2015 and 62 in 2017. Crime and violence persist in Honduras as well; there were 42 intentional homicides per 100,000 inhabitants in in 2017. Guatemala also faces significant crime and violence levels, albeit not as severe, with 26 intentional homicides per 100,000 inhabitants in 2017 (World Bank World Development Indicators 2020). El Salvador and Honduras had much higher homicide rates than the rate for the entire Caribbean and the LAC region (35 and 22 homicides per 100,000 inhabitants, respectively) (World Bank 2018b). As a region, in 2017 LAC had more homicides than any other region in the world as well as a

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[3] United Nations Development Program. "Income Gini Coefficient." Available at http://hdr.undp.org/en/content/income-gini-coefficient.

[4] The informal sector is not monitored by the government.

[5] Intentional homicide is defined as unlawful death purposefully inflicted on a person by another person.

higher homicide rate than other regions (United Nations Office on Drugs and Crime (2019). Youth and gang violence is also a threat to public safety and development in El Salvador, Guatemala, and Honduras, and youth are the most likely homicide victims in the Northern Triangle countries (Acosta et al. 2017). In a recent report, UNICEF ranked countries based on the mortality rates of boys and girls ages 10–19 who perished as a result of homicide and other violence. El Salvador, Honduras, and Guatemala ranked in the top 10 globally (UNICEF 2017).

Table I.1. Education, violence, crime, and migration indicators for LAC and for Northern Triangle countries

Country or region	2019 Human Develop-ment Index (HDI)	2019 Annual GDP growth (%)	2018/9 National poverty rate (%)	2017/8 Living on less than $1.90 per day (%)[a]	2018/9Primary completion rate (%)[b]	2018/9 Lower secondary completion rate (%)[c]	2017/8 Upper secondary completion rate (%)[d]	2018 Education attainment for population ages 15–24 (years)	2020 Unemploy-ment rate (%)	2020 Youth (ages 15–24) unemploy-ment rate (%)	2019 time-related under-employment rate (%)	2018 Intentional homicides per 100,000 inhabitants	2019 Emigrant population (%)
Global	0.737	2.4	NA	NA	89.5	76	NA	NA	5.4	15.5	10.1	6	4%
LMIC	NA	3.7	NA	10.9	88.5	74	NA	NA	5.6	15.8	9.4	6[e]	NA
LAC	0.766	0.9	NA	3.8	98.3	80	44[f]	10.0[f]	8.1	17.7	15.9	19[f]	8%
Central America	0.687	2.6	NA	7.6[g]	84.4	61	30[h]	8.4	5.1	11.0	12.9	26	10%
Caribbean [i]	0.694	2.6	NA	NA	89.6	85	-	-	7.3	16.7	13.3	13	19%
El Salvador	0.673	2.4	29	1.5	86.6	77	30	9.4	4.2	16.0	11.0	52	25%
Guatemala	0.663	3.8	59[j]	8.8[g]	79.1	56	27[g]	7.2[g]	2.5	5.0	12.5	23	7%
Honduras	0.634	2.7	48	16.9	79.5	44	23	8.3	5.2	10.1	19.1	39	8%

Sources: World Bank World Development Indicators; United Nations Development Program Human Development Report 2020; United Nations (UN) Department of Economic and Social Affairs; Economic Commission for Latin America and the Caribbean; International Labour Organization Database of Labour Statistics.

Notes: Unless otherwise noted, regional figures are weighted by population or gross domestic product (GDP) as appropriate.

[a] 2014 poverty rate according to calculations defining poverty as surviving on less than $1.90 per day per person and using 2011 purchasing power parity figures.

[b] Number of new entrants in the last grade of primary education, regardless of age, divided by the population at the entrance age for the last grade of primary education.

[c] Lower secondary completion for youth ages 15–24.

[d] Upper secondary completion for adults 25 and older.

[e] 2015 data.

[f] Unweighted (simple) average.

[g] 2014 data.

[h] The weighted average for Central America was calculated using data collected in 2010 to 2018.

[i] Includes 16 countries commonly grouped as the Caribbean region. Uniform data on these indicators are lacking across the countries, and some of the statistics here reflect weighted averages from fewer than the 16 states.

[j] 2013 data.

LMIC = Low and middle income countries; NA = not available.

B. Local and international responses to the Northern Triangle's challenges

Northern Triangle governments and local actors have sought to address these challenges and their relationship to the region's ongoing security crisis through a range of relatively aggressive policies. All countries have increased the role of the military in maintaining public safety; some have extended the presence and responsibilities of security forces to schools and other public areas. In 2016, for example, El Salvador's national civil police, in association with the armed forces, implemented protection and/or prevention initiatives in 993 schools, or 19.2 percent of the country's public schools (Cuéllar-Marchelli and Góchez 2017). Guatemala's Escuelas Seguras program also provides schools with protection services, but has a lower coverage rate (Álvarez 2017). Recent efforts in Central America suggest a push toward more comprehensive policies—for example, rehabilitation and reinsertion programs for individuals seeking to leave gangs, and in-school counseling services provided to at-risk youth (Meyer and Seelke 2015; Berk-Seligson et al. 2014). However, these policies are generally limited in scope, uncoordinated, and underfunded (Meyer and Seelke 2015). National and, to a more limited extent, regional reforms have also shaped countries' responses. The creation of institutions designed to coordinate crime prevention strategies is another widely adopted reform (Meyer and Seelke 2015). In 2016, El Salvador, Guatemala, and Honduras pledged to pass anti-gang legislation and create a regional task force to coordinate intelligence sharing and extradition (Seelke 2016). Foreign government donors, multilateral organizations, and other actors are responding to these urgent needs through a range of policy changes.

Increasingly, national governments, foreign governments donating funding and support, and multilateral organizations focused on increasing security in the region look to the education system to advance their objectives, but the role it can play in mitigating violence and migration is not fully understood. Initiatives in the education sector are based on the belief that building human capital and protective factors either through the formal or nonformal system in academic or vocational pathways, or through alternative pathways to support continued learning, can prevent violence and crime, and these programs often feature comprehensive support services for those who have engaged in and been convicted for violence or crime (see, for example, Heller et al. 2017). In addition to providing learning opportunities, schools and other educational institutions offer after-school programs and workforce development opportunities that have the potential to improve a range of factors associated with crime, violence and the long-term earning potential for youth. USAID's education strategy (USAID 2018) supports access to education in crisis and conflict settings, and this is a high priority issue to tackle in Northern Triangle countries.

USAID has long supported efforts to improve educational attainment and learning, livelihoods, and security in Central America, and the agency's work in the region is expanding. The U.S. Strategy for Engagement in Central America was launched in 2014, building on the Central America Regional Security Initiative (CARSI) (Meyer 2019). The Trump administration released an updated version of the strategy in 2017. The strategy includes three broad lines of action: promoting prosperity and regional integration, strengthening governance, and improving security. The bulk of the $2.6 billion in funding approved for this strategy in FY 2016–2019 was allocated to El Salvador, Guatemala, and Honduras, and nearly all the foreign assistance is distributed through USAID and the U.S. Department of State. USAID funds projects under each

of the three strategic lines: promoting prosperity, strengthening governance, and improving security.

Under the 2017 plan, activities under two of those lines—promoting prosperity and improving security—included support for education and security; specifically, support of the basic education programs in Nicaragua, and labor market integration for university graduates in El Salvador. In addition, in the Northern Triangle, violence-prevention supports were provided in education programming at the primary risk level, where programs offer safe spaces for youth and families; at the secondary risk level, where high-risk youth and their families are given behavior change counseling, and or at the tertiary risk level, where programs offer supports to juvenile offenders as they reintegrate into society (Meyer 2019). Such programs have positive effects on lessening violence and crime (Berk-Seligson et al. 2014; Rosnick et al. 2016).[6]

As USAID invests in research on the impacts of education on violence and crime, it lays the groundwork for developing new programs in its strategic lines of action. However, in March 2019, the Trump administration suspended most assistance for the Northern Triangle in response to the continued flow of migrants and asylum-seekers from the region to the United States. After pausing access to FY2017 funds and reprogramming almost all of the assistance that had been appropriated in FY2018, USAID resumed programming in Central America with remaining FY2017 funds and appropriated FY 2019 funds through a series of tranches in 2019 and 2020.

C. Review objectives

In broad terms, the purpose of this evidence review is to conceptualize and synthesize existing evidence on the role of the education sector in preventing crime and violence. More specifically, it is intended to identify what works or what could work when education programming or policy change is used to prevent violence and crime in the LAC region and in the Northern Triangle in particular. The review focuses on the global evidence base regarding the effects of education programming on individual engagement in different types of violent and criminal behaviors, rather than the education sector's effects on societal violence and crime. Ultimately, the goals of the evidence review are to (1) help USAID and other education practitioners identify programming that has potential to mitigate crime and violence, and (2) identify gaps in the evidence base that could be the focus of future programming and research. Policy makers and practitioners will need to think about the local context, including structural conditions, when considering whether and how particular programs could be effective in their local context. Although migration is an outcome of interest to USAID, it is not part of this literature review. Appendix A summarizes the migration literature and includes suggestions for a complementary literature review that could focus on the link between education and migration.

This is the first evidence review to synthesize findings from developing countries, particularly in LAC, of studies on the effects of a wide range of education programming on

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[6] A cluster-randomized evaluation showed that communities receiving the program had significantly fewer robberies, extortion attempts, and murders than nonrecipient communities did.

violence, crime, and other outcomes highly correlated with violence and crime.[7] This review is ambitious in its effort to review the bodies of evidence on 42 different education programs. In addition, because there is limited research available that incorporates measurement of the outcomes of interest (violence and crime, as well as correlated outcomes) for education programs, this review us as inclusive as possible when summarizing what has been studied, so that we can have as well informed recommendations for future directions as possible. Therefore, this review brings together high-quality studies in all forms, from causal to correlational to qualitative, and incorporates a systematic bibliographic and grey literature search, and uses a common protocol to identify eligible studies and review them.[8]

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[7] USAID's E3/ED Knowledge Product Guidance (March 2020) defines types of knowledge products. Based on this guidance, this review would be considered a review of the evidence.

[8] Due to the magnitude of the effort, this evidence review does not have ratings of the quality of the research included in the review, nor does it include a meta-analysis. Systematic reviews are designed to be unbiased appraisals and syntheses of available literature on a specific topic; they accomplish this by rating the quality of the studies available in the literature. Systematic reviews identify these studies using a predefined search plan that specifies eligible study designs, search terms, databases, and other key search details. Some systematic reviews synthesize study findings using statistical techniques such as meta-analysis. Meta-analysis is statistical analysis designed to determine the strength of relationship between a given intervention and outcome, and is based on results contained in existing literature. It uses data from several studies to estimate a summary or mean effect size. Mean effect sizes comment on the significance and the strength of the relationship between an intervention and an outcome. This evidence review incorporates some elements of systematic reviews, but not all (e.g. it does not rate the quality of each study, nor does it conduct meta-analysis).

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II. CONCEPTUAL FRAMEWORK

This literature review was guided by three overarching questions:

1. What evidence exists to demonstrate the relationship between education programming and violence and crime? Globally? In LAC?
2. What education programs are most effective or most promising in their potential to prevent and mitigate violence and crime in general? For children and youth ages 3 to 29 in particular?[9]
3. What are the gaps in the current evidence base?

Our evidence review incorporates a broad range of programming in the education sector, including foundational and add-on changes at the system, school or center, instructor and student level, in both the formal and nonformal education sectors, and through traditional and non-traditional pathways; we use the term education programs throughout for simplicity. Our review includes studies that use both quantitative and qualitative methods. Given the breadth of eligible study designs, programs, outcomes, and populations, we first present a framework for understanding the links between education programs and violence and crime that lays out the causal chain, followed by a discussion of foundational evidence for each link in the causal chain. We identified the foundational evidence through consultations with experts and a literature search and review. We then conducted a systematic global literature search of published and grey literature to identify evidence of promising education programs in low- and middle-income countries (LMICs) and in the LAC region. After we considered the quality of the evidence from the comprehensive literature review, we drew conclusions from the overall evidence base. Based on the findings and on the gaps we identified in the evidence base, we propose suggestions for future education programming or research that USAID might consider.

The conceptual framework for this review is based on the social science literature, particularly in the disciplines of economics, public health, and psychology. It is structured on the assumption that different education programs affect violence and crime through different pathways. We group education programming into three broad types: formal and non-formal education, extracurricular or education support services, and community engagement.[10] Figure II.1 illustrates the links between such programming and the outcomes of interest, showing hypothesized causal pathways between education programming and violence and crime outcomes, and between education programming and outcomes that are correlated with violence and crime. Thus, education programs can directly affect violence and crime outcomes (Link 1 in the figure), and they can affect violence and crime indirectly through their effects on other outcomes (Link 2 in the figure) that are in turn highly correlated with violence and crime (Link 3

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[9] This age range was selected because USAID education sector funding works with children and youth ages 3 to 29.

[10] There are two additional cross-cutting interventions that we had considered including separately in the framework, but instead we discuss them throughout. Based on our review of the literature, *institutional strengthening* activities are typically bundled with programming in the other intervention categories and therefore difficult to study as standalone interventions. In addition, the link from institutional strengthening to violence and crime is less direct than the education programming included in this review. Additionally, *teacher training* activities are bundled with other activities or are described through specific interventions that are included in this review.

in the figure). The majority of the existing literature on these relationships focuses on either the links between education programs and outcomes that are correlated with violence and crime (Link 2) or the link between outcomes correlated with violence and crime violence and crime (Link 3). While this review covers all three links in the framework, this review identifies more evidence on the effects of education programs on the correlated outcomes (Link 2) than on their effects on violence and crime directly (Link 1). This is because there is a large gap in the literature on the link between education programs and their effect on violence and crime (Link 1). This gap is due to several factors including that most education programs do not attempt to directly affect violence and crime, most education programs affect outcomes that are precursors or correlates to eventual violence or criminal behavior and because of the length of time required to observe effects from education programs on such longer-term outcomes as violence and crime, even if they are conceptually targeting these outcomes.

Figure II.1. Conceptual framework
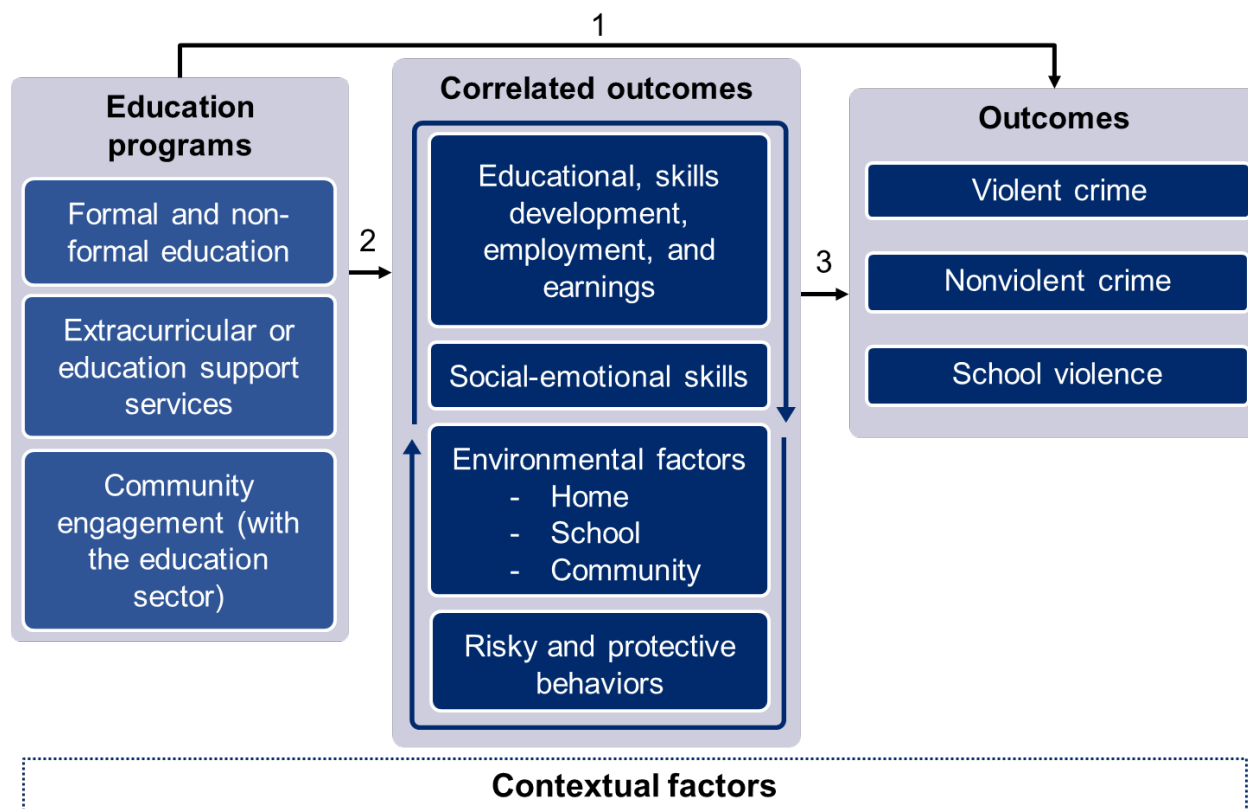
We organized the outcomes of interest into two groups: violence and crime outcomes, and other outcomes that are correlated with violence and crime. We then grouped violence and crime outcomes into three domains: violent crime, nonviolent crime, and school violence. Next, we identified four domains for outcomes of programs in the education sector that are correlated with violence and crime: (1) standard outcomes of education programs, including educational attainment, achievement, attachment, and learning (we refer to these as education in the figure for simplicity), skills development, employment, and earnings; (2) social-emotional skills; (3)

environmental factors in the home, at school, or in the community; and (4) risky and protective behaviors of children and youth. The outcomes in these domains can be affected by education sector programs, mostly (but not necessarily) manifest at the child or youth level, and can be proximate or ultimate outcomes. We included many that are typically external to education programs but are sometimes incorporated (such as parent attitudes towards schooling, which can be affected by an intervention that communicates with parents about the importance of education).

Two key assumptions underlying the links proposed above are that the outcomes associated with violence and crime are malleable throughout an individual's development from ages 3 to 29, and that programs and policies in the education sector can change them. A direct effect on these correlated outcomes can potentially lead to a direct effect on violence and crime or on other correlated outcomes. There are, however, additional contextual factors that are not affected by education programming, but that influence these links. These contextual factors include individual characteristics such as age and language, and the environment in which an individual lives, which can encompass local crime rates, the probability of being apprehended, the legal system, economic factors, and labor market and other factors.

We use the remainder of this chapter to detail the educational programs and outcomes included in our framework. We specify the target populations related to each class of programs and detail the mechanisms linking programs to violence and crime. The subsequent chapters on individual programs, which begin with Chapter IV, cover the evidence available on the relationships between educational programs and both groups of outcomes.

A. Education programming

Education programming comes in many forms and is designed for a wide range of age groups. Different programs in the education system can have distinct links to violence and crime. Hence, we grouped the education programs discussed in this report and defined in this section into three main categories: formal and non-formal education, extracurricular or education support services, and community engagement. Within each, programs can occur at the system, school or center, instructor, or student or learner level. In this section, we define each, and describe common programs that fit in each category. Table II.1 shows each and should be used as a guide to the reader for the rest of the report. See Appendix B for a list of each intervention category, and the programs and activities that are included within it.

1. Formal and non-formal education

Although formal and non-formal education programs are implemented in different ways, they often incorporate many of the same activities. It is challenging to isolate these activities as belonging to the formal or non-formal sector for the purposes of understanding their effectiveness. We therefore grouped all activities that occur in either the formal, non-formal or both sectors, into a single category for the purposes of this report.

- **Formal education.** The International Standard Classification of Education (ISCED) defines formal education as "education that is institutionalized, intentional, and planned through public organizations and recognized private bodies and—in their totality—constitutes the formal education system of a country" (UNESCO Institute for Statistics 2012). Formal

education consists mostly of basic education, including primary and secondary (defined as the formal education before entrance into the labor market), vocational education, and special needs education; components of adult education are often recognized as part of the formal education system. Formal education takes place in institutions that are designed to provide full-time education for students "in a system designed as a continuous educational pathway" (UNESCO Institute for Statistics 2012). Programs that are part time and take place partly in the workplace may also be considered formal education if they lead to a credential that is recognized by national education authorities (for example, apprenticeships).

- **Non-formal education.** ISCED defines non-formal education as education that is institutionalized, intentional, and planned by an education provider (like formal education), but that is an addition, an alternative, and or a complement to formal education (UNESCO Institute for Statistics 2012). It is often provided to guarantee the right of access to education for all. Typically, such programs target people of all ages, but do not adhere to a continuous pathway structure: they may be short in duration; low intensity; and offered in the form of short courses, workshops, or seminars. In addition, such programs sometimes yield qualifications that are not recognized as formal by relevant national or subnational education authorities, and the successful completion of non-formal education does not necessarily give access to a higher level of education.

This report focuses on formal and non-formal programs centered on the school or other learning environments, which may also include complementary community-based programs. Pre-primary to tertiary education programs that take place within the school or classroom include programs focused on improving the classroom, school environment, or school and teacher quality; developing students' learning and social-emotional skills; and retaining students are included. We also consider secondary certification, workforce development (which can be formal or non-formal), and complementary and accelerated education programs.

Table II.1. Education programs

Category	Intervention
Formal and non-formal education	Early childhood education Literacy and numeracy programs Teaching at the right level – Tracking Teaching at the right level – Remedial education Teaching at the right level – Computer-assisted instruction Teaching at the right level – Tutoring Classroom-based social-emotional learning School infrastructure School security measures Zero tolerance policies Schoolwide positive behavioral interventions and supports Restorative practices Classroom management Class size reduction School-based anti-bullying programming School-based gender-based violence prevention programming Dropout and expulsion prevention programs Increased class time Transfers: cash transfers (conditional and unconditional) Transfers: scholarships and other student financial incentives Transfers: school feeding, take-home rations, and other in-kind transfers Expanding access to high quality schools – Vouchers Expanding access to high quality schools – Lotteries Expanding access to high quality schools – Merit-based scholarships Expanding access to high quality schools – Single sex instruction Teacher incentive programs – Pay for performance Teacher incentive programs – Contract teachers Secondary certification programs Workforce development programs (including technical and vocational education and training) Programs for out-of-school children youth – complementary basic education Programs for out-of-school children and youth – accelerated education programming Programs for out-of-school children and youth – adult basic education
Extracurricular and education support services	Extracurricular programs – Mentoring Extracurricular programs – Organized sports Extracurricular programs – After-school programming School counseling services – School counselors School counseling services – Responsive services School counseling services – Substance abuse prevention programs School counseling services – Multicomponent programs
Community engagement	Parenting programs Community outreach and awareness programs School-based management programs

Note: This table should be used as a guide for the rest of the report.

2. Extracurricular or education support services

Following Bartkus et al. (2012), we define extracurricular and education support services as academic or nonacademic activities that are not part of the curriculum and are conducted under the auspices of the school but outside normal classroom time. Extracurricular activities or education support services typically do not involve grades or academic credit, are optional for students and their parents, can be directly related to coursework (and reinforce learning), or can emphasize other elements of a well-rounded education, such as sports, art classes, or religious

groups. The extracurricular and education support services covered in this report are school-based and include mentoring services, sports, after-school programs, and counseling services.

3. Community engagement

Community engagement is defined as a range of activities that connect the overall community—or specific members of the community such as parents, guardians, and mentors—with schools. Other characteristics of community-school engagement activities are that they include elements of shared decision making and elements of support and/or advocacy. Epstein (1992) identified a framework that describes six main types of involvement including parenting training, communicating with parents about school activities, student progress and the value of education, supporting family volunteering, engaging families to work with their children on academic learning at home, including families in management of the school, such as through school management committees [SMCs] or parent-teacher associations [PTAs], or collaborating with the broader community to encourage child and youth learning.

In this report, we categorize these community activities as belonging to three types of education programs: school-based family/youth services (for example, parenting training or wraparound services), school management programming (such as support or training for PTAs, and SMCs), and community outreach and awareness (which can include promoting parent and community engagement in children's education, and social and behavioral change communication [SBCC]).

B. Program populations

Figure II.2 maps the intervention categories shown in Table I.1 to the beneficiary populations they are designed for and that we focus on here. To facilitate linking to the literature on education programs, we focus on beneficiary populations instead of specific age groups. Children and youth across this wide age range are in different stages of development, and their propensity to be victims or perpetrators of violence and crime changes as they age (Know Violence in Childhood 2017). Young people of different ages also vary in their responsiveness to different types of education programs, depending on their stage of development, but they all have characteristics that can be affected by education programs.

The literature on human development groups youth into several categories by age, such as early childhood (birth to age 4), middle childhood (ages 5 to 9), early and late adolescence (ages 10 to 19), and older youth (ages 20 to 29). The exposure to and perpetration of violence and crime are related phenomena and vary by age. According to the "age-crime curve," there is a substantial increase in violent and nonviolent criminal behavior during adolescence, peaking in early adulthood and declining thereafter. Youth ages 20 to 29 have the highest incidence of both victimization and perpetration (Chioda 2017). Older youth are more likely be at tertiary risk, meaning they have already behaved in a criminal or violent way, including joining a gang, and

that they may require individualized violence-prevention programs (Hare et al. 2018) or remediation programs.[11] Older youth are also more likely to be out of school.

As youth age, their exposure to violence, both as victims and perpetrators, increases, as does their likelihood of suffering the consequences of such behavior. During early adolescence (ages 10 to 14), children gain more independence and are able to interact with more groups of people outside of the family. In early adolescence, there is an increase in fighting between peers, which can involve the use of weapons such as firearms and knives. In some settings, youth are also at risk of online violence or cyberbullying (Know Violence in Childhood 2017). During late adolescence (ages 15 to 19), youth continue to be exposed to corporal punishment.

However, these age groups, as defined in the human development literature, do not map directly to the typical school cycle (pre-primary, ages 3 to 5; primary, ages 6 to 12; lower secondary, ages 12 to 15; upper secondary, ages 15 to 18; and postsecondary, ages 18 to 29). In addition, some education programming focuses on improving basic skills of people who are older than the ages encompassed by these mappings (for instance, adult basic education works with adults 18 and older to improve their learning in basic education skills). We focus on the school cycles in this report, because most education programs are tightly linked to these cycles.

Figure II.2. Programs by program population

	Pre-primary & primary	Lower secondary	Upper secondary	Postsecondary
Formal and non-formal education	• School and classroom programs, including teacher training and pedagogical support, social emotional learning, and school quality (such as teaching at the right level, teacher incentives, etc.)			
	• Classroom and school environment programs, including infrastructure improvements, security measures and deterrence policies, schoolwide positive behavioral interventions and restorative justice, classroom management, and class size • Preventing school-based bullying and gender violence			
	• Basic literacy and numeracy	• Dropout/expulsion prevention		
		• Secondary certification • TVET/workforce-readiness programs		
	• Complementary basic education • Accelerated education • Adult basic education			
Extracurricular/ education support	• Mentoring • Organized sports • After-school programs			
	• School counseling services			
Community/ school engagement	• Parenting programs • Community outreach and awareness-raising • School-based management			

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[11] Data limitations make it difficult to trace the age-crime curve and demographic profiles of perpetrators and victims for gang crimes and other key offenses affecting Northern Triangle countries. Nonetheless, available data suggest that gang activity is concentrated in youth ages 15–25 and that its perpetrators and victims are predominantly young men in that age range (Serrano-Berthet and Lopez 2011).

C. Violence, crime, and correlated outcomes

1. Outcomes correlated with violence and crime

There is a range of mechanisms through which education programs can affect violence and crime. This section describes outcomes related to violence and crime that could be affected by education programs. For every individual, there are factors at play that put him or her at risk for negative outcomes, and other factors that protect him or her from negative outcomes (ecological risk framework; Bronfenbrenner 1979). Not only are the factors present within an individual, but also there are factors in an individual's environment that put youth at risk or protect them. The extent to which these risk and protective factors are present in our lives influences the level of risk that each person faces, ranging from Type 0 (little risk) to Type III or tertiary risk (high risk) (U.S. Office of the Surgeon General 2001). Behavior is a result of cumulative risk as one ages. The strong correlations between these and other factors, and violence and crime have been documented extensively elsewhere. Some studies, including those conducted in the LAC region, have even established causal relationships as well (Cunningham et al. 2008). The education system is an important influencer in these risk and protective factors. We discuss outcome measurement in detail in Appendix B.

a. Learning, education attainment, employment, and earnings

Learning and skills development, educational attainment, better employment, and higher earnings—all outcomes that are affected by education programming either directly or indirectly— can affect violence and crime through several channels. A primary goal of education is to facilitate learning of cognitive skills, literacy, numeracy, and other subjects. Cognitive skills development includes the construction of thought processes such as problem solving, and learning itself (for example, learning literacy or numeracy, or other subjects). Learning and skills development can have a direct effect on violence and crime, or they can affect violence and crime through their effects on educational attainment, employment, earnings, inequality and poverty. While educational attainment and employment are important, this report will not cover the evidence related to the effect of educational programming on them as they are typically studied when estimating the effects of education programs.

Learning outcomes or cognitive skills development. Studies have documented a correlation between cognitive skills[12] and outcomes later in life. Increases in cognitive skills (Boissiere et al. 1985; Green and Riddell 2003; Altonji and Pierret 1997) increase earnings. Low literacy and reading difficulties are strongly correlated with the perpetration of crime, even when controlling for socioeconomic status, intelligence or IQ, and other correlated factors (Gross et al. 2009). Cognitive skills have also been shown to have an effect on employment and earnings, two important intermediate outcomes that affect crime and violence (Gottfredson 1997; OECD 2015). A low IQ has been consistently correlated with the perpetration of crime (Moffitt et al. 1981; Reyes 2015). The evidence also indicates that IQ is most malleable during early childhood, and

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[12] Although USAID often uses alternative terminology, we have decided to use the terminology common across the literature we reviewed. USAID typically calls literacy/numeracy learning outcomes, and SEL skills can be cognitive or noncognitive.

that it is fairly unchangeable by age 10 (Cunha et al. 2006, 2010; Shonkoff and Philipps 2000; Carneiro and Heckman 2003).

Educational attainment, employment, and earnings. These outcomes can affect violence and crime through multiple pathways. First, they affect the way individuals use their time, a limited resource. Sometimes called *incapacitation effects,* productive activities can crowd out criminal activities simply by absorbing an individual's time (Jacob and Lefgren 2003). Therefore, simply being occupied in a safe space could reduce someone's risk of perpetrating a crime. Second, the outcomes can expose individuals to "better" peers, who have a positive influence on an individual's behaviors, known as *peer effects* (Hoxby 2002). Third, the outcomes can affect crime outcomes for youth in the workforce through an *income effect*. Better employment with a higher income discourages youth from participating in crime by increasing the cost of engaging in criminal behavior instead of earning a formal income (Lochner 2004). Increases in earnings raise the opportunity cost of engaging in violence and crime, and the risk of getting caught (Becker 1968; Grossman and Kim 1995). There is empirical evidence for these effects, although the importance of each relative to each other and to other mechanisms is unclear. For instance, studies show that in urban areas, an increase in the number of days out of school (for example, absences) is correlated with an increase in property crime, but a decrease in violent crime (Jacob and Lefgren 2003; Luallen 2006). Similarly, Davis and Heller (2017) found that a summer jobs program for adolescents in Chicago significantly reduced arrests for violent crime, both while the adolescents were otherwise busy (during the summer) and for several months after. The authors argue that a more likely mechanism than time use could be at work here; namely, the development of key social-emotional skills, such as conflict management, social information processing, and goal-setting.

There is also empirical evidence for the sizable effects of policies that influence educational attainment on reducing crime. In particular, high school completion in the United States (Chioda and Rojas-Alvarado 2014; Lochner 2004; Lochner and Moretti 2004) has been shown to be critical in reducing crime and violence. Similarly, in a study of child labor in the illegal coca production and processing industry in Peru, Sviatschi (2017) found a causal link between children who left school to work in the industry and their likelihood of being arrested as adults. However, these long-term effects of early exposure to illegal industries were mitigated by a conditional cash transfer program to increase school attendance and reduce the use of child labor. In addition, studies in Colombia have shown that leaving school prior to completing the secondary level is correlated with delinquency (Muggah and Tobón, 2018).

b. Forming social-emotional skills

Investments in human capital can improve both social-emotional skills (sometimes called soft skills or noncognitive skills) and cognitive ones. Improved social-emotional skills strengthen people's ability to resist the temptation to be violent, help them control their temper, enable them plan ahead to avoid criminal activity, or help them think through problems in ways that lead to solutions that avoid violence—all of which can directly affect violence and/or criminal behaviors. Improved social-emotional skills (combined with other skills) may also indirectly change an individual's peer group via employment or assortative matching, thus creating a positive peer effect. In Latin America and the Caribbean, this positive peer effect can enable individuals to avoid both victimization and forced engagement in crime (for example, recruitment into gangs). It

could also indirectly change the community an individual is likely to live in as a consequence of employment or associated changes in preferences. However, such positive effects may not allow individuals to avoid all forms of violence; gang-related extortion of families or businesses, for example, can affect those with education just as it can impact individuals without it.

Social-emotional development focuses on measures related to motivation, integrity, and interpersonal interaction, including personal attributes, temperament, and attitudes (Heckman and Kautz 2012; Kautz et al. 2014; and CASEL 2019). The development of social-emotional skills can have a direct effect on violence and crime, or the skills can affect violence and crime through their effects on educational attainment and employment. Increases in noncognitive skills (Heckman et al. 2006) lead to increased earnings.

Social-emotional skills are robustly associated with crime outcomes and a variety of correlated factors, including educational achievement, employment, and earnings in adulthood (Deming 2017; Gutman and School 2013, Durlak et al. 2011). [13] A recent USAID literature review (Gates et al. 2016) synthesized studies on the relationship between noncognitive skills and violence, and drew conclusions about which skills have the strongest evidence base. The authors reviewed the literature on the correlations between youth/young adult social-emotional skills and outcomes across three domains: labor market outcomes, violence prevention, and sexual and reproductive health (SRH, including gender-based violence). The key findings on social-emotional skills from this literature review are described below.

- **Self-regulation.** The link between self-regulation and violence has the strongest evidence base. This skill is also referred to as lack of impulsivity, response inhibition, an ability to delay gratification, self-control, emotion regulation, behavior regulation, and affect dysregulation.[14] Thirty-six of 54 studies identified in the review show a strong association between self-regulation and preventing youth violence globally. Only one of these studies is from LAC region: it links a lack of self-control with youth aggressive behaviors in Jamaica (Meeks et al. 2007).

  Studies across the globe have linked self-control to improved outcomes for the five types of violence considered by Gates et al. (2016): aggressive behavior, bullying, intimate partner violence, violent crime, and group/gang violence.[15] Children develop skills and learn

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[13] "Social-emotional skills" refers to a broad set of interrelated skills, for example, self-awareness, self-management, social awareness, relationship skills, and responsible decision making. The literature uses several terms to refer to this concept—for example, noncognitive skills, soft skills, personality traits—and to particular skills (Kautz et al. 2015, p. 13), and different authors structure their work using distinct different frameworks—for example, the "Big Five," CASEL framework, or personal versus interpersonal skills. Throughout this report, we will use the term "social-emotional skills" and refer to particular social-emotional skills by the names used to describe them in the literature. We will not attempt to standardize the definitions of any skills.

[14] "Affect dysregulation" is distinct from "deficient affect." One psychological study found them to be unrelated to each other but closely related to aggression, whereas only deficient affect was related to actual violent and nonviolent offending (Penney and Moretti 2010).

[15] Other key studies include Duell et al. (2018) for executive function (working memory, response inhibition or inhibitory control, attention, and cognitive flexibility) and self-regulation (aggression and emotion dysregulation).

behavior mechanisms to self-regulate and avoid physical aggression as they age (Chioda 2017). Evidence suggests that individuals with aggression problems during adolescence and adulthood are likely to have had the same problems during childhood. For example, Huesmann et al. (1984) followed 600 individuals for 22 years and found that the more aggressive 8-year-olds were also the most aggressive 30-year-olds.

- **Social skills.** These include interpersonal skills, the ability to take pro-social approaches to conflict, and the ability to perceive the intentions of others positively. Numerous correlational studies link social skills to aggressive behavior, group/gang violence, and violent crime. However, only one of them is from the LAC region: a study in Mexico linked the ability to successfully resolve conflicts with reductions in verbal-emotional abuse in relationships (Antonio and Hokoda 2009).

- **Empathy**. This social-emotional skill refers to the "ability to feel and understand what someone else is feeling" (Lippman et al. 2014). It is linked to reducing all five types of violence (defined earlier) considered in Gates et al. (2016).

Gates et al., (2016) and other research show that other social-emotional skills[16] have been found to correlate with violence and crime—including but not limited to higher-order thinking, positive self-concept, integrity, and resilience—but evidence on the strength of the link is limited.[17]

- **Higher-order thinking skills.** These skills include problem solving, critical thinking, sound planning behavior, and decision making. Nine studies correlate them with aggressive behavior (Gates et al. 2016). Higher-order thinking skills are also closely linked to labor market outcomes and to SRH outcomes and behaviors.

- **Positive self-concept.** This construct refers to "a realistic awareness of oneself and one's abilities that reflects an understanding of his/her strengths and potential" (Lippman 2015). It is positively associated with violence prevention in 10 of the 25 studies we considered, has null effects in 9 of these studies, negative effects in 5 studies, and mixed effects in 1 study. There is some evidence, for example, that low self-esteem can predict that an individual will join a gang, but there is also evidence that high self-esteem predicts violent behavior, and that an individual will become a gang leader (Dmitrieva et al. 2014).

- **Other soft skills.** Evidence of a correlation between integrity and ethics, also referred to as a "moral system of belief," and the absence of violent behaviors appears in nine of the studies reviewed by Gates et al. (2016). Resilience and communication skills also have evidence in the literature to support that they are key soft skills correlated with violent behavior. A

Raver and Blair (2015) and Moffit et al. (2011) linked self-control with long-term outcomes. Best et al. (2011) and Blair and Raver (2014) linked self-control with long-term social competence and academic achievement.

[16] Also, there is limited correlational evidence that youths' ability to think about and plan for the future, or future orientation, is correlated with violence (Culyba et al. 2018).

[17] This limitation does not necessarily imply that higher-order thinking skills or positive self-concept share a weaker correlation with violence and crime. These skills may be less prevalent in the literature simply because they are studied less often than other skills.

related issue is normative beliefs about violent behavior, meaning that those who believe violence and aggression are socially acceptable are more likely to exhibit these behaviors. Gates et al. (2016) also reviewed studies of the links between responsibility, goal orientation, and a positive attitude, on the one hand, and labor market outcomes, violence, and SRH on the other hand; they found less or weaker evidence for a relationship between these skills and violence.

- **Preferences.** People vary substantially in what economists and psychologists call preferences, or the choices people make when confronted with alternatives. To the extent that violent and criminal behavior is the result of a deliberate decision, understanding the relationship between preferences and these decisions can inform our understanding of crime and the link between education programs and crime. Education systems can affect how individuals, given their preferences, choose to react to situations.

In considering the above-mentioned evidence, we caution against drawing strong conclusions about the associations between specific social-emotional skills and outcomes. Social-emotional skills are interrelated, and there is little clarity as to how they can confound or overlap within the processes that lead to behavioral change (Belfield et al. 2015). Behavioral improvements following the enhancement of one skill could be the product of this enhancement, a contingent change in a related skill, or both. Likewise, the interrelated nature of skills can make it difficult to define some skills in a way that fully excludes others, and so isolate the contributions of each. This is especially challenging because we currently lack a standard taxonomy of noncognitive skills (Osher et al. 2016).[18]

Finally, the relevance of particular skills should not be established without considering an individual's developmental stage. Social-emotional skills and personality traits change as humans develop and build on each other. Social-emotional learning occurs sequentially as age-appropriate skills (based on both brain development and the social context to apply the skill) are learned (Guerra et al. 2014; Cunningham et al. 2016). Evidence suggests that after childhood, most measured personality traits change throughout young adulthood (Ross et al. 2019; Almund et al. 2011) and potentially beyond (Damian et al. 2019). The responsiveness of traits and social-emotional skills to programs varies with an individual's age (Heckman et al. 2006; Sánchez Puerta 2016). For instance, some programs designed to improve emotional and social competencies have been shown to be effective with children ages 5 to 11 (Uylings 2006; Rutter 2007). In addition, improvements in social-emotional skills in early primary school have been shown to have a positive effect on academic learning (Jennings and DiPrete, 2010). Several studies suggest that personality traits are also malleable during adolescence and early adulthood. The part of the brain that regulates self-control, delayed gratification, impulsivity, and risk-taking behavior does not mature until age 25 (Raine 2013). Nonetheless, adolescents may benefit from social-emotional skills distinct from those that benefit children, because they have unique needs and navigate different social environments (Martins 2010; Bloom et al. 2009,). For example,

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[18] The Harvard Ecological Approaches to Social Emotional Learning (EASEL) Laboratory is currently working to develop such a taxonomy across the various disciplines; see http://exploresel.gse.harvard.edu/.

while children may benefit from skills that allow for appropriate emotional expression, adolescents require skills that will enable them to manage peer pressure (Osher et al. 2016).

c.   Environmental factors

An individual's **home environment**—including family factors such as relationships, conflict, violence, substance use, domestic violence, income, or unemployment—strongly influences future behaviors. Child maltreatment is strongly associated with juvenile conviction and adult criminality (Currie and Tekin 2012), and the quality of the early environment is a key predictor of life-cycle outcomes, such as criminal behavior (Chioda 2017). During childhood, children are at risk of exposure to physical violence from their caregivers in the form of corporal punishment. Children and youth may also be exposed to repetitive family violence that can lead to disturbed school behaviors (Osofsky et al. 2003). In families with abused women, 60 to 75 percent have children who are also abused. These children are more likely to have problems in parenting and a tendency to mistreat their own children (Wathen and MacMillan 2013).

There is a documented correlation of household factors, poverty, and community factors with violence and crime. In the United States, socioeconomic status, poverty, and having antisocial (violent or criminal) parents have been found to be factors moderately related to youth violence; this is most likely to be an environmental rather than a genetic factor because violence is learned, not inherited (U.S. Office of the Surgeon General 2001). Household and community factors have been found to be correlated with substance use and violence among Colombian youth (Brook et al. 2001, 2002). Brazilian youth who have been incarcerated for violence are disproportionately the sons of poor, uneducated, violent fathers (Hutz and Silva 2003). Studies in psychology have found a strong link between toxic stress in early childhood and risk-taking, violent, and criminal behaviors well into adulthood (Shonkoff et al. 2012). Good parenting and a healthy home environment are also linked to aspects of a child's self-regulation, such as emotion regulation and attention (Landry et al. 2006; Blair and Raver 2012). Environmental factors are important determinants of antisocial behavior during the transition from childhood to adolescence (Moffitt 2005; Moffit et al. 2010). Adolescents who experience family conflict, depression, little monitoring by their mothers, and feelings of anger are prone to perpetrate bullying and physical dating violence and sexual harassment (Foshee et al. 2016).

Although the linkages between income and crime and violence are complex, a higher household income enables families to dedicate more resources to children's development, which could then lead to better behavioral outcomes in the children. A higher household income can also improve parenting, because additional resources can improve parents' mental health and psychological well-being, which could then lead to better behavioral outcomes in children (Chioda 2017).

A diverse body of literature shows that the **school environment**, or climate, is malleable and plays a significant role in moderating school violence and risk behaviors, in enhancing social-emotional development, and in improving academic outcomes (Janosz et al. 1998; Janosz et al. 2008; Johnson 2009; Steffgen et al. 2013; Reaves et al. 2018; Cohen et al. 2009; Thapa et al.

2013; Wang et al. 2015).[19] The presence of violence in school, bullying in school, positive peer relationships, positive student-teacher relationships, peer-related crime, substance use, or antisocial behavior are factors that can affect an individual's outcomes. Children can be subject to corporal punishment from teachers, and they are also susceptible to both physical and emotional abuse from their peers. "By the age of 9, nearly 80 percent of children [globally] have experienced emotional violence" (Know Violence in Childhood 2017). Violence related to differences in gender also begins to materialize during childhood, sometimes in the school environment. According to Know Violence in Childhood (2017), abuse or bullying from peers starts at about age 6 and peaks at ages 8 to 11, by which point 25 to 30 percent of children have been exposed to physical violence.[20] The quality of peer associations has also been found to have a profound effect on the tendency to perpetrate bullying or gender-based violence (Cho et al. 2019; Jewkes 2002).

The U.S. literature reveals a relationship between various aspects of the school social environment and school violence. The aspects include positive classroom social interactions, the students' feelings of belonging and sense of support from their teachers, the students' belief in the fairness of rules, their involvement in school (McNeely and Falci 2004; Sprott 2004; Welsh 2003), and negative interactions with peers that put them at greater risk for violence. Peer effects in school have been found to be one of the strongest predictors of youth violence in the United States. Adolescents with weak social ties and/or antisocial peers are at an elevated risk of engaging in violent behavior (U.S. Office of the Surgeon General 2001). Peer effects start to play a prominent role when children enter adolescence, as peer influences replace family influences (Cuéllar-Marchelli and Góchez 2017).

The school environment or climate refers to the contextual factors that shape children's and youths' experience in school. It is a multidimensional construct, broadly defined as "the norms, values, and expectations that support people feeling socially, emotionally, and physically safe" (National School Climate Council 2012). Researchers and practitioners have yet to agree on which specific aspects of the school context define school climate, although the definitions are broadly consistent.[21] A recent overview of over 300 studies of school climate suggests that school climate comprises four domains (Wang et al. 2015): (1) the academic climate captures how schools promote learning and instruction through, for example, pedagogical strategies and

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[19] There are three frameworks that can explain this relationship. The first is based on the ecological risk framework, posits that outcomes associated with a given individual are influenced by that individual's interactions with others in the environment. The school climate frames such interactions and can thus influence how interactions materialize and affect violence and correlated outcomes. The second is based on attachment theory and social control theory and suggests that the formation of social bonds in school helps young people develop social-emotional skills (for example, greater self-reliance) and other strengths (for example, a sense of commitment) that prevent them from engaging in problem behaviors, including violence. The third is based on the risk and resilience perspective and suggests that the school climate may provide students with protective factors that strengthen their capacity to overcome challenges and take advantage of opportunities in their environment. Enhancing protective factors directly and indirectly affects violence, crime, and correlated outcomes.

[20] For boys, physical violence also peaks at ages 8 to 11, and by this age, half of them have been physically abused.

[21] Garibaldi et al. (2015) provide an overview of school climate frameworks advanced by the American Institutes for Research (Conditions for Learning), National School Climate Council, and U.S. Department of Education (Safe and Supportive Schools).

curricular approaches; (2) the relational climate refers to the quality of school-centered relationships, such as the warmth of student-teacher interactions; (3) safety encompasses the measures schools take to ensure students' physical and emotional security, such as the adoption of "zero tolerance" and other disciplinary policies; and (4) the institutional climate covers structural characteristics of schools, including quality of buildings, class size, and school size.[22] See Appendix B for information on how we map programs discussed in this report to this framing on school climate from the literature.

The relevance of each mechanism through which school climate can affect the outcomes of interest for different school climate programs depends on factors such as programs' scope and approach and students' developmental stage. Regarding students' development stage, Wang et al. (2015) note that mechanisms related to attachment are most relevant during the first years of school; those years are noteworthy for the early formation of social bonds. Social control theory, on the other hand, emphasizes the importance of social bonds in building conformity to behavioral and social norms—an issue that may be more relevant during adolescence.

The **community environment**—including its social cohesion, who one's peers are, pro-social activities, safe spaces, and neighborhood violence—matters. At-risk and high-crime communities affect children and youth of all ages. A safe environment and the opportunity to engage in productive behavior or to build positive relationships can decrease young people's exposure to violence and the likelihood of victimization. The share of criminals living in an area influences a young person's longer-term participation in crime (Damm and Dustmann 2014). Hot-spot policing as a strategy to prevent crime in specific high-crime areas has led to declines in crime and disorder (Braga and Bond 2008; Weisburd et al. 2006). However, hot-spot policing in one area can end up just displacing crime to neighboring areas, especially crimes that are most easily displaced such as drug trafficking and property crimes (Blattman et al. 2019; Dell 2015). The *perception* of safety and trust in local and national institutions is also linked to violence and crime outcomes. For instance, living in a neighborhood perceived to be "very safe," "somewhat safe," or "somewhat unsafe," compared with living in a neighborhood perceived as "unsafe" reduced the probability of victimization by 20, 15, and 10 percentage points, respectively (Chioda 2017). Although trust in the judicial system and police can affect victimization, their effects appear to be small in magnitude. Trust in the police is associated with a 0.8 percentage point reduction in the probability of victimization, whereas trust in the judicial system is associated with a 2.6 percentage point reduction (Chioda 2017).

Peer effects can manifest in the community as they do in schools. Associating with peers who are more productive and less likely to engage in criminal behavior can allow for social interactions that could dissuade youth from engaging in risky behaviors. On the other hand, associating with peers who engage in risky behaviors can have the opposite effect. The concentration effect (Lochner and Hjalmarsson 2012; Chioda 2017) happens when many disengaged youth form a cluster and engage in group-based criminal activity.

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[22] We have adopted some terms that differ from those used by Wang et al. (2015) for coherence with the rest of this report. Wang et al. (2015) use community instead of relationship climate and institutional environment instead of institutional climate.

d. Risky and protective behaviors

Children and youth engage in a range of behaviors, many of which are linked to violence and crime and can be affected through education programming. Next, we cover risky behaviors, aggressive and antisocial behaviors, and protective behaviors.

Risky behaviors. Some risky behaviors can have significant implications for the likelihood that youth will engage in crime and violence in the short, medium, and long term. Risky behaviors include, among others, drug use, alcohol use, and smoking; unprotected sex; missing school often, dropping out, or getting expelled; and delinquency (our literature search does not include school absenteeism, dropout, or expulsion as search terms). Risky behaviors often co-occur (Cunningham et al. 2008).[23] Gruber's (2000) review of the literature found a strong intertemporal link between risky behaviors during both youth and adulthood. Simons et al. (2002) also found that adolescent delinquency increases the risk for crime during early adulthood. However, the age at which an individual engages in risky behaviors may be important. A review of studies in the United States found that substance use before age 12 is a strong predictor of violence during adolescence, whereas substance use during adolescence is a weaker predictor of later violence (U.S. Office of the Surgeon General 2001). Higginson et al.'s (2016) systematic review identifies alcohol use, soft drug use, sexual behaviors, and being male as strong correlates with youth gang violence.

Aggressive and antisocial behaviors. Both aggressive and antisocial behaviors, which reflect a lack of important social-emotional skills, are linked to violence and crime. Several U.S. studies have found that different types of aggression are a moderate risk factor for physical violence and nonviolent juvenile delinquency among boys up to age 17 (U.S. Office of the Surgeon General 2001; Nagin and Tremblay 1999). Stattin and Magnusson (1989) found a strong connection between aggressiveness ratings at ages 10 and 13, and adult delinquency. Other studies have also found that physical aggression peaks during early childhood (Tremblay et al. 2004; Alink et al. 2006). Hawkins et al. (1998) found that antisocial behaviors, including dishonesty, rule-breaking, hostility to police, and a favorable attitude toward violence, constitute risk factors for youth violence.

Protective behaviors. These behaviors can protect an individual from engaging in or being affected by crime. They include pro-social behaviors; behaviors such as participating in positive social activities, going to school, and holding a job, among others. When faced with possible violence and crime, individuals could alter their behaviors in a variety of ways. The Latin America Public Opinion Project has identified the several key crime-avoidance behaviors in Central America, including preventing children from playing in the street, not leaving the house alone at night, avoiding the use of public transportation, and moving to a safer neighborhood (Raaderstorf et al. 2017).

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[23] In LMICs and LAC, evidence suggests that poverty, child labor participation, rurality, being indigenous, and repeating a grade all predict students' future dropout (UNESCO 2014). High rates of violence, such as those experienced by youth in the Northern Triangle of Central America, also drive dropout and even irregular migration (Fiszbein and Stanton 2018).

2. Violence and crime outcomes

Violence and crime are intertwined and manifest in a range of forms. The range of violence and crime that one can experience or perpetrate, sometimes called the violence continuum (Abt and Winship 2016), is broad and can vary over an individual's life cycle. As noted, we grouped violence and crime outcomes into three domains: violent crime, nonviolent crime, and school violence. This section defines these domains and discusses the specific acts of crime and violence that fall under them. We also discuss constructs that are used in the literature to measure outcomes across these domains (Appendix C includes more information about outcome measurement). The literature includes various outcome constructs that have been used to measure violence and crime.[24] For each outcome, we considered both perpetration and victimization as useful constructs, following common practices in the literature, including systematic reviews (Mihalic 2017; National Institute of Justice 2017).[25]

Violent crime. This domain includes a range of behaviors that result in deliberate harm to others. Violent crime outcomes measures include, but are not limited to, the following: child abuse, domestic violence, physical abuse, assault, sexual violence, gang participation and violence, political violence, violent extremism, armed crimes/violence, homicide, torture, kidnapping, and human trafficking.[26]

Non-violent crime. The two main sub-domains of non-violent crime are property crimes (including theft and vandalism) and substance-related crimes.[27] Although some sources, including the U.S. Department of Justice, report property crime as a separate category, we grouped it with nonviolent crime for analytic purposes. Substance-related crimes include the illegal use or possession, distribution, or manufacturing of drugs or alcohol, including drug trafficking.[28] In our framework, substance-related crimes are considered risk factors for violent crime. Outcomes measures for nonviolent crime include the following: property crimes (burglary, shoplifting, robbery, and vandalism), substance-related crimes (drug and alcohol use, drug production/possession, drug dealing and driving under the influence), and other crimes such as fraud and money laundering. There are also several general measures of crime often used by law

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[24] See Sherman et al. (1998); Crimesolutions.gov developed by National Institute of Justice (2017); Mihalic (2017); Baliki (2014); The World Bank (2010); Heinemann and Verner (2006); and Ruiz-Rodriguez Mariella (2017).

[25] Including victimization provides a more complete picture of the actual incidence of violence and crime. Survey-based measures of victimization in the United States show that significant proportions of criminal and violent activities are never reported to the police (Morgan and Kena 2017). Of the criminal and violent activities that are reported, fewer still result in prosecution or conviction.

[26] See Sherman et al. (1998); Crimesolutions.gov developed by National Institute of Justice (2017); Mihalic (2017); Baliki (2014); The World Bank (2010); and Heinemann and Verner (2006).

[27] See Sherman et al. (1998); Crimesolutions.gov developed by National Institute of Justice (2017); Mihalic (2017); Baliki (2014); The World Bank (2010); and Heinemann and Verner (2006). Other nonviolent crimes include fraud and money laundering.

[28] The U.S. Department of Justice (https://www.bjs.gov/content/pub/pdf/DRRC.PDF), distinguishes between drug-defined offenses (illegal use, possession, distribution, or manufacturing) and drug-related offenses (for example, violent behavior results from the effects of drugs, stealing to get money to buy drugs, or violence against rival drug dealers) (Craddock et al. 1994).

enforcement that do not specifically measure violent or non-violent crime.[29] These measures include arrests, apprehensions, detentions, convictions, incarceration, criminal delinquency, recidivism, criminal behavior/offenses, crime victimization, and self-reported criminal participation. Depending on the information provided in each study, we categorize these measures under the violent or nonviolent crime domains and provide a justification for their inclusion under the selected domain.

School violence. Aggression or violence in schools is not included in the violent or nonviolent crime domains. School violence is generally defined as any act intended to harm others at school or near school grounds (Capp et al. 2017). School shootings or suicides are well-publicized, shocking forms of extreme violence, but they are rare. The more common types involve physical violence toward others that does not necessarily result in fatalities; student fighting, bullying, or corporal punishment (physical punishment by school staff); psychological violence in the form of cyberbullying or verbal abuse; and sexual and gender-based violence, including sexual harassment, unwelcome touching, assault or rape. Common outcome measures for school violence include bullying, substance abuse, corporal punishment, use/possession of weapons, assault, unwelcome touching, sexual harassment, sexual assault, and abusive relationships. In practice, school related bullying behavior and gender-based violence are difficult to distinguish, because bullying can be gender-based (Espelage, Basile, De La Rue, and Hamburger 2015; Pepler 2012).

3. Outcomes included in this report

In this report, we focus our discussion of the literature on the effectiveness of the 43 education programs listed in Table II.1 on a subset of the outcomes discussed above. We focus our literature search on violence and crime, and on the outcomes correlated with violence and crime that are not commonly included in studies on the effectiveness of education programs. We did not conduct an extensive search on the effects of the selected education programs on standard education outcomes (such as performance, attainment, employment, or earnings). Specifically, we conducted an extensive literature search on the outcome domains and the key mechanisms through which the outcome domains can affect violence and crime (Table II.2). See Table XXVII.1 for a broader version of the outcomes studied in the education literature and their paths to affecting violence and crime.

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[29] These "noisy" measures of crime are among the most common outcomes reported in even the most rigorous evaluations and systematic reviews of the topic (Heller et al. 2017; Sherman et al. 1998; Mihalic 2017; National Institute of Justice 2017). The outcomes are not typically broken out by whether or not they reflect violent or nonviolent crime. Additionally, an individual could be wrongfully arrested and convicted, can commit a crime but never be charged, or be arrested but not convicted, and so on. Therefore, in the literature that involves these type of outcomes, it is difficult to identify the specific causal pathways between education and violence and crime. In most cases, however, these general measures of crime are the most readily available data points.

Table II.2. Outcome domains included in the literature search

	Outcome domain	Key mechanisms through which the outcome can affect violence and crime
1.	Social-emotional skills	Social-emotional skills can directly affect one's likelihood of engaging in violent and criminal behaviors.
		Social-emotional skills can affect one's likelihood of engaging in risky or protective behaviors, which can in turn affect the incidence in engaging in violence and crime.
		Social-emotional skills can affect one's educational attainment and learning, which can in turn affect employment and earnings and likelihood of directly engaging in violence and crime.
		Social-emotional skills can affect one's employment and earnings, which can in turn affect the likelihood of directly engaging in violence and crime.
2.	Environmental factors	The home environment, including within-household relationships (such as attachment or conflict), parent behaviors towards the child (such as warmth, bonding, or discipline), parent behaviors with each other (such as domestic violence), can contribute to child or youth social-emotional skill development and behaviors, which can contribute to violence and crime through a variety of pathways.
		The school environment, including teacher behaviors (such as attendance), teacher-student relationships, violence in schools, and peer effects, can contribute to child or youth learning, social-emotional skill development and behaviors, which can contribute to violence and crime through a variety of pathways.
		The community environment, including pro-social cohesion, peer effects, perceptions of and willingness to engage with public and community institutions and officials to prevent and report crime, can contribute to child or youth social-emotional skill development and behaviors, which can contribute to violence and crime through a variety of pathways.
3.	Risky and protective behaviors	Risky, aggressive, and antisocial behaviors can increase the incidence of violent and criminal behavior.
		Protective behaviors can decrease the incidence of engaging in violent and criminal behaviors either directly or indirectly through reduced engagement in risky behaviors which may then result in reduced engagement in violent and criminal behaviors.
4.	Violence and crime	n.a.

n.a. = not applicable.

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III. METHODOLOGY

We took a two-phased approach to carry out our review of the education programs discussed in Chapter I. The approach began with building a foundational knowledge base for the study, which was important in developing a focused protocol for the comprehensive literature search. We then conducted the comprehensive literature search and review according to the methodology described in this chapter. Our goal was to identify the global literature on this topic, with a particular focus on identifying studies that were conducted in LMICs and LAC.

A. Foundational literature review

We first developed foundational knowledge of the overall literature to build a knowledge base for the target programs and outcomes of interest. This involved consultations with stakeholders, as well as a literature search focused on existing literature reviews, influential published studies, and grey literature to build a knowledge base of the key literature on each education intervention. We incorporated studies in any country and included rigorous correlational, causal, and qualitative research. We targeted links between education programs and direct violence and crime outcomes, as well as links between education programs and outcomes correlated with violence and crime. In addition, we reviewed and documented strong links between correlated factors and violence and crime outcomes, validating the use of these correlated factors in our primary review. We also consulted experts at USAID and those who have worked with USAID in the fields of education, violence, and crime to identify additional key bodies of literature to review.

B. Literature search protocol

We searched for published and grey literature on education programs in LMICs and LAC. We used the findings from the foundational literature review to develop search terms for each type of education intervention, direct violence and crime outcomes, and correlated outcomes presented in Table II.1. We focused our search on education programs' direct effects on crime and violence and indirect effects through other, non-traditional outcomes. We did not search on education programs' effects on education outcomes that are typically studied in the literature (and reviewed in multiple systematic reviews and meta-analyses) such as school completion, learning, employment, and earnings. Although education and employment outcomes are correlated with violence and crime, we did not search on the effect of education programs on these education and employment outcomes given the large body of existing literature on their effects. Instead, we focused the comprehensive literature search on outcomes that are not traditionally studied in connection with education programs that are violence- and crime-related (see Table II.2). Much of the literature, though not all, identified through the foundational literature review process was from high-income countries (HICs). We did not conduct an additional comprehensive search to find further evidence in such countries, instead focusing the additional searching on LMICs and LAC. We organized the discussion of the findings from this review accordingly.

We used four strategies in the literature search. First, we searched for published literature in nine bibliographic databases. Second, we used a Google custom search engine to search for grey literature in the websites of 29 organizations. With each search, we retrieved the top 100 most relevant items. Third, for additional grey literature, we searched the specialized databases of four

key organizations' websites directly. See Appendix D for details on the databases, websites, and search terms used across the bibliographic and grey literature searches.

We screened the results of the search to identify studies that were eligible for this report. The eligibility criteria include topic, sample, location, language, and publication type. For instance, the study had to focus on an education intervention within the four categories covered in this report: formal and non-formal education, extracurricular, and community outreach and awareness. The study also had to examine the effectiveness of an education intervention on an outcome within one of the direct violence and crime outcomes or within one of the domains of correlated factors covered in this report. The study could be conducted in any country, but had to focus on children and youth ages 3 to 29. Finally, the study had to be available in English or Spanish and could not be a dissertation. Figure III.1 summarizes the results of our search and screening processes. See Appendix D for details on the search and screening results (including eligibility criteria).

Figure III.1. Literature search process
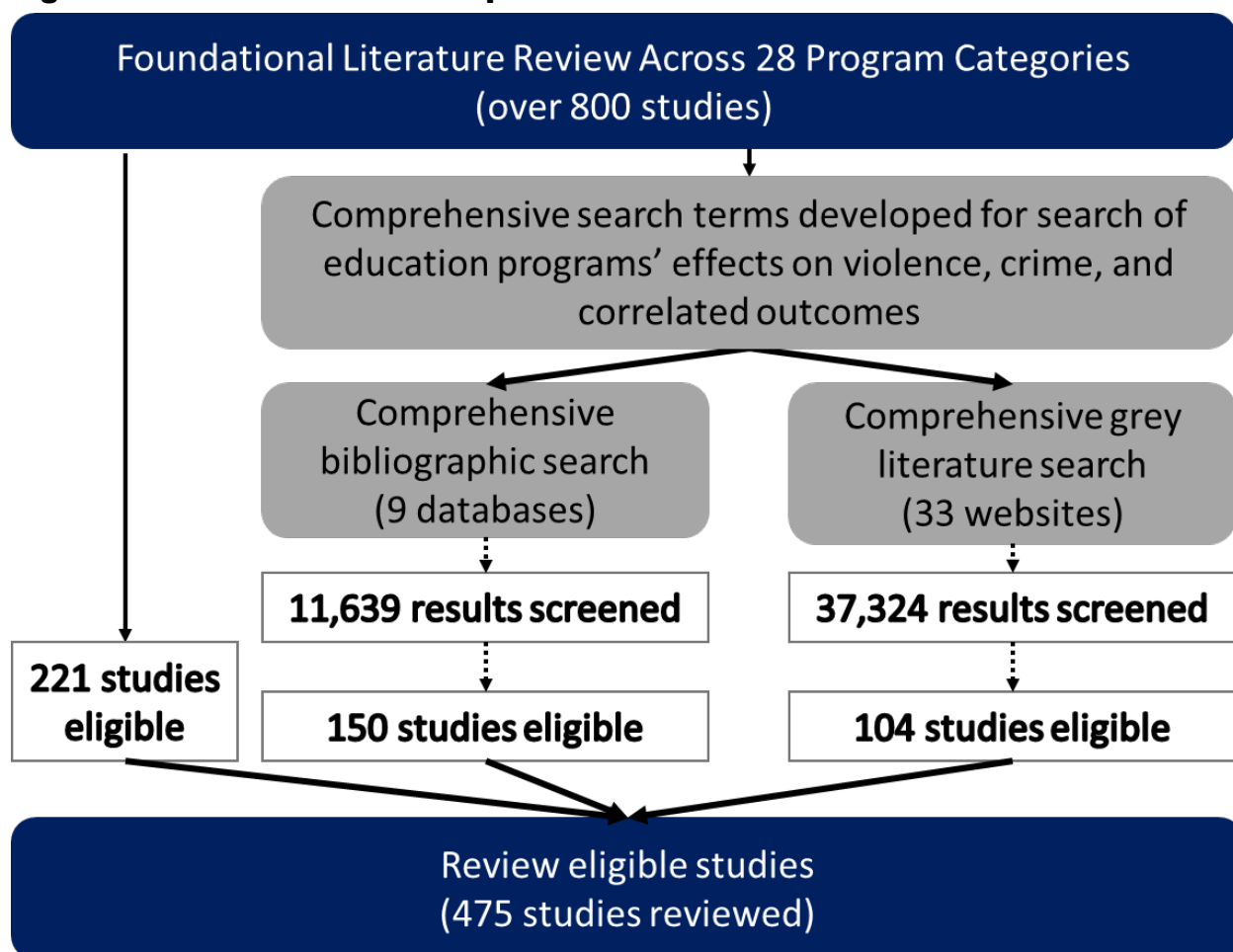
C. Literature review protocol

In reviewing a body of evidence, we must consider two key dimensions: the strength of the evidence, which is a function of both quality and quantity, and the direction of the evidence. We included well-executed quantitative and qualitative research in our review of the evidence. We defined a strong evidence base as one that has two key features: (1) quantitative studies in which there is a valid counterfactual that can be used to identify an intervention's causal impacts on the outcomes of interest ("causal studies") and (2) appropriate samples. Although we included well-executed descriptive quantitative or qualitative research as part of the evidence base, it is not enough to be the foundation for a strong evidence base on its own. It would instead be characterized as a moderate or emerging evidence base. In addition, a large body of causal and descriptive evidence that reflects inconsistent findings on the outcomes of interest could represent strong evidence that the impacts are context-specific, which we would describe as "mixed findings." This section outlines our approach to assessing both the strength and direction of the evidence.[30] See Table III.1 for a summary of our approach to assessing a body of evidence. Details are in Appendix D.

Assessing causal quantitative evidence. We assessed the strength of causal quantitative evidence by evaluating its internal and external validity.

- **Internal validity.** First, for any given study, we must assess how likely it is that the evidence presented represents a valid estimate of an intervention's causal impacts on the outcomes of interest. This process includes evaluating the validity of the evaluation design, whether the implementation was true to the design (for example, random assignment was followed as prescribed), and whether the assumptions on which the evaluation design is based hold up (for example, whether groups created through random assignment were similar at baseline). We did not include quantitative studies with weak internal validity in this review.

- **External validity.** Second, we must also assess how likely it is that the evidence presented would be replicated if a similar intervention were repeated at a different time or in a different place. This process involves assessing both the sample size and how well the sample resembles the population of interest. We included studies with various levels of external validity, but took this into consideration when assessing the strength of an evidence base.

Assessing descriptive quantitative or qualitative evidence. We also considered well-executed descriptive quantitative and qualitative studies, which must be based on a logic model and on a systematic approach to drawing the sample; the sample must be drawn from a relevant population. Strong descriptive quantitative or qualitative research can be the basis for an emerging or moderate evidence base, and it can contribute to strong evidence; however, we did not consider strong descriptive quantitative or strong qualitative research to be a strong evidence base on its own.

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[30] This approach is consistent with that of BE2 Guidance Note (Hinton 2015).

Mixed results. Regardless of the strength of a body of evidence, findings can be consistently positive, consistently negative, or mixed. It is possible to have strong evidence for mixed impacts, or weak evidence for positive or negative impacts. When evidence is mixed, the next step is to evaluate how well we can identify which factors make the impacts vary.

Table III.1.   Criteria for determining the strength and direction of a body of evidence

Strength of evidence: Quality and quantity			
Strong evidence base	**Moderate evidence base**	**Emerging evidence base**	**Weak evidence base**
At least one causal study with strong internal (and external) validity that is built on a descriptive (quantitative and/or qualitative) evidence base, or multiple causal studies with strong internal validity and strong external validity when combined.	A combination of causal studies with weak or moderate external validity; alternatively, a combination of strong descriptive quantitative or qualitative studies with strong external validity.	A combination of descriptive quantitative or qualitative studies with strong internal validity and weak external validity.	A small number of weak studies—anything that is not at least at this level would be classified as "no evidence base."
Direction of evidence			
Positive impacts	**Negative impacts**		**Mixed findings**
Consistent findings of the intervention's beneficial effect on outcomes of interest (e.g. reducing violence or crime or improving social-emotional skills).	Consistent findings of the intervention's harmful effect on outcomes of interest (e.g. increasing violence or crime or reducing social-emotional skills).		Existing evidence consists of contradictory effects.

Note: When studies include findings that show heterogeneous effects for different populations, we classified the direction of the evidence as mixed and discussed the heterogeneity in the chapter.

IV. EARLY CHILDHOOD EDUCATION

Evidence summary and mechanisms through which intervention can affect violence and crime				
	Overall evidence			
Intervention	**Correlated outcomes**	**Violence and crime outcomes**	**Evidence from LAC/LMICs**	**Mechanisms**
Early childhood education	●	●	◑	Development of social emotional skills at an early age may improve school engagement and learning in primary school, and promote long-run success in school and employment. Stronger social emotional skills may also reduce participation in risky behaviors, reducing participation in violence and crime.

Legend: ● = strong body of evidence with positive findings; ◑ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ◐ = mixed findings in emerging or larger body of evidence; ◔ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◌ = weak body of evidence; ∅ = no body of evidence.

The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.

A. Program description

In this chapter, we discuss the impacts (or lack thereof) of formal, center-based, or in-home early childhood educational programs on standard educational outcomes and on violence, crime, and correlated outcomes. Pre-primary education, a major component of early childhood development (ECD), is intended to affect students' learning outcomes as well as their social-emotional skills and behaviors in the short run, with potentially large effects on their life course trajectory. Pre-primary education encompasses early childhood education (ECE), which takes place in a formal school setting that incorporates pedagogic activities (direct instruction by a trained educator), as well as nonpedagogic early childhood learning supports. Here, we focus on ECE as it takes place in a school setting.[31] In Table IV.1, we summarize the key program elements, typical target age group, characteristics of the targeted beneficiaries, and goals of early childhood education programs included in this chapter.

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[31] A large body of literature on nonpedagogic early childhood interventions, such as home visiting and parenting programs, shows such programs' potentially wide-ranging impacts on outcomes, including parent-child interactions, children's cognitive and social-emotional skills, and employment and crime outcomes in adulthood. We discuss this literature in more detail in Chapter XXV on community outreach and awareness.

Table IV.1.   Summary of early childhood education programs: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
Early childhood education	3 to 5 years	Young children before primary school age	Activities to promote the development of cognitive and social-emotional skills Health and nutrition support	5. Improve students' cognitive skills before entering primary school 6. Develop students' social-emotional skills 7. Provide childcare to enable parents to work outside the home

- **Theory of change.** The mechanisms through which early childhood experiences affect life trajectories are well documented. The consensus is that high-quality ECE can have positive impacts on academic learning and social-emotional skills, which translate into improved educational outcomes (Camilli et al. 2010; Nores and Barnett 2010).[32] Educational attainment and social-emotional skills can then lead to a reduction in violence and crime during an individual's youth, and to positive impacts on employment and earnings and then a reduction in violent or criminal behavior in adulthood (Cannon et al. 2017; Heckman et al. 2013; Reynolds, Temple, and Ou 2010; Reynolds et al. 2011a).
- **Target beneficiary profiles**. Pre-primary education may benefit all young children. However, the impact of preschool depends on the activities it displaces. For children who would otherwise receive age-appropriate stimulation at home, preschool is expected to have small impacts, and lower quality preschool could even lead to outcomes that are less desirable than staying home with an engaged parent. For children who would otherwise receive little age-appropriate stimulation at home or in other care settings, high-quality ECE is expected to have significant impacts on social-emotional skills and learning as well as academic outcomes.

B. Findings from the evidence review

The evidence on pre-primary programs' impacts on violence, crime, and correlated outcomes is strong in HICs and is emerging in LMICs and LAC. Our search for literature on pre-primary programs identified 2,870 papers, of which 36 were eligible for inclusion in the study and are included in this chapter. Across those, we found 16 from the 4 seminal longitudinal studies from the United States, 5 from other studies in HICs, 8 from LAC, and 7 from LMICs outside LAC. The studies include randomized controlled trials and quasi-experimental studies that estimated causal impacts. We discuss this literature below. Appendix E provides additional details on the studies reviewed in this chapter, including details on study intervention and follow-up time frames and target populations. In Table IV.2, we summarize findings on ECE programs' impacts on violence and crime and on outcomes correlated with violence and crime, presented by outcome domain and region.

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[32] See Chapter 2 for definitions of violence, crime, and correlated outcomes.

Table IV.2.   Strength of evidence for impacts on the outcomes of interest: ECE programs

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
ECE	HICs	🔵	◖	🔵	🔵	🔵	⚪
	LMICs	🟡	◗	∅	◖	◗	∅
	LAC	◖	⚪	∅	∅	∅	∅

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 36 were eligible for inclusion.

🔵 = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ⚪ = emerging body of evidence with positive findings; 🟡 = mixed findings in emerging or larger body of evidence; ◗ = weak body of evidence; ∅ = no body of evidence.

HICs. In HICs, the evidence of the effects of ECE on violence, crime, and correlated outcomes is strong and is based largely on a small number of seminal longitudinal studies. These studies demonstrate that ECE can improve cognitive skills in the short term, increase educational attainment in the longer term, and strengthen social-emotional skills in the long run, all of which reduce the likelihood of perpetrating violence or crime in adolescence and adulthood (Heckman et al. 2013; Elango et al. 2015; Reynolds et al. 2011b [in *Science*]; Garces, Thomas, and Currie 2000). However, some research also shows that, in some cases, center-based early childhood programs do not improve social-emotional skills (Baker, Gruber, and Milligan 2019; Magnuson et al. 2007; Bouguen et al. 2013) or cognitive skills (Bouguen et al. 2013).

Four longitudinal studies of ECE programs in the United States have provided foundational evidence for such programs' impacts on social-emotional skills, family environment factors, violence and crime, and cognitive skills. These seminal studies include the randomized Perry Preschool and Abecedarian evaluations and the quasi-experimental Chicago Longitudinal Study (CLS) of the Chicago Child-Parent Centers (CPC) program. Evidence on a fourth seminal program, Head Start, comes from various non-experimental studies using national longitudinal data and from a more recent randomized evaluation (known as the Head Start Impact Study (HSIS)). Each of these four programs enrolled children from low-income (and typically minority) families for up to four years in center-based ECE programs offering high quality, age-appropriate materials and activities. Two programs (CPC and Head Start) incorporated additional training for or support to parents; Abecedarian was unique in that it offered support to children starting in infancy. All four studies used counterfactuals that were either other (typically lower quality) ECE programs or no ECE program at all, and all included shorter- and longer-term follow-ups. The longitudinal CPC and Head Start studies were quasi-experimental but included larger sample sizes (1,700 and 1,500 children, respectively), whereas the Perry and Abecedarian studies were randomized experiments that were limited by small sample sizes (123 and 111 children, respectively). The ongoing randomized HSIS has a large sample size (5,000 children).

Three of the four foundational longitudinal studies of preschool programs led to improvements in short-term social-emotional skills and/or family environmental factors as well

as to subsequent reductions in adult crime and violence. The Perry Preschool program reduced school-age "externalizing behavior" such as stealing, lying, or cheating and aggressive behavior toward peers at ages 7 through 9. Subsequently, the program reduced the number of violent and nonviolent crimes committed by age 40 as well as the number of arrests by that age (Schweinhart et al. 2005; Heckman et al. 2013). Similarly, the CPC program reduced trouble-making behavior in school and delinquency, juvenile arrests, and felony arrests by age 28 (Reynolds, Ou, and Topitzes 2004; Reynolds et al. 2010; Reynolds et al. 2011a; Reynolds et al. 2011b). A path analysis showed that impacts for black male participants in the CPC program resulted from early impacts on parent involvement and academic achievement in grade 3, which led to positive impacts on social-emotional skills in adolescence and reduced crime in adulthood (Giovanelli et al. 2018). In the case of Head Start, the quasi-experimental study results indicate that children experienced early-age improvements in family environmental factors and improved social-emotional outcomes in adolescence (although evidence on social-emotional outcomes is mixed at younger ages) (Schanzenbach and Bauer 2016; Carneiro and Ginja 2008). In the long term, the quasi-experimental study also found that black Head Start participants were significantly less likely than black nonparticipants to have been charged or convicted of a crime as adults, but the program did not reduce crime for white participants (Garces, Thomas, and Currie 2000). However, the results of the Head Start Impact Study found small and mostly nonsignificant impacts on social-emotional skills through grade 1 (Bitler et al. 2014) and demonstrated that impacts on social-emotional skills in grade 3 were positive when reported by parents but negative or nonsignificant when reported by teachers (Puma et al. 2012). For the Abecedarian Project, however, evidence is mixed on the program's impact on risky behavior correlated with crime, such as drug use, and on adult violent or nonviolent crime activity (Campbell et al. 2012; Heckman et al. 2013). Even though several studies assess impacts of the Abecedarian Project on cognitive outcomes at younger ages, this review did not identify studies that assessed social-emotional or family/school environmental outcomes.

The benefits of each of the programs evaluated in the seminal studies exceed their costs. The CPC program generated $10.83 in benefits to society per dollar invested by the time participants reached age 26 (Reynolds et al. 2011a [in *Child Development*]). The Perry Preschool Program generated $7.10 to $12.20 in benefits to society (depending on the cost to society of a murder averted by the preschool program and assuming a 3 percent discount rate) (Heckman et al. 2010). The Abecedarian Project yielded an estimated $7.33 per dollar invested over participants' lifetimes, based on benefits and cost at age 35 (Garcia et al. 2016). Kline and Walters (2016) found that Head Start produced $1.83 in benefits for every dollar invested after accounting for reduced costs as a consequence of Head Start students shifting out of other early childhood programs. The other studies we identified from HICs did not report results of cost-effectiveness analysis.

Impacts depend in part on children's characteristics and home environment. The impacts of ECE are greater for children from socioeconomically disadvantaged backgrounds than for children from socioeconomically advantaged backgrounds. Elango et al. (2015) summarized the findings of several studies that found that children from more disadvantaged households—measured by mother's education level or household income—benefited more in terms of cognitive skills in both the short and long runs (Brooks-Gunn et al. 1994; McCormick et al. 2006; Brooks-Gunn 1992; Duncan and Sojourner 2013). The benefits of CPC preschool were greater for children of mothers who had not completed high school than those of mothers who

had, with greater impacts on juvenile prosecutions (Arteaga et al. 2014), and on high school completion, felony charges, and substance abuse by age 28 (Reynolds et al. 2011b [in *Science*]). Head Start's impacts on children's social-emotional skills were also greater for students from homes with more risk factors and for Black students as compared to white students (Puma et al. 2012). Garcia, Heckman, and Ziff (2018) show impacts by gender for the Abecedarian Project. They found more and larger impacts for girls than for boys in the overall sample and argue that the larger impacts for girls (as related to, for example, cognitive skills, social-emotional skills, risky behavior, and crime) reflect the fact that girls' fathers are less likely than sons' fathers to support their families.

Some studies have shown examples of large-scale ECE programs that are of lower quality than the demonstration programs and serve students who from a broader spectrum socioeconomically, and had worse social-emotional and behavioral outcomes. Consistent with the seminal studies' findings on the *positive* impacts of access to improved care, Baker, Gruber, and Milligan (2019) found that, when access to *lower* quality[33] child care was expanded in Quebec, children experienced *declines* in social-emotional skills in childhood and higher crime rates later in life. Furthermore, according to analysis of the Early Childhood Longitudinal Study—Kindergarten (ECLS-K) longitudinal data from the United States by Loeb et al. (2007), when lower-income children spend longer hours in ECD programs (more than 30 hours per week), academic outcomes improve, but behavioral outcomes worsen. Loeb et al. also found that, for children of any income level, starting center-based care before age 2 had negative effects. Using the same data set, Magnuson et al. (2007) found that, even though prekindergarten attendance was associated with improved cognitive skills, it was also associated with negative impacts on social-emotional skills in early elementary school. Manship et al. (2015) used a regression discontinuity design to evaluate the impact of California's Transitional Kindergarten Program, which offered a year of schooling before kindergarten for students who would be among the youngest in their cohort. The study found that the program significantly improved cognitive skills and executive function but did not improve other social-emotional skills, including cooperation, engagement, or avoiding problem behaviors (Manship et al. 2015).

LMICs. **Consistent with evidence from the United States, moderate evidence from LMICs reveals the potential for ECE programs to improve social-emotional skills, but the evidence is weak regarding ECE programs' potential impact on crime and we found no results on cost-effectiveness from LMICs.** In sub-Saharan Africa, studies revealed that preschool programs in Mauritius (Raine et al. 2003) and Mozambique (Martinez, Naudeau, and Pereira 2017) led to significant improvements in socio-emotional development and behavior, including criminal behavior in early adulthood in the case of the Mauritius study. In a quasi-experimental study in Zambia (McCoy et al. 2017), researchers found that preschool students had higher social-emotional skills than other children. However, an evaluation of two types of

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[33] In Japel et al. (2005), just over 60 percent of centers evaluated were considered minimal quality while about one quarter met criteria to be considered good, very good, or excellent. Centers were evaluated using the Early Childhood Rating Scale, Revised, which includes seven equally weighted subscales: space and furnishings, personal care routines, language and reasoning, activities, interactions, program structure, and parents and staff. The subscales with lowest scores overall were personal care routines and activities; those with highest scores were program structure and parents and staff (both had median scores rated "good", whereas the other five subscales had median scores rated "minimal").

preschools in Cambodia found that neither formal nor community volunteer-run preschools improved children's cognitive or social-emotional skills. Authors attributed the disappointing findings to failures in implementation and low take-up (Bouguen et al. 2013). Later, another experimental evaluation of preschool in Cambodia found positive effects on social-emotional skills, and these impacts were larger for children who would otherwise have stayed home in the absence of access to preschool (Berkes and Bouguen 2019). However, two other studies found mixed results. A program to increase kindergarten participation in Bulgaria found that Bulgarian children showed improved social-emotional skills, but Roma and Turkish children's social-emotional skills declined, suggesting the need for additional or different support for minority children (Huillery et al. 2017). Zhang (2017) used propensity-score matching to estimate the impacts of attending preschool in China on adolescents in grades 7 and 9 found mixed impacts on social-emotional skills.

LAC. **As in HICs and LMICs, a moderate body of evidence from LAC countries shows that ECE programs can have significant positive impacts on social-emotional learning.** Several studies found that preschool can have impacts on social-emotional skills. In their evaluation of the *Hogares Comunitarios* program in Colombia, Bernal et al. (2009) reported that the program led to reduced social isolation and improved appropriate behaviors, but increased aggressive behaviors for children in the program at ages 3 to 6, as is consistent with some of the studies of lower quality programs from HICs discussed above (Baker, Gruber, and Milligan 2019; Magnuson et al. 2007). In their evaluation of a similar program in Bolivia, Behrman et al. (2004) found positive impacts on social skills. However, an evaluation of *Hogares Infantiles Mejorados* in Colombia found no impact on social-emotional skills (Andrew et al. 2018). In Argentina, children with improved access to preschool had stronger social-emotional skills, including attention, effort, class participation, and discipline, in grade 3 (Berlinski et al. 2009). Angeles et al. (2014) found that free access to child care for low-income families in Mexico significantly improved children's communication skills and social-emotional skills as well as mothers' employment. However, several other evaluations of programs to improve access to day care found no impacts: evaluations in Ecuador (Rosero and Oosterbeek 2011; Rosero 2012) and Brazil (Attanasio et al. 2017) found no significant impacts on social-emotional skills.

We found no studies from LAC that evaluated the effect of ECE programs on violence or crime outcomes or on school or community environment. This suggests that donors and policymakers should focus on longer-term evaluations of ECE programs that include such outcomes.

We found no studies that evaluated the cost effectiveness of ECE programs in LAC for reducing violence, crime, or correlated outcomes. Several studies have shown the seminal studies from the US to be cost-effective, largely based on reductions in crime attributed to the programs, but no such evidence exists for LAC.

C. Recommendations

1. Recommendations for future research

The findings in this chapter reveal a strong body of evidence on ECE programs' impacts on social-emotional skills and educational attainment, and—in the United States—crime reduction. However, important evidence gaps remain. We found no evidence from LAC on crime or

violence and none on two correlated factors of interest—school environment and risky and protective behaviors. We recommend investing in research that evaluates long-run impacts on violence and crime, but also evaluating impacts on correlated outcomes observed in the short run. New research should use study designs that generate learning on how specific program elements (for example, teacher training, length of school day, or class size), contextual factors (such as urban or rural location), or student characteristics (such as age, gender, and parent education level) affect outcomes. All new research should report on costs as well as benefits.

- **New research should assess the systems-level changes required to support ECE investments.** A growing body of research identifies the potential of ECE and ECD programs to improve economic outcomes and prevent crime. However, the institutional environment must be conducive to such investments and the coordination of their implementation. Yoshikawa et al. (2018) identify the key challenges associated with taking ECD programs to scale and lay out a research agenda to address those challenges.

2. Recommendations for investing in ECE programs

Evidence from HICs as well as from LAC countries and LMICs demonstrates that high quality ECE programs have the potential to improve participants' outcomes in both the short and long terms. According to results from the United States, benefits exceed costs—in some cases, by ratios as high as 12:1 (Heckman et al. 2010)—and investments in early childhood programs are generally more cost-effective than remediation efforts (Reynolds et al. 2011a). Emerging evidence from LAC countries and LMICs shows the promise of ECE in a broader context. Because budget constraints limit governments' abilities to make high quality ECE available to all children, policymakers may wish to focus their efforts in the following ways:

- **Target low-income and otherwise vulnerable populations for ECE programs.** Evidence from HICs has shown that ECE programs are most beneficial for children facing the greatest socioeconomic disadvantage in terms of improving their social-emotional skills, cognitive skills, and eventual participation in crime (Elango et al. 2015; Reynolds 2011a; Puma et al. 2012). This may also hold true in LAC countries and LMICs. Policymakers can make the most productive use of their scarce resources by targeting low-income and otherwise vulnerable children who would otherwise receive the least ECE.
- **Take steps to ensure that ECE offerings are of high quality and that plans for expanded access include consider supporting quality in expanded offerings.** Because expanding access to *low* quality ECE programs is unlikely to improve outcomes (see, for example, Baker, Gruber, and Milligan 2019), policymakers should evaluate the feasibility of expanding access to high quality, formal, classroom-based pre-primary education and support quality improvement in existing programs as needed. In places where few children are enrolled in high quality ECE, policymakers must carefully assess what steps are required to prepare teachers to provide high quality ECE.

V. LITERACY AND NUMERACY PROGRAMS

Evidence summary and mechanisms through which intervention can affect violence and crime				
	Overall evidence			
Intervention	**Correlated outcomes**	**Violence and crime outcomes**	**Evidence from LAC/LMICs**	**Mechanisms**
Literacy and numeracy programs	◗	∅	○	Improved learning can improve engagement in school and social-emotional skills development, each of which can affect violence and crime.
Legend: ● = strong body of evidence with positive findings; ◗ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ◯ = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ∅ = no body of evidence.				
The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.				

A. Program description

According to the World Bank (2019), roughly half of the world's primary students move through school without acquiring adequate literacy and numeracy, foundational skills which are the building blocks for subsequent academic success, higher employment and earnings, and reduced poverty and lower levels of social conflict. Research has also shown that literacy and numeracy skills can help young children develop their social-emotional skills (World Bank 2019). In this chapter, we review evidence on the impact of programs that seek to improve children and youth outcomes by supporting literacy and numeracy (LN) education on violence, crime, and correlated outcomes.

Literacy and numeracy programs are efforts executed mostly within formal educational settings with the goal of producing reading, writing, and arithmetic abilities sufficient for a child's continued educational attainment.[34] LN programs often go beyond the business-as-usual curriculum and target (1) students who are below grade level in those skill areas or (2) standard education systems deficient in LN offerings. Stand-alone literacy programs are more common in LMICs than similar numeracy programs (or combined programs) because policymakers and funders tend to view early literacy as the more important basis for subsequent learning (Evans et al. 2019). Such a perspective has produced a gap in rigorous studies on numeracy programs even though early numeracy predicts academic success, grade repetition, and reading (Harris and Petersen 2019; Evans et al. 2019). In Table V.1, we summarize the key program elements, typical target age group, characteristics of the targeted beneficiaries, and goals of literacy and numeracy programs.

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[34] Programs for out-of-school adolescents and young adults age 13 to 29 years that include literacy and/or numeracy components are the topic of Chapter XXI, Adult Basic Education.

Table V.1.   Summary of literacy and numeracy programs: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
Literacy and numeracy programs	Birth through 15 years	Children whose reading, writing, and arithmetic skills are below what is expected for their grade or age, or whose standard school curriculum does not offer adequate instruction to develop such skills	• Teacher training • Family and community engagement programs • Curriculum improvements, assessments, and materials • ICT programs • Literacy-focused after- school programs	1. Improve literacy and numeracy skills 2. Increase educational success and retainment 3. Improve employment outcomes

LN programs typically combine several of the following core activities:[35]

- Teacher training (including instructional coaching and professional development)
- Family and community engagement programs (including family reading programs and community awareness-raising campaigns)
- Curriculum, assessments, and materials (including improved lesson plans, new assessment tools, new instructional materials, and access to more or better reading and mathematics materials)
- ICT programs (including access to school computers and instructional materials and lessons delivered on cellphones)
- Literacy-focused after-school programs (including peer-to-peer programs and tutoring)[36]

LN programs can have broad positive impacts on individuals and society. Literate and numerate individuals can acquire more education, access better employment opportunities, enjoy higher incomes, and reduce their risk of contact with crime (McIntosh et al. 2006; Hernandez 2012; Daniel et al. 2006; Kim et al. 2019). These benefits targeted to the individual accrue at the societal level as well, providing policymakers with long-term returns on investment through reductions in adult education needs and criminal justice expenditures (Gross 2009; Graham and Kelly 2018). Literacy is defined as the ability to read (and entails phonemic awareness, phonics,

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[35] These LN activities are the program components most frequently identified in syntheses, systematic reviews, and working papers from Graham and Kelly (2018), LAC Reads Capacity Program (2016), Kim et al. (2019), Evans et al. (2019), and Alvares de Azevedo (2018). School management programs, including school improvement plans and parent decision making on school grants, may also influence LN outcomes (LAC Reads Capacity Program 2016). However, school management interventions have broader goals than literacy and numeracy development and are thus reviewed elsewhere in this report (Chapter XXVI). Each of the components listed above may also fall into another class of interventions in this report. For example, family and community engagement programs may be deployed to support social-emotional learning. Here, we consider the effectiveness of each of the intervention areas only insofar as they are parts of a larger program with an explicit goal of improving literacy and numeracy.

[36] Unlike the tutoring and other extracurricular activities discussed in Chapters VI and XXII, respectively, the after-school literacy interventions we address in this chapter are specifically designed to improve literacy outcomes.

vocabulary, fluency, and comprehension) but often also includes writing ability and oral language use (Zakharia and Bartlett 2014). Numeracy may be defined as number sense or fluency with numbers in real and abstract entities and flexibility with the use of numbers to execute mental mathematics (Platas et al. 2014).

Theory of change. LN programs should increase learning in critical areas of literacy and numeracy (such as phonemic awareness and number sense) (Kim et al. 2019), which should then translate to additional learning, social-emotional skills development and employment, all of which can affect violence and crime. Literacy and numeracy abilities allow children to continue human capital formation in the formal school system because literacy and numeracy can yield self-esteem gains and motivation for more learning and develop children's ability to take on more challenging learning tasks, successfully complete grades, and attain higher education levels (Evans et al. 2019)[37]. Higher educational attainment then allows individuals to engage with civil society and pursue higher-skilled career opportunities, which can diminish exposure to and participation in crime and violence (Ball 2011; Daniel et al. 2006; Gross 2009; Graham and Kelly 2018).

Target beneficiary profile. Literacy and numeracy programs in the formal education system typically target pre-primary and school-age children (birth through 15 years) whose literacy and numeracy skills are below expectations for their age or grade level or whose access to adequate LN programming through their standard school curriculum is limited.

B. Findings from the evidence review

The evidence of the effects of LN programs on outcomes correlated with violence and crime ranges from emerging to moderate in strength. We found no evidence of impacts on violence and crime, but some evidence of impacts on outcomes correlated with violence and crime. We found only one study from LAC. We summarize the evidence on the effects of LN programs on violence, crime, and correlated outcomes in Table V.2. Our search process for LN programs identified 1,064 papers, of which 11 studies were eligible for inclusion in this chapter, including 5 in HICs, 5 in LMICs, and one in LAC. Appendix F presents more information about all studies of secondary certification programs included in this review, including information on the age group of interest and the type of included activities.

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[37] Social-emotional skills may also facilitate literacy and numeracy gains; evidence from Tanzania suggests that grit and self-control are significantly correlated with strong performance on reading and mathematics assessments (RTI 2016).

Table V.2.   Strength of evidence on the impacts on outcomes of interest: literacy and numeracy programs

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Literacy and numeracy programs	HICs	◖ (moderate positive)	◯ yellow (mixed)	◖ (moderate positive)	⊖ (no evidence)	⊖ (no evidence)	⊖ (no evidence)
	LMICs	◯ (emerging positive)	⊘ (no body)	◗ yellow (no impacts)	⊘ (no body)	⊘ (no body)	⊘ (no body)
	LAC	◗ yellow (no impacts)	⊘ (no body)	⊘ (no body)	⊘ (no body)	⊘ (no body)	⊘ (no body)

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 11 were eligible for inclusion.

◖ = moderate body of evidence with positive findings; ◯ = emerging body of evidence with positive findings; ◯ (yellow) = mixed findings in emerging or larger body of evidence; ◗ (yellow) = findings of no impacts in emerging or larger body of evidence; ⊘ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **We found moderate evidence in HICs that family-based LN programs can improve children's social-emotional skills and behaviors.** Beckett et al. (2012) conducted an experimental evaluation of the United Kingdom's Helping Children Achieve (HCA) initiative, which aimed to support literacy and behavior improvement in children age 5 to 7 years from low-income families. The evaluation included three treatment arms: (1) SPOKES program, a 12-week family literacy program that included weekly home sessions, a workshop, and a home visit; (2) the Incredible Years program, a 12-week program to improve behavior and parent child-relationships through a curriculum on positive relationships and good behavior supports[38]; or (3) a combination of the two programs. Contrary to the researchers' expectations, the SPOKES treatment arm led to a significant and substantial reduction in children's anti-social behaviors (which was larger than the impact of the combined treatment arm). Children's problem behaviors showed significant and strong reductions across all three treatment arms. A quasi-experimental evaluation of a similar intervention in the United Kingdom, Peers Early Education Partnership (PEEP), which engaged parents to support their children's early literacy and numeracy through group sessions and home activities, found that the program significantly improved participating children's self-esteem by increasing their senses of competence and acceptance (Evangelou and Sylva 2003). However, because the PEEP program and the SPOKES programs delivered literacy and numeracy supports to children through training their parents, researchers could not identify whether increases to children's senses of competence and acceptance were due to their corresponding gains in literacy and numeracy skills or to the broader benefits of increased parent engagement in children's education.

In addition, we found emerging evidence from HICs that family-based LN programs may improve family environmental factors. Lam et al. (2013) conducted an experimental

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[38] Incredible Years uses SEL tools; here it was studied in contrast to (or combined with) a literacy program. A standalone evaluation of the Incredible Years program is discussed in Chapter VII, Classroom-Based Social-Emotional Learning.

study on a paired reading program in Hong Kong where parents and caregiving grandparents in treated families were trained on how to read with their children daily. Children and their caregivers assigned to the LN intervention built significantly stronger parent-child bonds and grandparent-child bonds than did children in the comparison group. Quick et al. (2012) used a weaker pre-post design with a seven-month follow-up to assess the effects of the Family Literacy Initiative in Los Angeles, which targeted low-income families with children ages birth through 5 years and included an early childhood education component, parent-child interactive literacy activities (PCILA), parenting education, and adult education. Parents in participating families reported significantly higher use of positive parenting tools, such as rule setting and praise for good behavior. In contrast, Beckett et al. (2012) found while that the Incredible Years treatment arm of the HCA initiative resulted in significant reductions in negative parenting behaviors, such as corporal punishment, and significant improvements in positive parenting behaviors, such as consistency of discipline, the SPOKES literacy development component of HCA did not produce significant effects on those outcomes. This suggests that strictly literacy-focused parent and caregiver training programs may be less likely to affect family environmental factors than those programs that also include training for caregivers on interactive learning activities and positive parenting behaviors.

Evidence from HICs further suggests that intensive classroom-based reading programs can have positive effects on a child's social-emotional skills. Using a quasi-experimental design, Tanner et al. (2011) examined the impact of the Reading Recovery treatment, which is part of the United Kingdom's Every Child a Reader (ECaR) program. Reading Recovery targets children ages 5 and 6 who are struggling to read with an intensive 20-week program of one-on-one, small-group, and classroom reading and writing supports provided by a specialist teacher. After the 20-week program, Reading Recovery participants were 18 percentage points more likely than their untreated peers to be able to initiate their own activities and ideas in school and were significantly more likely to show confidence in beginning a new book. There were, however, no significant differences between treated and comparison students in their confidence in their general abilities, their willingness to participate in classroom activities, and their motivation and interest to learn. Parents of ECaR children were also significantly more likely than parents of untreated children to express that encouraging their child to read was important.

LMICs. Consistent with evidence in HICs, we found emerging evidence of positive and mixed impacts of LN programs—several of which were technology-based—on social-emotional learning and protective behaviors. Experimental evidence from a computer-assisted instruction (CAI) math instruction program in China suggests that computer-based LN programs may have had slight positive effects[39] on treated children's self-confidence, a social-emotional skill (Lai et al. 2015). In another computer-based math instruction program, grade 3 students from lower-income families who participated in an after-school computer-based remedial mathematics program liked school significantly more than their untreated peers.[40] Mundy et al. (2014)

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[39] Lai and coauthors found the program effects on children's self-confidence to be significant only at the 10% level, so findings should be interpreted with caution.

[41] Positive effects of the program on pseudo-word decoding, reading fluency, and reading comprehension were modest but significant in medium-sized communities. However, the effects were not significant in large

conducted a UNICEF-funded quasi-experimental evaluation of the 36-week Child-to-Child School Readiness Program, which deployed grade 5 to 8 students as tutors for children age 5 to 10 years in Ethiopia. The study suggests that task persistence and confidence are both significantly higher among young children in the treatment group than those in the comparison group. In addition, qualitative methods indicate that program participation increased young children's confidence and positivity about school and tutors' sense of leadership and belonging in the community. Correlational studies conducted by Cheung et al. (2018) in the Philippines and by Borisova et al. (2017) in Ethiopia likewise found a positive association between LN program exposure and social-emotional skills. In Zambia, Ome et al. 2018 conducted an experimental study of an ICT-based LN program that sent reading materials (160-character stories) to children in grades 2 and 3 several times per week via their families' cellphones. Families could also call into the program for additional content and attend monthly meetings for technology troubleshooting and guidance on how to engage with children around stories. Comparing treated and untreated households, the study found no significant effects of the program on a child's likelihood of participating in out-of-school reading programs in the community, a key protective behavior among the outcomes correlated with violence and crime.

LAC. Contrary to the findings from HICs and LMICs, emerging evidence from one experimental study in LAC suggests that LN programs may not have significant impacts on social-emotional skills. Bagby et al. (forthcoming) evaluated the *Espacios para Crecer* (Spaces to Grow, EpC), an after-school reading program in Nicaragua, and found no significant effects on measured social-emotional skills. Specifically, the researchers detected no program impacts on risk behaviors, such as moral disengagement (beliefs that justify unethical or unlawful behaviors), impulsive risk-taking, attitudes toward delinquency, or bullying and peer victimization. However, these risk behaviors were relatively low before the intervention began. Researchers also did not detect significant program impacts in terms of social-emotional skills: social competence (ability to establish and maintain healthy relationships), self-esteem, or intercultural competence.[41]

Cost effectiveness. Cost-effectiveness calculations for LN programs in terms of impact on violence, crime, and associated domains are rare. However, several observational studies from HICs suggest that investments in literacy can generate substantial returns for individuals as well as for society at large in terms of violence and crime. Gross (2009) examined the long-term costs of illiteracy and low literacy in the United Kingdom and showed that £1 invested in the Every Child a Reader program could yield between £1.50 (at a high-certainty estimate) and £12.90 (at a lower-certainty estimate) in savings by the time the individual reaches age 37. These savings are manifest in reduced public expenditures, lower costs of crime prevention and criminal justice

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communities (possibly because of student-level randomization and high rates of noncompliance) and were no longer significant at the 5 percent level in medium communities after adjusting estimates for base-year literacy scores. Impacts on school attendance were also nonsignificant.

[41] Positive effects of the program on pseudo-word decoding, reading fluency, and reading comprehension were modest but significant in medium-sized communities. However, the effects were not significant in large communities (possibly because of student-level randomization and high rates of noncompliance) and were no longer significant at the 5 percent level in medium communities after adjusting estimates for base-year literacy scores. Impacts on school attendance were also nonsignificant.

proceedings,[42] and higher tax revenues. Unfortunately, these are low-certainty estimates of cost-benefit.[43] In evaluating a computer-based remedial mathematics program in China, Lai et al. (2015) showed that total program cost per student was between $7.90 and $8.80, implying an investment of $5.60 to $6.30 per 0.10 standard deviation (SD) gain in standardized mathematics scores. The authors did not provide cost-effectiveness figures for social-emotional outcomes, but calculations based on the authors' models suggest that a 0.10 SD gain in "liking school" cost $2.50 to $2.80.

C. Recommendations

1. Recommendations for future research

In this chapter, we identified weak evidence from HICs and moderately strong evidence from LMICs that LN programs may improve social-emotional outcomes, but an experimental study of an after-school LN program in Nicaragua failed to find positive impacts. We recommend additional longer-term research on the impact of LN programs on violence, crime and correlated outcomes, particularly in LMICs. We also recommend supporting research to understand which components of family literacy programs produce desired social-emotional skills, protective behaviors, and family environmental outcomes (that is, whether the driver of such benefits is additional caregiver contact or the literacy and numeracy programming itself).

2. Recommendations for investing in literacy and numeracy programs

Based on the global evidence, we recommend continued funding for reading and literacy programming in schools.

- In addition to reading and literacy programming in schools, supporting family and child-to-child literacy programs has proven effective in improving social-emotional skills and could be worth funding. The evidence further suggests that these family and peer-to-peer programs may have an added benefit of improving the family environment (for family programs) or

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[42] Martin and Hodgson (2014) confirmed the relationship between LN skills and crime in the United Kingdom (as much as was possible with correlational data), noting that prisoners and young people in the custody of law enforcement had significantly lower numeracy levels than the general population.

[43] Several studies eligible for review in this chapter offered estimates for general costs per child per year. For the Child-to-Child School Readiness Program in Kenya, for example, cost-effectiveness estimates varied from $12.01 per child per year in 2009 to $53.73 in 2012. Zero class (government preschool) was a comparable $28.55 but did not take into account the capital costs of school construction (Mundy et al. 2014). Borisova et al. (2017) and Lam (2013) noted only that parent reading programs may be less costly than traditional center-based programs and can produce similar learning outcomes, but the authors did not offer calculations. In the case of the Family Literacy Initiative in Los Angeles, Quick et al. (2012) indicated that the cost per child per year was $3,086 and per family was $3,873 (given that families could enroll more than one child in the program). However, the Family Literacy Initiative involved adult education and parenting components, which are beyond the strict definition of literacy programs used here. In the Zambia LN program discussed below the Early Grade Reading Assessment provided cost-effectiveness calculations. Evaluators indicated that $10 could produce significant gains in non-word reading, oral reading fluency, and reading comprehension (with effect sizes ranging from 0.09 to 0.13). Costs per student were between $20 and $22 per student for the nine-month program (Ome et al. 2018). None of the studies included in the review of LN programs stated change-per-dollar with regard to violence, crime, and correlated outcomes.

social-emotional skills among youth tutors (for peer-to-peer programs) (Lam et al. 2013; Beckett et al. 2012; Mundy et al. 2014).

VI. TEACHING AT THE RIGHT LEVEL

Evidence summary and mechanisms through which intervention can affect violence and crime				
	Overall evidence			
Intervention	**Correlated outcomes**	**Violence and crime outcomes**	**Evidence from LAC/LMICs**	**Mechanisms**
Tracking	○	⊘	○	Increased engagement in school may improve social-emotional skills and learning, reduce risky behaviors, and increased educational attainment and employment in the long run, all of which are expected to reduce violence and crime.
Remedial education	◖	◖	◖	
Computer-assisted instruction	●	⊘	●	
Tutoring	◖	○	◖	

Legend: ● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ● = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◔ = weak body of evidence; ⊘ = no body of evidence.

The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.

A. Program descriptions

Teaching at the right level refers to methods to maximize students' learning potential by matching students to educational programming at their level. The premise of programs designed to teach students at the right level is based on the idea that students learn best when they are not challenged too much or too little. Teaching students at their level is of particular relevance in LMICs. The rapid increase in first-generation learners that accompanied a surge in school enrollment has led to heterogeneity in students' preparation and abilities as students enter school and progress to higher grades (Glewwe and Muralidharan 2016; Muralidharan and Zieleniak 2014).

Some empirical analysis suggests that teaching students at the right level may play a critical role in keeping students engaged in school and learning while they are there. Pritchett and Beatty (2012) found that a majority of students in South Asia and Africa spend years in school learning little because instruction is based on curricula that move at a faster pace than the pace at which most students learn, leaving many students further behind every year. In an example of what happens when learning materials are not suited to students' level, Glewwe et al. (2009) found in an RCT in Kenya that test scores did not improve for the majority of students who received textbooks but that the most advanced students, for whom the textbooks were at an appropriate level, did learn more.

This chapter reviews the evidence for four strategies to match students to instruction at their level: tracking, remedial education, computer-assisted instruction, and tutoring. In Table VI.1, we summarize the key program elements, typical target age group, characteristics of the targeted beneficiaries, and goals of programs to promote teaching at the right level.

Table VI.1. Summary of teaching at the right level activities: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
Tracking	Primary and secondary school	All students, typically in secondary schools	Students are placed in classes or schools based on their estimated ability, typically based on a test score	• Enable teachers to offer instruction or material more closely tailored to students' ability • In some cases, offer different types of material, such as college preparatory or vocational skills training
Remedial education	Primary or secondary school	Low-performing students	Additional instruction in basic skills for low-performing students either during or outside school hours	• Help low-performing students acquire the basic skills they are lacking • Proceed with grade-level instruction for students who are at grade level
Computer-assisted instruction	Primary or secondary school	All students	Computer-based programs provide instruction that is tailored to students' level and may be continuously adjusted based on student performance	• Continuously challenge students by providing instruction and exercises at their specific level
Tutoring	Primary or secondary school	Children and adolescents who are underachieving academically	One-on-one instruction designed to support classroom instruction, provided by non-professional adults or peers	• Improved mastery of class materials/academic performance • Time outside of school spent in structured, supervised activities

Tracking programs. Tracking programs place students into different classrooms or classes to allow more instruction that is more targeted—either based on students' ability level or interests. In primary and secondary school, tracking is often base on ability level. Secondary schools may also offer college preparatory and vocational education tracks.

Remedial education programs. Remedial education programs focus on providing additional instruction and or support for lagging students in gaining skills they were lacking, enabling them to engage with the curriculum for their grade and go on to learn new skills (Glewwe and Muralidharan 2016; Damon et al. 2016). These classes may take the form of small-group sessions during the school day, tutoring or catch-up programs after school, or additional school time during breaks from the school year (similar to summer school in the United States). Remedial education may be suited to students at the primary, secondary, or tertiary levels. A potential benefit of remedial lessons offered during the school day is that pulling some students aside allows teachers to work with a smaller group of remaining students.

Computer-Assisted Instruction (CAI). CAI offers instruction tailored to students' individual levels without requiring additional human resources. Computer-assisted instruction includes a broad variety of instructional software. In this chapter, we focus on the subset of software that is tailored to each user's level and adjusts dynamically based on the user's progress. CAI is grounded in established algorithms that serve students material based on the

skills that students have demonstrated through the completion of tasks within the software, such as solving problems or answering multiple-choice questions. The CAI approach differs from more general use of computers in education, such as word processing, Internet availability, or access to video games. Unlike remedial education, individualized CAI does not require additional instructors or volunteers beyond those needed to set up the computers.

Tutoring. Individualized tutoring may allow children to receive additional instruction that is tailored to the needs of the individual student. In this review, we focus on tutoring provided by non-professional tutors for two reasons. First, school-based tutoring is typically provided by "unskilled" tutors (for example, adult paraprofessionals, volunteers or other students). They are neither subject matter experts nor trained in tutoring pedagogical practices, and they are often teachers who have greater substantive knowledge but may not have received formal tutoring training. Second, using professional tutors is likely to be more costly and harder to recruit than non-professional tutors. Tutoring provided by other students is commonly known as peer or student-to-student tutoring (or cross-age tutoring, if the tutor is older than the tutee) and is part of a larger body of peer-assisted learning (PAL) programs, which includes small-group learning activities "aimed at enhancing learning, motivation, and, consequently, achievement" by applying "peer-mediated teaching strategies" (Rohrbeck et al. 2003; Ginsburg-Block et al. 2006).

Grade retention, which involves repetition of an entire grade for lagging students, represents another strategy to match students to instruction at their level. In this chapter, we do not include the results of a systematic search about grade retention because most countries already rely on such a practice. Further, according to existing evidence (Glick and Sahn 2010; Jimerson 2001), grade retention is not a promising intervention for improving outcomes of interest for this study. The theoretical advantage of grade retention is that students have another opportunity to learn the material for that grade, with the goal of preparing them better for the next grade. However, empirical studies have shown that students who repeat a grade do not typically benefit compared to similar students who progress to the next grade (Glick and Sahn 2010; Jimerson 2001).[44] In addition, grade repetition is costly because school districts must pay for an additional year for repeating students. Furthermore, unless schools plan for them, high

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[44] Most literature on grade retention indicates that retention does not improve students' academic outcomes and may hurt students' academic trajectories (Jimerson 2001; Pagani et al. 2001; Garcia-Perez et al. 2014; Andrew 2014), although some rigorous quasi-experimental studies provide examples of positive experiences (Jacob and Lefgren 2004; Schwerdt et al. 2017). Studies from Uruguay and Senegal also found negative impacts on academic trajectories in the form of increased dropout and decreased enrollment following grade retention (Manacorda 2012; Glick and Sahn 2010).

Most evidence of the impacts of grade retention on behavior is negative. In his review of the literature on grade retention, Jimerson (2001) found that out of 148 estimates on the impacts of grade retention on social- emotional and behavioral outcomes, 86 percent were not significant. Of the remaining impacts, 9 percent found favorable outcomes for students who were not retained, and 5 percent found better outcomes for students who were retained. Pagani et al. (2001) found that children's anxious, inattentive, or disruptive behaviors persisted or worsened after retention. Nagin et al. (2003) used longitudinal data on boys from a low socioeconomic area in Montreal, Canada, and found that grade retention affected students' propensity to be involved in violence but that the relationship between grade retention and violence depended on students' previous developmental history and on the age at which the student was held back. The authors also reported that grade retention at early ages was more likely to lead to violence than grade retention at older ages and that, for older students, impacts on violence were more likely to be seen outside school than inside school.

rates of grade repetition can lead to overcrowding in classrooms by swelling the sizes of grades with many repeaters.

Common theory of change. For students who entered school with less preparation than their peers or have lagged behind during their time in school, teaching students at their level can help them catch up to the level expected for their grade, allowing them to more productively engage with the curriculum for their grade. Students who are more engaged in school may be more likely to learn social-emotional as well as other important skills during school, which can in turn limit engagement in violence and crime through multiple mechanisms as discussed in Chapter II. In contrast, if the curriculum continues at the set pace even as some students lag behind, the lagging students may continue to fall behind and ultimately disengage from school. Disengaged students may be more likely to drop out and engage in risky behaviors outside school, which may in turn make them more likely to participate in violence or crime.

Activities that take place outside the standard school schedule, which could include tutoring, remedial education, summer school, and computer-assisted instruction, may also steer students away from violence and crime and correlated outcomes by providing them with structure and supervised activities outside school hours. Such a favorable outcome is a byproduct of activities that are supplemental to those provided in school, but occupying student time is not a focus of this chapter. We cover extracurricular activities in Chapter XV.

Target beneficiary profiles. The availability of additional instruction to students who could benefit from it and the availability of instruction at the appropriate level are relevant across a broad age range. Both are relevant in the early grades because students begin their formal education with diverse levels of preparation. They continue to be relevant in the upper grades of primary school and in secondary school because students commonly develop cumulative deficits as they move through grades without mastering each grade's content. Tutoring or remedial classes available outside the standard school schedule have the additional benefit of offering an alternative activity to students who may engage in risky behavior outside of school. Accordingly, some programs target "at-risk" youth. Some of these programs are offered at the tertiary level, but they are not germane to our discussion.[45] At a country level or within countries, teaching students at the appropriate level is most important in schools with students at different levels. These are likely to be schools or districts with large out-of-school populations that have recently enrolled or with socioeconomically diverse student populations.

B. Findings from the evidence review

1. Tracking

In this section, we review the literature on the impacts of tracking on violence, crime, and correlated outcomes. Our search for evidence on teaching at the right level, which used terms for tracking, remedial education, and computer-assisted instruction, identified 3,004 documents, of which 16 were eligible for inclusion in this chapter. Five of those papers dealt specifically with

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[45] We did find one study on the impacts of tracking on academic outcomes for university students in South Africa. Garlick (2014) found that tracking students into residence halls by academic ability reduced lower-achieving students' grade point averages but had little impact on higher-achieving students' grades.

tracking. Of those, 2 were in HICs, 3 were in LMICs outside LAC, and none was in LAC. The studies measured changes in social-emotional skills and school environment. The studies from LMICs included one randomized controlled trial and two quasi-experimental evaluations, and the two studies in HICs were non-experimental descriptive studies. Appendix G presents additional information on the studies included in this review. We found no literature on the impacts of tracking on violence or crime. Table VI.2 summarizes the evidence on the impacts of tracking on outcomes of interest.

Table VI.2.   Strength of evidence for impacts on outcomes of interest: tracking

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Tracking	HICs	🟡	⊖	⊖	⊖	⊖	⊖
	LMICs	🟡	◯	∅	∅	∅	∅
	LAC	∅	∅	∅	∅	∅	∅

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 16 were eligible for inclusion.

◯ = emerging body of evidence with positive findings; 🟡 = mixed findings in emerging or larger body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **Research from HICs does not show that tracking improves students' self-concept.** Using a large, multi-country data set that combined Programme for International Student Assessment (PISA) test scores with data on secondary school student tracking and self-concept, Salchegger (2016) found that placement in a higher track can reduce students' self-concept[46] through what is known as a "big-fish-little-pond effect." The other study the review identified found that tracking did not affect primary school students' self-confidence (Siu and Tse 2012).

LMICs. **Research from LMICs is consistent with that from HICs, showing that tracking can affect students' self-confidence, although the direction is mixed.** Consistent with Salchegger's findings based on international data, Pop-Eleches and Urquiola (2013) used a regression discontinuity approach and found that students in Romania who were tracked into more selective high schools were more likely to feel marginalized and to consider themselves relatively weak compared to their peers. However, in China, Feng and Wang (2018) used a regression discontinuity design to estimate the impacts on university students' self-concept, self-expectation, and academic interests as related to placement in a higher- or lower-ability track; the authors found that placement in the higher-ability track increased all three outcomes.

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[46] In Chapter II, we defined positive self-concept as "a realistic awareness of oneself and one's abilities that reflects an understanding of his/her strengths and potential," based on Lippman (2015).

In Ghana, preliminary evidence from an RCT shows that an intervention involving tracking students for instruction in groups of students with similar ability levels for one hour within the school day improved teaching quality. Observers noted that teachers in the intervention group were more likely to be in the classroom for the duration of their lesson and more likely to be actively engaged with students than teachers in the control group whose students were not tracked (Beg et al. 2018).

LAC. We did not locate studies on tracking in LAC countries.

2. Remedial education

Our review identified evidence of the potentially positive impacts of remedial education—predominantly from LMICs and LAC. The evidence outlined below suggests that remedial education may also have beneficial impacts on violence, crime, and correlated outcomes. Our search for evidence on teaching at the right level, which used terms for tracking, remedial education, and computer-assisted instruction, identified 3,004 documents, of which 16 were papers eligible for inclusion in this chapter. Three of those papers dealt specifically with remedial education. Of those, one each was in an HIC, an LMIC outside LAC, and one LAC country. The studies measured changes in social-emotional skills, family environment, community environment, risky behaviors, and violent crime. The study methodologies included one RCT, one comparison group design, and one correlational study. Appendix G provides additional information on the studies included in this review. Table VI.3 summarizes the evidence on the impacts of remedial education on outcomes of interest.

Table VI.3.   Strength of evidence for impacts on outcomes of interest: remedial education

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Remedial education	HICs	⊖	⊖	◗	⊖	⊖	⊖
	LMICs	◗	◗	∅	∅	∅	∅
	LAC	◗	∅	∅	◗	∅	∅

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 3 were eligible for inclusion.

◗ = weak body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **Evidence of the impacts of remedial education on violence, crime, or correlated outcomes is weak but promising.** We identified one observational study from the United States that involved formerly incarcerated youth. The study focused on resettlement support in the form of remedial education and vocational training and demonstrated an association with reduced substance use, further educational attainment, and improved employment outcomes (National Council on Crime and Delinquency 2009, cited in Adler et al. 2016).

LMICs. **As with HICs, we found weak but promising evidence from LMICs of the potential impact of remedial education on social-emotional skills and violent crime.** Using a comparison group design, UNICEF (2015b) found that a project intended to support children in Palestine by providing counseling and remedial education contributed to several emotional and social benefits for participants: improved ability to listen and moderate feelings, fewer negative feelings toward their families, more interaction with their neighborhoods, and lower levels of human insecurity. However, given that the intervention included both counseling and remedial education, it is not possible to separate the contributions of each intervention on the outcomes.

LAC. We found only one eligible study from LAC. It took place in Jamaica and found promising results on the impact of remedial education on risky behaviors. Guerra et al. (2010) evaluated the impact of the YMCA Youth Development Programme in Kingston, Jamaica. The program offered a remedial education program for at-risk out-of-school youth.[47] The authors used wait-list controls to evaluate outcomes for currently enrolled participants and used community controls for youth who had completed the program in the last five years. The authors found that the intervention significantly reduced participants' aggressive behavior (both samples) and propensity for aggressive behavior (graduate sample only).

3. Computer-assisted instruction

In this section, we review findings on CAI and how it may be used to tailor education to students' levels and educational needs. Our search process, which used terms for tracking, remedial education, and computer-assisted instruction, identified 3,004 documents, of which 16 were papers eligible for inclusion in this chapter. One of those papers dealt specifically with CAI. It is an RCT from Chile and reported on impacts on social-emotional skills and school environment, two outcomes correlated with violence and crime. We found no studies on the impacts of CAI on violence or crime. Appendix G provides additional information on the study included in this review. Table VI.4 summarizes evidence of the impacts of CAI on outcomes of interest.

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[47] We present results on interventions for out-of-school youth in Chapter XXI. We present results for this program in this chapter because of its remedial education component.

Table VI.4.   Strength of evidence for impacts on outcomes of interest: CAI

		Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
Intervention	**Region**	**Social-emotional skills**	**Environmental factors**	**Risky and protective behaviors**	**Violent crime**	**Nonviolent crime**	**School violence**
CAI	HICs	⊖	⊖	⊖	⊖	⊖	⊖
	LMICs	∅	∅	∅	∅	∅	∅
	LAC	🟡	◯	∅	∅	∅	∅

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 1 was eligible for inclusion.

🟡 = mixed findings in emerging or larger body of evidence; ◯ = emerging body of evidence with negative findings; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs and LMICs. Our search did not locate eligible studies from HICs or LMICs.

LAC. A CAI program in Chile that promoted competition among students increased math anxiety, improved students' concept of self-efficacy, and reduced students' preference for teamwork. Araya et al. (2019) used a randomized design to evaluate a CAI program that encouraged competition among classmates to motivate them. The program led to significant impacts on learning, as described in Appendix G, and encouraged a favorable attitude toward learning among students. After using the program, students were more likely to believe that they could become more intelligent through hard work (self-efficacy)—a likely favorable outcome. However, the program's competitive elements may have also had some unintended consequences. After the intervention, students had more math anxiety and were less interested in working with their peers, outcomes that affected students individually and affected the school environment. The result suggests that programs that promote competition over collaboration may contribute to social-emotional skills that could be correlated with violence or crime.

4. Tutoring

We found moderate evidence of the impacts of academic tutoring on violence, crime, and correlated outcomes—mostly from HICs. We summarize the body of evidence of these effects in Table VI.5, reflecting the literature that we found through our foundational literature review; our bibliographic search of studies in HICs, LMICs, and LAC; and our search of websites for grey literature (as described in Chapter III). Our search process incorporated tutoring in the search for studies related to out-of-school-time activities, mostly discussed in Chapter XXII. The process identified 4,915 papers, of which 4 were focused on using tutoring as a strategy to teach at the right level and were eligible for inclusion in this chapter. Of those, 3 were from HICs, one was

from an LMIC outside LAC, and one was from an LAC country.[48] Appendix G presents additional information on the studies included in this review. We discuss this literature below.

Table VI.5.   Strength of evidence for impacts on outcomes of interest: tutoring

		Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
Intervention	**Region**	**Social-emotional skills**	**Environ-mental factors**	**Risky and protective behaviors**	**Violent crime**	**Nonviolent crime**	**School violence**
Tutoring	HICs	◖ (blue)	◗ (yellow)	◖ (blue)	○ (blue)	⊖	⊖
	LMICs	∅	∅	∅	∅	∅	∅
	LAC	◖ (gray)	∅	∅	∅	∅	∅

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 5 were eligible for inclusion.

◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ◗ = findings of no impacts in emerging or larger body of evidence; ◖ = weak body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **We found moderate evidence of positive impacts of peer-assisted learning (PAL) activities on risk and protective behaviors and social-emotional skills, weak evidence of no impacts on environmental factors, and one high quality study showing marginally significant reductions in violent crime.** A meta-analysis conducted by Ginsburg-Block et al. (2006) examined the impact of PAL on social-emotional skills and risk and protective behaviors among primary school students across 36 experimental and quasi-experimental evaluations. The study found that, on average, the evaluations demonstrated small to moderate positive effects of PAL programs on the two sets of outcomes. Our bibliographic search identified a randomized evaluation of a nine-week PAL intervention for grade 7 students in Hong Kong (Leung et al. 2013), which found no significant impacts of the intervention on social-emotional skills or environmental factors (family or school). However, the relative weight of evidence in the two studies suggests that the average impact of PAL on social-emotional skills in HICs is likely positive. A rigorous study of the impact of the Match tutoring program, which provided one hour per day of math tutoring for disadvantaged, low-performing high school students in grades 9 or 10 in Chicago, found small reductions in arrests for violent crime (Cook et al. 2015). This study also evaluated impacts on disciplinary measures taken in school and found no impacts.

LMICs/LAC. **The evidence base of the impact of tutoring on violence- and crime-related outcomes from LMICs and LAC is almost nonexistent.** We identified two experimental studies of tutoring programs in LMICs that evaluated the impact on outcomes

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[48] Tutoring initially was part of the extracurricular activities chapter (Chapter XXII) and search terms related to tutoring were included in the search for that chapter. However, after completing the searches for Chapter XXII, we moved literature on using tutoring as a strategy to teach students at the right level to this chapter. The total search results of 4,915 results includes results for all search terms for the out-of-school time activities search.

correlated with violence and crime, but both have limited value to the review. The first evaluation, the USAID school dropout prevention pilot (SDPP), which aimed to reduce dropout in primary and secondary school, found mixed evidence of improvements in youth attitudes toward school and behavior in school, but the intervention paired tutoring with other intervention activities (Creative Associates International 2015). The study conducted by Cabezas et al. (2011), discussed in more detail in Appendix G, evaluated small-group tutoring for fourth grade students conducted by a volunteer (versus one-on-one tutoring) in Chile and found no impacts on participants' self-perceptions as readers.

C. Recommendations

1. Recommendations for future research

This review has revealed important evidence gaps for the key programs that may be used to promote teaching at the right level. In LAC specifically, we found no research on tracking, only weak evidence on remedial education and tutoring, and an emerging evidence base for CAI on impacts on social-emotional skills. We found little research on other outcomes correlated with violence and crime and only two studies (on remedial education and tutoring) on the impacts on crime. Additional rigorous research in LAC countries and LMICs on all four strategies to teach at the right level would be beneficial, but we consider research on remedial education and tutoring higher priority than research on tracking or CAI, given that research on tracking and CAI shows relatively little promise. Any new research should, whenever possible, implement more than one approach, in more than one context (such as urban or rural) and with more than one population (such as primary and secondary students) to measure their relative impacts. New research should include cost benefit analysis.

2. Recommendations for investing in teaching at the right level

The evidence to support the use of teaching at the right level to improve cognitive skills and academic success is strong, but the evidence to support teaching at the right level to reduce violence or improve outcomes correlated with violence and crime is limited and mixed. Based on the evidence found in this review, we do not recommend funding tracking or CAI as strategies to decrease violence and crime.

- **Consider implementing remedial education as a potential intervention to reduce violence and crime in LAC countries or LMICs.** There is emerging positive evidence that remedial education can potentially improve some outcomes related to violence and crime. In addition, as described in Appendix G, remedial education has proven successful in providing a path back to formal education for students at risk of dropping out or students who have already dropped out.
- **Consider implementing PAL.** Moderate evidence from HICs suggests that tutoring in primary schools may improve social-emotional skills and reduce violence, and emerging evidence shows the same for secondary schools with high-dosage tutoring programs (five hours per week with a tutor). Emerging evidence from LAC suggests impacts on social-emotional skills. Therefore, we recommend that policymakers in LAC and LMICs consider implementing PAL for primary and secondary school students. However, we make this recommendation with reservations given that nearly all the evidence on PAL's impacts is based on experience in HICs only.

VII. CLASSROOM-BASED SOCIAL-EMOTIONAL LEARNING

Evidence summary and mechanisms through which intervention can affect violence and crime				
	Overall evidence			
Intervention	**Correlated outcomes**	**Violence and crime outcomes**	**Evidence from LAC/LMICs**	**Mechanisms**
Classroom-based social-emotional learning	◗ (blue)	⬤ (yellow)	◖ (gray)	Improved social-emotional skills can affect violence and crime through a variety of pathways. They can directly affect one's likelihood of engaging in violent and criminal behaviors. Social-emotional skills can directly improve learning and educational attainment which can improve employment and decrease violence and crime. Social-emotional skills can also improve the school environment, which in turn can improve learning and attainment and therefore violence and crime.
Legend: ⬤ = strong body of evidence with positive findings; ◗ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ⬤ = mixed findings in emerging or larger body of evidence; ◖ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ∅ = no body of evidence.				
The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.				

A. Program description

Classroom-based social-emotional learning (SEL) is a subset of SEL programming that helps children and youth develop social-emotional competencies and use them to coordinate cognition, emotion, and behavior constructively. It does so by delivering curricula or lessons designed to strengthen one or more social-emotional skills. Classroom-based SEL programs vary broadly in what skills they emphasize, how they deliver these skills, and whom they involve. Programs' choice of skills often depends on the developmental level of their participants and programs' outcomes of interest. Programs may promote skill building by integrating SEL lessons into existing curricula, providing freestanding lectures, or implementing SEL-intensive classes. Their pedagogical approaches include cognitive behavioral therapy, role playing, play-based learning, and others.[49] Classroom-based SEL often involves teachers as implementers. Hence, teacher training is a common programmatic component. More broadly, multicomponent programs generally seek to magnify their benefits to children and youths by combining classroom-based social-emotional skill building with noncurricular activities. These activities involve parents, teachers, or entire schools and include classroom management training, parental

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[49] Cognitive behavioral therapy (CBT), a common form of psychotherapy, refers to activities that help youth interventions focus on changing patterns of thought, leading to both positive emotions and positive behaviors (Beck 2011). In Chapter XVI, in the context of school counseling, we discuss the strong evidence for the effectiveness of CBT in improving both behavior and the school environment. We classify the CBT interventions included in this chapter as classroom-based SEL rather than as counseling because they are curricular programs that draw on CBT to teach self-regulation, social skills, and other social-emotional skills.

counseling, community-building exercises, and more.[50] Participants in classroom-based SEL may include all students in a grade or school, as is the case with universal programs. Targeted or indicated programs often limit their focus to students at risk of developing behavioral problems.

In Table VII.1, we summarize the key program elements, typical target age group, characteristics of the target beneficiaries, and goals of classroom-based SEL programs.

Table VII.1. Summary of classroom-based SEL programs: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
Classroom-based SEL	Children and youth in primary and secondary school	Programs often target whole schools, or focus on students at risk of developing behavioral problems	Skill building lessons or curricula; training to teachers to integrate into existing curricula, provide freestanding lectures or implement SEL-intensive classes using varied pedagogical approaches; multicomponent programs that combine skill building with noncurricular activities	To improve social-emotional skills to help children and youth perform better in school through the delivery of skill-building curricula or lessons and other support activities.

A distinctive feature of classroom-based SEL is its focus on building social-emotional skills through classroom-based lessons or curricula. Some multi-component programs covered in this chapter combine curricular activities with other efforts to support to students' development. Some of these supports include programs covered in other chapters. For instance, Incredible Years and Second Step, two prominent classroom-based SEL programs, combine social-emotional skill building with classroom management (Chapter VII) and bullying prevention (Chapter VIII). Though we generally cannot isolate the effects of SEL in these multicomponent-programs, we considered that such multi-component programs are relevant for this chapter if the delivery of classroom-based SEL curricula is an important programmatic activity.

Theory of change. Classroom-based SEL programs improve social-emotional skills which can, in turn, affect violence and crime through multiple mechanisms as discussed in Chapter II. First, improved social-emotional skills can directly affect one's likelihood of directly engaging in violent and criminal behaviors. Second, improved social-emotional skills strengthens children and youths' capacities to overcome challenges and benefit from opportunities in their environment, thereby improving learning and educational attainment, therefore eventually employment. Similarly, enhanced social-emotional skills can also improve the school environment, which in turn can improve learning and attainment; research has found that a reduction in disruptive classroom behavior through classroom-based SEL improves teaching

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[50] For example, the "whole school approach" advanced by the Collaborative for Academic Social and Emotional Learning (CASEL) considers the school community as the unit of change for SEL programming and advocates for integrating SEL into "daily interactions and practices at multiple setting levels in the school using collaborative efforts that include all staff, families, teachers, and children." Arguments in favor of the "whole school approach" suggest that piecemeal SEL interventions may be less effective because they fail to foster social and emotional skills "consistently and with continuity" and across several social contexts (Oberle et al. 2016). Empirical evidence on supporting the whole-school approach (in the form of multicomponent programs) is mixed.

efficacy, school bonding, and other aspects of the school environment (Oberle et al. 2016; Hawkins 2001; OPRE 2014).

Target beneficiary profiles. Classroom-based SEL programs focus on students at all grade levels, from preschool to secondary school, but programs adopt different approaches to engaging these populations. Literature from HICs suggests that a program's choice of skills should carefully consider youths' developmental levels. Given that youths' readiness both to learn skills and recognize the skills' relevance to daily challenges are a function of age, younger and older students benefit from different sets of skills. For instance, even though children are capable of forming a sense of self and may benefit from learning to label basic emotions, adolescents understand abstract concepts and may need tools for assessing how emotions relate to responsible behavior (IES 2017; Osher et al. 2016; Greenberg et al. 2003; Guerra et al. 2017).[51] Similarly, programs targeting primary and pre-primary children may combine classroom-based SEL with reading programs, whereas programs targeting secondary students may deliver SEL while emphasizing substance abuse prevention.

Developmental levels are not the only factor affecting the selection of the skills to be taught and other programmatic features. Expectations of how skills delivered early in life affect skills and outcomes later in life may also influence program design (Heckman and Kautz 2012; Kautz et al. 2015; Aspen 2017; Cunningham et al. 2016 cited in Soares et al. 2017). For instance, given that early signs of aggression and anti-social behavior are correlated with the incidence of crime, violence, and substance abuse in adolescence and adulthood, programming for pre-primary and primary students may focus on skills related to these behaviors (Rarrington and Loeber 2000; Huesmann et al. 2002 cited in Klevens et al. 2009; Moffit and Caspi 2001). Students' characteristics can also influence program design. For instance, many programs reviewed here target youths from disadvantaged communities – including students attending schools in inner city or low-income neighborhoods – or are only open to students engaging in problem behaviors.

B. Findings from the evidence review

The overall strength of the evidence of SEL's ability to impact violence, crime and correlated outcomes is moderate, with important differences in the availability, quality, and breadth of research in HICs and LMICs/LAC. The evidence base documenting SEL's direct effects on violence and crime in HICs is emergent and concentrated in a few high-quality studies. The available literature on SEL's effects on social-emotional skills and behaviors in HICs includes several meta-analyses and long- and short-term studies, though some studies exhibited methodological limitations. For example, the meta-analyses addressed a broad band of SEL programs, the studies reported high levels of nonresponse and/or attrition, and the diversity of classroom-based SEL programming made it difficult to ascertain which intervention strategies yielded positive outcomes. In terms of significance and direction of effects, the HIC literature shows that SEL programs implemented in pre-primary, primary, and secondary school have mixed effects on crime and violence and generally positive impacts on social-emotional skills,

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[51] Developmental levels may also play a role in determining other program features. Some evidence suggests that children and adolescents respond differently to some program parameters. For example, adolescents may respond negatively to programs that disregard their sensitivity to status and positively to programs that promote skill building under the influence of trusted adults and peers (Soares et al. 2017; Yeager 2018).

behaviors, and the school environment. In HICs, well-studied classroom-based SEL programs have generated positive economic returns. Within LMICs and LAC, we found that research on SEL is generally scarce, lacking in quality, and narrow in scope. For instance, we find that most studies on programming for pre-primary and primary school students and measure effects on behavior or social-emotional skills. The evidence documenting SEL's impact on social-emotional skills[52] and behaviors is weak, and only one study assessed SEL's effects on violence and crime. The small group of studies implemented in LMICs and LAC find SEL has positive effects on behavior and mixed effects on social-emotional skills and the school environment.

Our search for literature related to SEL identified 4,382 papers, of which 38 were eligible for inclusion in this chapter.[53] Of these, 26 were from HICs, 6 were from LMICs, and 6 were from LAC. We summarize the body of evidence in Table VII.2 and discuss the literature below. This reflects the literature we found through our foundational literature review and our bibliographic search of studies in LMICs and LAC, and our search of websites for grey literature (as described in Chapter III) in LMICs and LAC. Appendix H presents a list of all studies included in this review.

Table VII.2. Summary of findings for the strength of evidence on outcomes of interest: classroom-based SEL

| Intervention | Region | Impacts on outcomes correlated with violence and crime | | | Impacts on violence and crime | | |
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Classroom-based SEL	HICs	◖(blue)	◖(grey)	◖(blue)	◖(grey)	◯(yellow)	◯(yellow)
	LMICs	◖(grey)	◖(grey)	◖(grey)	∅	∅	∅
	LAC	◖(grey)	◖(grey)	◖(grey)	∅	∅	◖(grey)

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 38 were eligible for inclusion.

◖ = moderate body of evidence with positive findings; ◯ = mixed findings in emerging or larger body of evidence; ◖ = weak body of evidence; ∅ = no body of evidence.

HICs. Several meta-analyses looked at classroom-based SEL and other SEL programs together and found that SEL programs as a whole have positive effects on social emotional skills and risk behaviors in HICs and, in particular, in the United States.[54] Important meta-analyses include Wilson and Lipsey's (2007) review of 249 studies documenting SEL's effect on

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[52] There are a wide range of measures of social-emotional skills in use in the literature, some of which are of potentially higher quality than others. In this review, we did not differentiate between qualities of measurement in this review, nor did we focus on comparing studies with similar measurement. Appendix C contains further information about measurement.

[53] Our bibliographic search combined search terms for SEL and early childhood education.

[54] About 90 percent of the studies included in Wilson and Lipsey (2007) and Durlak et al. (2011) were based in the United States, with studies from Australia, Canada, and the United Kingdom accounting for the remainder. In Taylor et al., 46 percent of the studies did not take place in the United States, but the authors did not identify the countries represented in the remaining 54 percent of their sample.

aggressive and disruptive behaviors in school. The authors found significant improvements in these behaviors and positive changes in social-emotional skills, school performance, and school participation. Durlak et al. (2011) compiled 213 SEL evaluations and found significant, positive effects on social-emotional skills, conduct problems and social behavior in school, and academic performance. Taylor et al. (2017) confirmed the durability of SEL's impacts on social-emotional skills, social behavior and conduct problems in school, and academic performance by examining 82 assessments with follow-up periods of at least six months.

Even though the above studies showed that, on average, SEL had significant, positive effects on social-emotional skills and behaviors, the research did not measure effects for classroom-based SEL in particular and does not distinguish which approaches to SEL are most promising. These studies show that diverse approaches to SEL can be effective and beneficial to diverse populations but have not clearly established which approaches are most promising overall or within different contexts.[55] Wilson and Lipsey (2007) showed that single and multicomponent programs and programs emphasizing behavioral, cognitive, social, or other skills produced similar effects on aggressive and disruptive behavior. These effects were larger for students at risk of these behaviors. Durlak et al. (2011) also found that single and multicomponent programs were both effective, that teachers successfully implemented SEL, and that programs using SAFE—Sequenced, Active, Focused, and Explicit—programming affected more outcomes than did programs based on alternative programming.[56] Taylor et al. (2017) showed that impacts on a summary outcome measure did not vary by race, socioeconomic background, and school location (United States versus non–United States).

Longitudinal studies showed that building social-emotional skills early in life generates benefits that extend into adolescence and adulthood and that the adoption of longer rather than shorter implementation periods may be important for program success. Algan et al. (2014) reported that a two-year classroom-based SEL program targeting at-risk students in grade 2 generated some positive effects on social-emotional skills in early and late adolescence (ages 10 through 13 years and 14 through 17 years, respectively) and positive effects on some, but not all indicators of criminality in early adulthood (ages 18 through 27 years). Hawkins et al. (1999) evaluated the Seattle Social Development Program (SSDP), an intervention designed to improve school bonding in high-crime areas. The study showed that students exposed to SSDP in grades 1 through 6 achieved significant improvements in school misbehavior, school bonding, and risky sexual behavior; mixed effects on different indicators of crime, though most are insignificant;

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[55] In addition, Diekstra and Graveseijn (2008) reviewed 19 meta-analyses of universal, school-based SEL programs published between 1997 and 2008. Some of the studies reviewed by the authors also covered some targeted and non-school-based programs. The assessment, which includes Wilson and Lipsey (2007) and Durklak et al. (2007), found that the "overall picture" presented by these studies suggests that SEL succeeds in developing the noncognitive competence of children and youngsters and in reducing and preventing risky behaviors such as externalizing problems and anti-social behavior. As with the meta-analyses described above, they identify only a few guidelines for implementation (such as the need for longer duration to ensure program effectiveness) but do not generate strong conclusions on best practices for effective SEL programs. Finally, see Domitrovich et al. (2017) for an overview of meta-analyses of universal, school-based SEL programs.

[56] According to the definition of SAFE practices in Durlak et al. (2011), sequenced programs use coordinated and connected activities, while active programs use new forms of learning. In addition, focused programs include at least one component emphasizing the development of social skills, and explicit programs target specific SEL skills.

and null effects on substance abuse in early adulthood (age 18).[57] It also suggested that longer implementation periods are important to success; students exposed to SSDP only in grades 5 and 6 demonstrated far fewer gains.[58] A multiyear evaluation of Positive Action, a multicomponent program focused on social and character development, followed students from inner-city Chicago schools over a six-year period of program delivery (grades 3 through 8). Participants showed less decline in their social-emotional skills and significant improvements in violent and disruptive behaviors (Lewis et al. 2013, 2016). A previous long-term study of Positive Action observing Hawaiian students from grades 1 or 2 through grade 5 also found reductions in violent behavior alongside reductions in substance abuse and sexual activity. Longer implementation periods were also important to Positive Action; students exposed to three or more years of the Hawaiian installment of Positive Action accrued significantly higher benefits on all outcomes (Beets et al. 2009). [59]

Studies of pre-primary and primary school programs provide some support for early intervention, demonstrating that classroom-based SEL programs have positive or mixed benefits for social-emotional skills and problem behaviors. Promoting Alternative Thinking Strategies (PATHS) is a widely implemented program designed to reduce children's emotional and behavioral problems. Evaluations of PATHS have addressed diverse settings (urban and rural settings), grades (through grade 4), and populations (low-income students, Head Start enrollees, and deaf children). The studies showed that PATHS consistently improves social-emotional skills and generates positive or mixed effects on behaviors (Domitrovich et al. 2007; Faria et al. 2013; Fishbein et al. 2016; OPRE 2014). A recent PATHS evaluation conducted over a United States-wide sample of Head Start students also suggested that the program may benefit some aspects of school environment (OPRE 2014). Another well-studied program, Tools of the Mind, uses play-based learning to promote self-regulation. A one-year installment of Tools of the Mind, implemented in preschools serving low-income families in New Jersey, generated positive impacts on problem behaviors and measures of classroom environment (Barnett et al. 2008). A larger trial of Tools of the Mind, involving disadvantaged school districts in Tennessee and North Carolina, found no impact on self-regulation (Farran and Wilson 2013). A systematic review of the previous studies of Tools of the Mind and four additional studies found that the direction and magnitude of Tools of the Mind's self-regulation outcomes were favorable but insignificant (Baron et al. 2017). Bierman and Motamedi (2015) and Rimm-Kaufmann and

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[57] School bonding is a measure of the school environment that is considered a protective factor against behavior and health problems, i.e., "attachment, a positive emotional link, and commitment, a personal investment in the group, are the component elements of the social bond" (Hawkins et al. 2001, p. 225). The authors measured school bonding by using a scale based on a series of statements such as "I like school," "I look forward to going to school," and "I do extra school work on my own."

[58] Specifically, students who received a lower dose of SSDP reported gains in only one of the three indicators used to measure school misbehavior and one of the four indicators used to measure risky sexual activity. In contrast, students who received a longer intervention reported positive gains in two of three school indicators of school misbehavior and three of four indicators of risky sexual activity as well as positive gains in other outcomes. In a separate analysis, Hawkins et al. (2001) argued that differences in levels of school bonding in early adolescence (age 13), which favored the grade 1 through 6 intervention group, was a strong mediator of this result.

[59] Beets et al. (2008) also found that teacher reports of violent behaviors pointed to a significant reduction in this outcome; teacher reports on substance abuse suggested no impact on this variable.

Hulleman (2015) provide lists of successful, promising, and ineffective programs at the primary and pre-primary levels.

The few evaluations of classroom-based SEL programs targeting secondary students suggest that such program may improve crime, social-emotional-skills, behavior and education, however the evidence is mixed and inconclusive. These programs involved short implementation and follow-up periods, but available studies show mixed and heterogeneous effects across crime, social-emotional skills, behavior, and education. Programs targeting older youth often combined the delivery of SEL curricula with activities addressing life challenges that are more likely to affect older youth. For instance, Second Step and Life Skills Training (LST) promote social-emotional skill building in addition to the prevention of bullying (Second Step) and substance abuse (LST). A one-year installment of Second Step targeting secondary students in Kansas and Illinois reduced physical aggression but generated no change in sexual violence victimization and perpetration, bullying perpetration or peer victimization, or the perpetration of homophobic harassment or victimization (Espelage et al. 2013). LST reduced delinquency among grade 6 students attending program schools in New York City but led to mixed effects on fighting and no impact on verbal or physical aggression. Effects were stronger for students who received more intense exposure to the program. Students who participated in at least half of LST sessions reported positive effects on all other outcomes other than verbal aggression, for which the impacts were mixed (Botvin et al. 2006). Previous evaluations of LST have suggested that the program leads to consistent, positive impacts on substance abuse (Botvin and Griffin 2004). Becoming a Man (BAM) delivered cognitive behavioral therapy (CBT) to male secondary students attending disadvantaged Chicago schools. Heller et al. (2017) undertook a randomized assessment of a one-year installment of BAM and found that, despite limited participation, the program improved school engagement and reduced total arrests among students selected for the program in grades 7 through 10. In addition, the study detected similar yet larger impacts among students that actually participated in BAM but found that the education impacts were the only effects to persist one year post-intervention.[60] A study of a two-year installment of BAM, also conducted by Heller et al., (2017) generated no significant effects in the first year of programming but did find positive, significant effects on education outcomes and arrests in the program's second year. Here too, participation was imperfect and impacts were largest for those students that actually participated in the program.

Cost-benefit assessments of several well-studied programs are positive, albeit most estimates apply to specific installments of these programs. Cost-benefit analyses estimated that the program reviewed by Algan et al. (2014) returned $14 per dollar spent and that the net benefits of SSDP and the Chicago installment of Positive Action were $2,770 and $2,070 per student, respectively (Lee 2012 cited in Belfield et al. 2015b and Belfield et al. 2015a). A cost-benefit analysis based on several PATHS studies estimated the program's net benefits per student at $7,769 (WSIPP 2015). The net present value of the Kansas and Illinois and the New York versions of Second Step and LST were $2,670 and $4,400 per student, respectively

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[60] BAM also sought to reduce school dropout among participants, and the Heller et al. study is also examined briefly in Chapter XIV, Dropout and Expulsion Prevention.

(Belfield et al. 2015b). Heller et al. (2017) performed a cost-benefit analysis that pointed to benefit-cost ratios between 5:1 and 30:1 for the BAM program.

The diversity of classroom-based SEL makes it difficult to identify the key components of effective programs. Efforts to identify best practices in HICs are underway, but existing resources offer advice on general SEL programming and draw guidance from studies of variable quality. For instance, the U.S. Department of Education's Institute of Education Sciences (IES) (2017) reviewed 83 syntheses of best practices for students ages 3 through 8 years and found that successful programs targeted individual skill building and the school environment; are SAFE; provided adequate teacher training; met the needs of the population at the classroom, school, and district levels; and aligned content across grades and skills. Soares et al. (2017) compiled recommendations for programs targeting adolescents and young adults. They recommended reinforcing learning through experience, offering a combination of appropriately sequenced skills, emphasizing the relational aspects of programming, ensuring that environments are caring and supportive, and integrating learning contexts (communities, education, and workplace). The Aspen Institute (2017) provided Consensus Statements of Evidence for integrating social-emotional development into schools in the United States. The statements call for integrating SEL into schools and the wider community, implementing developmentally and culturally appropriate programs, reinforcing competencies through daily interactions and school culture, and embedding SEL in daily teaching. Finally, Durlak (2015) highlighted the importance of high quality implementation to ensure SEL's success. Durlak (2015) defined implementation as a multidimensional concept involving several ingredients, including dosage, quality of delivery, participant responsiveness, and more, and stressed the importance of identifying and maintaining key ingredients when transferring programs across contexts.

LMICs and LAC. We found that few studies documented the effects of SEL curricula in LMICs and LAC, a finding noted by others (World Bank 2016). In addition, many available studies are of low quality and are characterized by small sample sizes and limited information on program assignment or analytic procedures, with potential interpretation errors resulting from attrition, spillovers, participation, and other threats to validity. Though few in number, the strongest studies in LMICs and LAC focused on programs delivered in secondary school. All studies we identified in LMICs and LAC addressed short-term outcomes and measured changes only in correlated outcomes—specifically, social-emotional skills and behavior.

Despite its limitations, literature from LMICs and LAC shows that SEL may improve social-emotional skills and behaviors among preschool and primary school children. Studies documenting SEL's benefits for this population include the feasibility assessment conducted by Waldemar et al. (2016) on M-SEL, a program delivering SEL and mindfulness curricula to grade 5 students in three Brazilian public schools.[61] M-SEL's curricula emphasized emotional regulation, social and behavioral skills, and decision making. This study concludes that M-SEL

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[61] The authors describe mindfulness as a "form of mental training, through which attentional and emotional regulatory skills are cultivated and enhanced." Such training "relies on the core process of directing one's attention to the present experience, moment to moment, in a nonjudgmental and nonreactive way." The authors list several arguments in favor combining SEL and mindfulness, including the idea that mindfulness may enhance SEL's effects by boosting core social-emotional competencies.

is associated with improved emotional and prosocial skills and behavior conduct problems. Dang et al. (2017) piloted RECAP-VN among grade 2 students in two Vietnamese cities. RECAP-VN was adapted from a program in the United States that focused on strengthening problem solving and social skills.[62] Midway through RECAP-VN's one-year implementation period, Dang et al. detected improvements in individual social skills (self-control and assertiveness) but no improvements in group-oriented social skills (cooperation or empathy). The program's effects on social skills seemed to be concentrated in students at low risk of mental health problems, suggesting that classroom-based SEL may affect low- and high-risk students through distinct mechanisms.

We identified relatively few studies documenting SEL's effects on secondary students; the available studies suggest that SEL generates mixed benefits for social-emotional skills. Leventhal et al. (2015) evaluated Girls First Resilience Curricula, a skill-building program designed to strengthen girls' psychological well-being. The authors found that five months of Girls First led to significant gains in emotional resilience, self-efficacy, and social-emotional assets among students in grades 7 and 8 in Bihar, India. Araya et al. (2013) assessed *Yo Pienso, Siento, Actuo* (I Think, Feel, and Act), a universal intervention that delivered one year of CBT to low-income, secondary students in Santiago, Chile. The researchers concluded that the program had no significant effects on problem-solving skills three months or one year post-intervention. They found that the effects did not change with participation and did not differ among students who attended at least 6 of the program's 13 sessions.

Several studies focused on LMICs and LAC explored the efficacy of United States–based programs and programs designed by researchers and found positive results on social-emotional skills and behaviors. Evaluations of United States–based programs include the assessment by Clinton et al.(2017) of Second Step in two Guatemalan preschools, one serving children from families with high socioeconomic status (SES) and the other serving children from families with low SES.[63] The assessment found that all students showed improvement on a general measure of social-emotional skills but that children with high SES achieved greater gains on some skills. Bilir et al. (2017) found that PATHS (discussed earlier in this chapter in the U.S. context) improved social-emotional skills among Turkish primary school students, particularly social skills and emotional regulation. However, they found no impact on indicators of school climate

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[62] RECAP, the United States–based version of this program, is a cognitive behavioral and social skills training program for elementary school children with emotional and behavioral problems. Dang et al. noted that several evaluations have indicated the program's effectiveness in improving emotional and behavioral skills in the United States.

[63] Clinton and Amesty (2010) analyzed Second Step or *Segundo Paso*, which is based on the Second Step Early Learning Curriculum developed in the United States and adapted for the Venezuelan context. An efficacy trial of the program conducted among 18 Head Start classrooms and 13 pre-primary classrooms in community preschools serving low-income families in Massachusetts suggested that the program improved children's noncognitive skill levels (Upshur 2017). In addition, the authors cited *Steg for Steg* and *Faustlos*, the Norwegian and German versions, respectively, of Second Step as successful, earlier versions of these programs. However, of these programs, only *Steg for Steg* reported a positive effect. Specifically, Holsen et al. 2008 found that *Steg for Steg* had positive effects on social-emotional competencies and null effects on behaviors of elementary school children (Holsen et al. 2008). Schick and Cierpka (2005) showed that children in schools exposed to *Faustlos* improved aggressive behaviors over time but that the improvements were insignificant relative to a control. In addition, *Faustlos* did not seem to improve social-emotional skills over groups and time. Both studies exhibited methodological deficiencies.

focused on student-teacher relationships and teachers' instructional approaches. A previous study of PATHS in Turkey reported improvement in social-emotional skills and behaviors (Arda and Ocak 2012). Researcher-developed programs include BASE, a program for students in grades 3 through 5 in Chile, and an unnamed "grit" intervention for grade 4 students in Turkey. Researchers designed both programs according to qualitative and/or expert consultations and trained teachers to deliver program content. BASE sought to enhance social-emotional skills while emphasizing school bonding, and the unnamed "grit" intervention aimed to change students' beliefs about the role of effort in achieving goals. A randomized evaluation found that BASE generated mixed impacts on social-emotional skills and students' perceptions of school climate and positive impacts on academic performance (Berger et al. 2011). The grit program improved several indicators of grit and standardized test scores (Alan et al. 2016).[64]

Two studies and one symposium included in our review explored classroom-based SEL's benefits for primary school children in high-violence contexts and found positive or mixed effects on social-emotional skills and behaviors. Baker-Henningham et al. 2009 piloted Incredible Years, an established United States–based program in high-crime neighborhoods in Jamaica.[65] The program offered preschool teachers training in behavioral management and related topics and delivered SEL curricula focused on problem solving, anger management, and social skills. Schools that participated in Incredible Years reported significant reductions in inappropriate behavior, including aggressive and disruptive behavior, and improvements in most measures of school climate. *Aulas de Paz* (Classrooms in Peace) provided students in grades 2 through 5 living in high-crime neighborhoods in Colombia with curricula designed to strengthen the social-emotional skills prioritized by national education policies (see Torrente et al. 2015 and CASEL 2017 for an overview of SEL policies in LMICS and LAC). The program also provided teacher training in implementation, parental learning groups and home visits, and extracurricular activities. Two years post-intervention, *Aulas de Paz* had mixed effects on social-emotional skills and behavior but no impact on student-reported aggression, empathy, or verbal and physical victimization (Chaux et al. 2017). Proceedings from a recent symposium on SEL for crisis-affected children in Niger and Sierra Leone described two programs that provided skill-building curricula in addition to literacy and numeracy programing and teacher training. Preliminary

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[64] The grit intervention examined by Alan et al. (2016) sought to expose students to a "worldview in which any one of them can set their goals in an area of interest and can work towards these goals by exerting effort." The intervention involves teaching positive interpretations of failure and other skills and topics designed to promote "grit," a social-emotional skill that emphasizes "perseverance on a productive task." The program was apparently designed by the researchers in consultation with an interdisciplinary team of education psychologists, teachers, story writers, and media animation artists. Local teachers, trained in its contents, delivered the intervention during school hours dedicated to extra-curricular activities. The authors used games and behaviors to assess program impact on measures relating to grit, including the probability of engaging in a more difficult, more rewarding task (versus an easier, less rewarding task), task completion, and goal-setting behavior.

[65] A randomized study of a comparable, United States–based version of the Incredible Years implemented within Head Start classrooms and preschools serving low-income families in Seattle suggested that the program had mixed effects on noncognitive skills and behaviors, significantly improving an observation-based measure of school readiness in terms of self-regulation, conduct problems, and social skills but failing to improve a second set of observational measures capturing conduct problems, social skills, and child-teacher relationships. In addition, even though the sample of teachers available for the intervention was small, the authors found positive impacts on indicators of the school environment (Webster-Stratton et al. 2008).

results showed generally null effects on behavior (Niger) but a positive association between improving social-emotional skills and school attendance (Sierra Leone).[66]

As has been the case in HICs, programs in LMIC and LAC reflected diverse approaches to SEL. Teachers commonly implemented programs in LMIC and LAC, yet some programs discussed above turned for implementation to external individuals with varied qualifications. For instance, health professionals implemented M-SEL, trained mental health specialists delivered *Yo Pienso, Siento, Actuo*, and local women with at least 10 years of education delivered Girls First. Most programs were universal programs, and several were multicomponent, involving teachers and the broader school community. For instance, a Romanian program evaluated by Stefan and Miclea (2012) targeted several audiences and provided preschool students with social-emotional skill building (emotional regulation, problem solving, prosocial behavior, and other skills), parent training in child development and behavior management, and teacher training in classroom management. Stefan and Miclea (2012) found that students at high, moderate, and low risk for social or emotional deficits experienced positive or mixed gains in social-emotional skills and improved behaviors.

Research from LMICs and LAC highlights the importance of accounting for context when considering the design and outcomes of classroom-based SEL programs. Evidence suggests that programs implemented in high-violence contexts should consider that prolonged exposure to stressors disrupts youths' social-emotional development. In these contexts, youth may not benefit from the same selection or sequencing of skills as youth in other contexts (Soares et al. 2017). Similarly, authors questioned whether individual skill building is sufficient for generating positive outcomes in high-risk contexts. Stephan and Michlea (2012) argued that multicomponent approaches to SEL are needed to ensure that youths develop social-emotional skills despite persistent environmental risks. Resource scarcity and the need for support may also shape program design in LMICs and LAC. Dang et al. (2017) and Baker-Henningham et al. (2012) argued that universal programs are preferable to programs that target specific groups of students because they make better use of resources and engage higher levels of community support. Finally, organizing activities around culturally relevant examples and considering how social-emotional skills interact with different cultural values may also be important to program success and to interpreting program results (Leventhal et al. 2015; Dang et al. 2017).

C. Recommendations

1. Recommendations for future research

Evidence from HICs demonstrates classroom-based SEL's positive or mixed effects on crime and violence, social-emotional skills, and behaviors at different points in one's life. There is some support for early intervention, though programs implemented later in youths' lives have also succeeded and there is strong evidence that youths' skills are not fixed at a young age but are highly malleable throughout adolescence (National Academy of Sciences, Engineering, and

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[66] These studies were presented at a symposium conducted at the University of Pennsylvania titled "Social-emotional intervention programs for refugee and crisis-affected children in low-, middle-, and high-income countries." A summary of the symposium is available at https://pdfs.semanticscholar.org/2470/4acaecc296ac59aa2ac39c1a9c783b328a16.pdf.

Medicine, 2019). Our review finds limited evidence of the effects of classroom-based SEL in LMICs and LAC; however, the available studies do show some short-term benefits for social-emotional skills and behavior among children and adolescents. We recommend additional rigorous research on the effectiveness of such programs in the short and long term in LAC countries and LMICs that also incorporates cost-effectiveness analysis. We also recommend research aimed at identifying program elements that must be sustained or adjusted across target beneficiaries and contexts. New research on the relative importance of different program components and their adaptation to different contexts would illustrate best practices for diverse communities in HICs (IES 2017) and would facilitate adaptation of successful programs across different LMICs and LAC contexts. In addition, we recommend:

- **Additional rigorous evaluations (with a counterfactual) of the long term effectiveness of classroom-based SEL focused on secondary school populations.** Such research is essential for broadening the evidence base for programs with youth, determining how they compare with programs focused on pre-primary and primary school populations in terms of benefits and costs and whether these investments produce sustained effects on violence, crime, and related outcomes. Research on programs with older youth may also be important for Northern Triangle countries as such programs are relevant to age groups that are most likely to perpetrate and be victims of violence and crime (World Bank 2011).
- **Pilots of programs adapted from one context to another before going to scale.** Key programs developed in HICs such as PATHS and Incredible Years have already succeeded to a degree in LMICs and LAC, suggesting that piloting well-studied programs based in HICs in lower-income regions may be a fruitful way forward.
- Consider initiatives focused on generating unified measures of social-emotional skills that can be used in LAC countries and LMICs. There are a wide range of measures of social-emotional skills in use in the literature, some of which are of potentially higher quality than others. The diversity of measures makes it difficult to distinguish between skills and thus know clearly which skills are associated with what outcomes, posing a challenge for comparing results across programs. In Appendix C, we provide some information about a variety of measures used to measure social-emotional skills, including a compiled list of measures we identified in the literature and of measurement compendiums. We also discuss some challenges related to measurement in Appendix C.

2. Recommendations for investing in classroom-based SEL programs

Based on the global evidence, we recommend that policymakers and funders focus on the following:

- **Consider investing in classroom-based SEL programs, prioritizing early intervention.** Our review found stronger evidence for programs focused on the pre-primary and primary levels; evidence on the effectiveness of programs delivered later in life is more sparse, and is insufficient for generating a strong position for or against later intervention. Our findings show that programs targeting younger youth generate short-term benefits for behaviors and social-emotional skills and studies with long measurement windows suggest that early intervention may also improve important outcomes later in life, including those related to violence and crime. Furthermore, early intervention may be particularly helpful for LAC and LMIC countries, as low rates of enrollment in secondary school combined with high rates of

enrollment in primary school imply early, school-based programs will reach a broader population of students.

- **Recognize that some of the programmatic features of classroom-based SEL are broad and that best practices for HIC programs may not apply to LMICs and LAC.** Research from HICs has documented several best practices, and experts have emphasized the importance of developmentally appropriate and multicomponent programming. However, it is unclear how these recommendations transfer to LMICs and LAC. Prolonged exposure to violence and other stressors disrupts youths' development in LMICs and LAC such that the bundling or sequencing of skills considered ideal for youths in HICs may be unsuited to youths in LMICs and LAC. Similarly, the high investments required by multicomponent programs may deem them unattractive to resource-poor environments, especially given the evidence that single-component programs are also effective. Those transferring programs across contexts should not assume that HIC-based best practices are universal and should carefully consider which programmatic elements are needed to ensure effectiveness *and* fit-to-context.

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VIII.   SCHOOL INFRASTRUCTURE

Evidence summary and mechanisms through which intervention can affect violence and crime				
	Overall evidence			
Intervention	**Correlated outcomes**	**Violence and crime outcomes**	**Evidence from LAC/LMICs**	**Mechanisms**
School infrastructure	◖	◖	◖	Improved school climate results in a more positive learning environment, which can result in less violence in the school. Additionally, according to CPTED, infrastructure can decrease the opportunity to commit crimes or violence, thereby lowering the incidence of school violence.

Legend: ● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ◯ = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ∅ = no body of evidence.

The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.

A.   Program description

In this section, we discuss programs that alter the physical classroom and school environment with the goal of improving student behavioral outcomes and reducing violence and crime. A major aspect of a school's environment is its physical make-up, which consists of basic physical characteristics, including those that affect students' and staff's health and safety. Physical infrastructure can play an important role in making schools safe places by influencing the spaces where violence can occur. Physical infrastructure programs involve the imposition of minimum health and safety standards and crime prevention through environmental design (CPTED). In Table VIII.1, we provide an overview of these two types of programs that comprise the school physical infrastructure literature reviewed here. we summarize the key program elements, typical target age group, characteristics of the targeted beneficiaries, and goals of school physical infrastructure programs.

Table VIII.1. Summary of school infrastructure programs that affect violence and crime outcomes

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
School infrastructure	Primary and secondary school	All students in schools	• Minimum standards for infrastructure, health, and safety: The upkeep of physical infrastructure and health and safety standards in a school. Most often, this involves indoor environmental quality factors: light, air quality, temperature, and acoustics. This also includes electricity, heating, water, bathrooms, and other special features such as libraries or labs to support learning. • CPTED: The building's layout and natural surveillance (e.g., placement of windows to maximize visibility, circulation patterns to offer anonymity), access management (e.g., use of signs and landscaping to manage access to entrances/exits), and physical and order maintenance.	• To foster a positive institutional climate • To limit opportunities to commit crimes by carefully designing school spaces to influence offenders' decisions

A school's physical infrastructure refers to the layout and design of spaces within a school as well as to the fundamental physical conditions for health and safety that combine to create an optimal learning environment. The major components include those that affect light, air quality, temperature, and acoustics. Physical infrastructure programs in schools cover the maintenance and rehabilitation of school buildings and facilities, the provision of school utilities (electricity, drinking water, toilet facilities), and other school features (such as the existence of a library, computer laboratory, or science laboratory). These investments seek to improve school conditions and consequently convey social norms of appropriate behavior in these spaces.

A distinct approach to physical infrastructure that has gained some recognition recently is crime prevention through environmental design (CPTED) (Crowe and Fennelly 2014). CPTED refers to the careful manipulation of the school's physical design to enable self-policing of the environment. The approach is based on several key principles, including natural surveillance to improve the visibility of offenders to the general public; access management to control entry points to the school and limit opportunities for crime; and general maintenance and upkeep, with the idea that well-kept areas convey ownership and a sense of security and therefore are less likely to invite crime. Examples include the optimal placement of windows and lights in public spaces as well as the provision of fencing around school grounds. The goal is to decrease opportunities for crime through judicious use of school spaces.

In this review of the evidence, we include several aspects of a school's physical environment but exclude a few that arguably have a weak link to violence and crime outcomes. We focus on infrastructure elements, and exclude programs related to the provision of school inputs such as

educational resources and technology[67] because of the weak evidence base of their impacts on learning and other relevant outcomes. We also exclude programs related to the construction of new schools as these primarily seek to increase access to education rather than to reduce violence and crime in existing schools.

Theory of change. Investing in school infrastructure improves the school environment through different mechanisms. Thus, the adequacy of school facilities and their upkeep and maintenance indirectly influence violence and crime within the school by shaping the institutional environment; that is, by affecting the processes that characterize a positive school environment, including students' day-to-day experiences and perceptions of safety. On the other hand, CPTED is predicated on the belief that infrastructure can have direct impacts on violent behavior in schools. CPTED aims to decrease opportunities to commit crime by carefully manipulating the school environment, forcing perpetrators to rethink their actions by raising the perceived risk of being caught, therefore lowering the rate of crime in school Although the literature has historically emphasized individual risk factors related to school violence, the school environment or climate is gaining increasing recognition for its role in influencing violence in schools (Janosz et al. 1998; Janosz et al. 2005). Research has shown that measures of school violence are closely linked to the quality of the school climate; in particular, schools that exhibit more positive learning environments tend to account for fewer incidents of in-school violence (Johnson 2009; Steffgen et al. 2013; Reaves et al. 2018).

Target populations. Adequate school facilities that satisfy health and safety standards are considered prerequisites for learning. As such, physical infrastructure programs, including CPTED, are generally thought to apply in pre-primary, primary, and secondary schools.

B. Findings from the evidence review

We found scant research examining the impact of school physical infrastructure on violence and crime or other outcomes of interest. In Table VIII. 2, we summarize the weak evidence base for this topic. In the United States, one recent study attempted to establish a direct link between CPTED and schools that experienced violence and crime, but the study was primarily correlational and failed to rule out confounding factors that affected the relationship. In LMIC and LAC countries, our literature search found few relevant articles. Our bibliographic and grey literature searches of studies in HICs, LMICs, and LAC yielded no additional relevant articles. We present our findings based on the five eligible articles from our foundational literature review. Appendix I presents additional details on the studies discussed in this section.

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[67] We do cover computer-assisted instruction in Chapter VI (Glewwe and Muralidharan 2016).

Table VIII.2. Strength of evidence on the impacts on outcomes of interest: school infrastructure

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Pay for performance	HICs	⊖	◗	⊖	⊖	⊖	⊖
	LMICs	⊘	⬤	⊘	⊘	⊘	⊘
	LAC	⊘	⊘	⊘	⊘	⊘	⊘

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 3 were eligible for inclusion.

⬤ = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ⊘ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **While intuitively appealing as a mechanism to reduce violence in schools, CPTED has remained largely theoretical, with limited empirical research conducted to test its effectiveness in school settings.** Originally conceived as a strategy to prevent crime in urban areas, CPTED gained support as an effective crime reduction strategy, with studies providing partial confirmation of its benefits (Cozens et al. 2015). Summaries of case studies and evaluations of crime prevention projects suggest that CPTED generally works to reduce crime (Rubenstein et al. 1980; Poyner 1993; Sherman et al. 2002; Casteel and Peek-Asa 2000), although researchers also characterize the body of work as lacking methodological rigor (Sherman et al. 2002). It remains to be seen whether the concepts of CPTED hold in school settings. The most notable CPTED studies in schools demonstrated that certain hotspots—such as locker rooms, parking areas, restrooms, and hallways—are particularly vulnerable to student perpetrated violence in the absence of adult supervision. A recent study by Vagi et al. (2018) showed that higher CPTED scores in standardized assessments of schools in the United States are associated with higher perceptions of safety among middle school students and lower levels of perceived violence. However, we found no research apart from the above articles that formally evaluates the impact of CPTED programs carried out in school settings.

LMICs/LAC. **Many evaluations fail to consider the direct impacts of school infrastructure on violence and crime; of the few studies that do so, they are unable to isolate the direct impacts because investment in school infrastructure is often bundled with other programs in education projects.** An example is the body of evidence generated by UNICEF's Child Friendly Schools (CFS) model, which the organization implements in various countries as its flagship education program (UNICEF 2009c). CFS comprises a range of programs, often including a component to upgrade existing school facilities. Although our review uncovered a series of studies that evaluated the impact of CFS on safety in schools, the studies could investigate only the overall impact of the set of programs rather than the

contribution of infrastructure to outcomes.[68] Overarching findings from the global evaluation of CFS nonetheless showed that schools implementing the program created healthy, safe, and protective environments for students (UNICEF 2009c). A similar problem occurs for the evaluation of USAID's Central America Regional Security Initiative (CARSI) in LAC. The implementation of CARSI in Honduras specifically involved the expansion and remodeling of schools. A quasi-experimental evaluation of CARSI in the country showed that the initiative significantly reduced the incidence of crime victimization and violence in the affected communities (Berk-Seligson et al. 2014), but the study could not determine whether the result was attributable to school infrastructure improvements or to the six other community-level programs comprising the program. Other USAID evaluations in which the issue of bundling confounded the effort to measure school infrastructure impacts include the Ghana Transition and Persistence Project and the Middle Basic Education Program in Senegal. Both evaluations demonstrated that multicomponent education programs, which include school infrastructure improvement, have the potential to improve the school and community learning environments. But, again, these studies were unable to say how much school infrastructure ultimately contributed to these outcomes (USAID 2014; 2006).

C. Recommendations

1. Recommendations for future research

Overall, the evidence base supporting physical infrastructure as an effective violence prevention strategy is weak, though suggestive that it can potentially reduce violence in schools. We recommend research on the direct impacts of school infrastructure on violence and crime, particularly in LAC and LMICs, in addition to the research that looks at academic outcomes (see Cuesta et al. 2015 for a summary the impact of school infrastructure on academic outcomes). We also recommend that future evaluations that may not focus on violence and crime per se explore ways to incorporate explicit measures of violence and crime outcomes. In addition, since many education programs often bundle infrastructure with other programs, we recommend the use of evaluation designs that allow for the disentangling of effects of school infrastructure from other programs on both learning and violence and crime.

2. Recommendations for investing in school infrastructure programs

Given the global evidence, we cannot make recommendations on whether or how to invest in physical infrastructure to reduce crime and violence in LAC. Although school infrastructure investments affecting indoor environmental quality factors have significantly enhanced student learning in developed countries (see Appendix I), it is uncertain how these factors eventually relate to violence and crime or to a developing country setting. Also, while CPTED offers a promising new approach to violence reduction in schools, the literature as yet offers no credible evidence of its impacts on crime prevention in schools.

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[68] See, for example, UNICEF 2009a, UNICEF 2009b, and Velea 2012 for CFS evaluations in Nigeria, Thailand, and Moldova, respectively.

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IX. SCHOOL SECURITY MEASURES AND ZERO TOLERANCE POLICIES

Evidence summary and mechanisms through which intervention can affect violence and crime				
	Overall evidence			
Intervention	Correlated outcomes	Violence and crime outcomes	Evidence from LAC/LMICs	Mechanisms
School security measures	🟡	🟡	∅	By increasing the personal cost of committing a crime or violent act, such policies will result in decreased criminal and violent activity in schools.
Zero tolerance policies	◖	∅	∅	
Legend: ● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; 🟡 = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ∅ = no body of evidence.				
The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.				

A. Program descriptions

In this section, we discuss school security measures and zero tolerance policies intended to enhance the physical security of schools by serving as deterrents to violence and crime. These measures and policies often involve the installation of visible security measures and the implementation of strict disciplinary policies. Common types of security measures include metal detectors, security cameras, and school security guards, and, typically, the strictest disciplinary policy is a zero tolerance policy that imposes severe punishments for students disobeying school rules. In this section, we review the strength of the empirical evidence supporting the logic of these measures in curbing crime and violence and other correlated outcomes. In Table IX.1, we describe the key program elements, typical target age group, characteristics of the targeted beneficiaries, and goals of school security measures and zero tolerance policies.

Table IX.1. Summary of school security measures and zero tolerance policies: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
School security measures	Secondary school students; ages 12-18	Student population	Visible security measures that provide surveillance inside and throughout the vicinity of schools: metal detectors, security cameras, and security guards in schools, also called school resource officers (SRO)	To deter violent behavior of students or outside parties by preventing weapons from entering the school and by monitoring school grounds and enforcing rules
Zero tolerance policies	Secondary school students; ages 12-18	Student population	Predetermined sanctions such as suspension or expulsion of students who exhibit violent behavior, regardless of the situation or context of the behavior	To enact severe punishments to deter students from perpetrating future violent acts and to protect other students from typical perpetrators

School security measures. One way that some schools attempt to foster safe and conducive learning environments is by investing in visible school security measures such as metal detectors, security cameras, and police officers (typically appointed as school resource officers [SRO] in charge of safety) in school. Despite their cost, such measures often offer an appealing approach to appease parental fears about violence in schools given the measures' perceived effectiveness in promoting an orderly school environment. In theory, these tools limit the presence of weapons in schools, increase surveillance of school grounds, and enhance the ability of schools to respond to crises (Addington 2009). When they work, they can promote a sense of safety. However, school security measures remain controversial; many argue that their presence also instills fear among students and discomfort at school (Hirschfield 2008; Kupchik and Monahan 2006).

Zero tolerance policies. Another way that some schools try to deter violence is through the promulgation of zero tolerance policies designed to sanction students for violating school rules, regardless of the gravity of the action, circumstances, or situation. To effectively reduce incentives to behave violently, these punishments are often severe and include suspension or expulsion. Proponents of zero tolerance policies argue that a rigid application of rules reduces the subjectivity of disciplinary decisions, making it fairer to groups of students who are subject to a disproportionate share of disciplinary actions (Casella 2003). Such policies are also based on the philosophy that the exclusion of disruptive students permits a stable school climate (Ewing 2000).

Theory of change. School security measures and zero tolerance policies increase the personal cost of committing a crime or violent act, therefore when enacted, such policies will result in decreased criminal and violent activity in schools. Deterrence theory is based on rational choice theory, which posits that violent behavior is some function of perceived benefits and costs (Becker 1968). It operates on the assumption that violence loses its appeal if it becomes inconvenient. The presence of school police officers, metal detectors, and security cameras provides surveillance and increases the risk of getting caught for violent acts and criminal offenses. With their combination of harsh sanctions and strict enforcement of rules, zero tolerance policies raise the costs of violent behavior, dissuading perpetrators from committing violent acts in the first place.

Target populations. Although there is not necessarily a target population for school security measures and zero tolerance policies, the measures and policies are most commonly discussed and implemented in schools in the U.S. with adolescents and youth who are susceptible to bullying, sexual assault, and other forms of violence.

B. Findings from the evidence review

1. School security measures

The literature on the effect of school security measures focuses entirely on the United States. We base our review on six studies located through our foundational literature review: three literature reviews and three articles. Our search process incorporated school security measures in the search for studies related to school-based bullying and violence prevention programming, mostly discussed in Chapter XIII. The process identified 4,255 papers, but we did not find any evaluations from LMICs or LAC that were eligible for inclusion in this chapter. Given that an evidence base draws almost entirely from the United States, we hesitate to generalize the

findings to other settings. In Table IX.2, we summarize the findings on impacts on violence and crime and on outcomes correlated with violence and crime. At best, the evidence on the effectiveness of school security programs is weak, with several studies suggesting unintended consequences that may arise from their implementation.

Table IX.2.   Strength of evidence on the impacts on outcomes of interest: school security measures

| Intervention | Region | Impacts on outcomes correlated with violence and crime | | | Impacts on violence and crime | | |
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
School security measures	HICs	◖	◖	🟡	◖	◖	🟡
	LMICs	⊘	⊘	⊘	⊘	⊘	⊘
	LAC	⊘	⊘	⊘	⊘	⊘	⊘

Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 6 were eligible for inclusion.

◖ = weak body of evidence; ⊘ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **The literature largely does not support the idea that metal detectors reduce the risk of school violence.** Hankin et al. (2011) reviewed seven studies from the 15 years of research on the topic and concluded that the data are insufficient to determine the effects of using of metal detectors in schools. In addition, in some studies, metal detectors in schools appeared to heighten perceptions of danger among students. In one study in New York City, metal detectors appeared to lower rates of weapon-carrying in schools. However, these studies were based on self-reported survey data and relied on cross-sectional comparisons between schools, making it difficult to conclude whether impacts arise from metal detectors or from other factors that may affect both weapon-carrying and adoption of metal detectors.

There is no clear evidence that the use of school security measures such as security guards and surveillance cameras prevent violence in schools (NASP 2018). Indeed, the little available evidence suggests that security measures are linked to increased incidents of disruption and disorder in schools (Nickerson and Martens 2008; Steinka-Fry et al. 2016). In some cases, they might even corrode the school environment by instilling a sense of fear among students (Phaneuf 2009; Kupchic and Ward 2014). Schools employing police officers also report more crimes and minor offenses (NREPP 2015). To date, the most rigorous study on security measures in schools used a quasi-experimental approach to estimate impacts of federal grants for police in schools. Leveraging panel data on over 2.5 million students in Texas, Weisburst (2019) found that the grants led to a rise in disciplinary sanctions over time for middle school students in schools that received the grants compared to other schools. Impacts were most pronounced for low-income students (Appendix J provides further discussion of impacts on academic achievement).

One exception to these findings is the promising results from the Gang Resistance and Education and Training program (GREAT) in the United States, which suggest a way for effectively involving police officers in schools. The GREAT program uses law enforcement officers to conduct trainings in schools with students that combines elements of behavioral training, conflict resolution, and social skills development (Esbensen and Osgood 1999).[69] The program consists of 6 lessons delivered at the elementary level and 13 lessons delivered in middle school, including summer and family components. The goal of GREAT is to build personal resiliency among youth to counter the pressure to join gangs. A secondary aim is to increase positive attitudes toward law enforcement. A national evaluation using an experimental design showed that GREAT contributed to a 39 percent reduction in gang membership after one year among students who received the program versus students who did not (Esbensen et al. 2012a). Students exposed to the program reported more pro-social attitudes toward others and more positive attitudes toward police. In the longer term, the program reduced the odds of gang membership by 24 percent four years post-program (Esbensen et al. 2012b). Beginning in 2009, GREAT has been introduced to Guatemala, El Salvador, Honduras, and other Central American countries in which gang affiliation among youth is prevalent. However, we are unaware of any evaluations that assess the effectiveness of the program in those settings.

LMICs and LAC. Our search did not identify any eligible studies from LMICs or LAC.

2. Zero tolerance policies

The literature on the effect of school security measures is weak and focuses entirely on the United States. Through our foundational literature search, we identified three eligible studies from the United States. As with school security measures, we incorporated zero tolerance policies into the search for studies related to school-based bullying and violence prevention programming, which is discussed in Chapter XIII. The search process identified over 4,255 articles, but we found no evaluations from LMICs or LAC that were eligible for this review. As mentioned, given that the evidence is based on research drawn from one country, we hesitate to generalize the findings to other settings. In Table IX.3, we summarize the findings on impacts on violence and crime and on outcomes correlated with violence and crime.

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[69] GREAT also fits into the definition of an SEL program because of its focus on life skills instruction. However, because the program prominently features police officers in schools as role models and intends to increase positive attitudes towards law enforcement, we considered it as a security intervention for this review as it could inform how to properly incorporate school resource officers in a school setting.

Table IX.3.   **Strength of evidence on the impacts on outcomes of interest: zero tolerance policies**

		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Zero tolerance policies	HICs	⊖	◖	◖	⊖	⊖	⊖
	LMICs	∅	∅	∅	∅	∅	∅
	LAC	∅	∅	∅	∅	∅	∅

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 3 were eligible for inclusion.

◖ = weak body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. In the United States, the movement to implement school security measures and zero tolerance policies began in the 1990s. Concerned by growing levels of violence and disciplinary problems involving students, the U.S. government passed the Gun-Free School Act of 1994, requiring states to pass zero tolerance laws that would implement a one-year expulsion for students determined to have possessed a firearm in school. Schools eventually adopted zero tolerance policies for more minor offences in the hopes that such policies would curb more serious offenses (Borum et al. 2010). Also in 1994, the Safe and Drug-Free Schools and Communities Act (SDSFCA) provided large-scale funding for safety initiatives in schools, including support for enhancing the physical security of schools and training for school administrators. Several high-profile school shootings in the late 1990s led to the escalation of these efforts. By 1997, 79 percent of schools in the United States had instituted some form of zero tolerance policy (Boccanfuso and Kuhfield 2011). In 2015, a national survey of students revealed that nearly 70 percent of schools reported the presence of police or security guards in school, 83 percent reported the use of security cameras, and about 12 percent reported the use of metal detectors (Musu-Gillete et al. 2018).

Despite their relatively long history and widespread implementation, zero tolerance policies have found little empirical support for reducing school violence. Suspensions and expulsions fail to predict future misbehavior (Mendez 2003; Osher et al. 2010) while the exclusion of misbehaving students does not appear to cause subsequent improvements in the school climate (APA 2008). The most recent and best-designed evaluations of zero tolerance and school exclusionary policies highlight some downsides to employing these measures. Curran (2016) exploited the differential timing in the adoption of state mandatory expulsion laws to show that suspensions rates rise by 6 percent on average in schools that adopt such laws versus schools that do not. Meanwhile, problematic behavior in these schools as measured by principal reports remain the same. The study uses nationally representative data for the United States. In Philadelphia, Lacoe and Steinberg (2019) used detailed administrative data for elementary and middle school students to demonstrate that suspensions predict future suspensions for these students with negative impacts on academic outcomes (Appendix J provides more information on the impacts on academic outcomes). The two studies suggest that such policies are unlikely to benefit the school environment.

LMICs and LAC. No eligible studies were found.

C. Recommendations

1. Recommendations for future research

Overall, a lack of evidence combined with some mixed findings suggests that school security measures and zero tolerance policies may not achieve their main goals, with the exception of the promising GREAT program. The evidence that does exist, mainly from the United States, points to the unintended, negative, consequences of many traditional zero tolerance policies, and the most recent evidence does not show a clear benefit in the use of metal detectors, school police officers, and surveillance cameras. However, evidence from the GREAT program demonstrates that featuring law enforcement officers in schools as role models combined with soft skills training can effectively combat gang membership and instill prosocial attitudes among students. In addition:

- **We recommend conducting rigorous research on the effectiveness of the GREAT program in LAC and other LIMCs**. Evidence on this promising program in contexts outside of the United States could help policymakers determine if, where, and how to implement similar programs in different contexts.

2. Recommendations for investing in school security measures and zero tolerance policies

Although the evidence base for the programs discussed in this section is based solely on research from the United States, the GREAT program seems to have the potential to yield large, positive outcomes for students in LAC, particularly given the high rates of youth gang membership in the region.

We advise caution in implementing other school security measures or zero tolerance policies in LAC or LMICs without first studying their effects further, particularly in developing country contexts.

X. SCHOOL-WIDE POSITIVE BEHAVIORAL INTERVENTIONS AND SUPPORTS (SWPBIS) AND RESTORATIVE PRACTICES (RP)

Evidence summary and mechanisms through which interventions can affect violence and crime				
	Overall evidence		**Evidence from LAC/ LMICs**	
Intervention	**Correlated outcomes**	**Violence and crime outcomes**		**Mechanisms**
School-wide positive behavioral interventions and supports	◖	◯	◖	Improving social-emotional skills, risky and protective behaviors, and school climate can reinforce each other and can lead to reductions in violence and crime. Also, directly reducing school violence can improve correlated outcomes and also reduce violence and crime outside of schools.
Restorative practices	◖	◖	◖	

Legend: ● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ◯ = emerging body of evidence with positive findings; ◯ = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ◯ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ∅ = no body of evidence.

The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.

A. Program descriptions

In this chapter, we review evidence of the impact of school-wide positive behavioral interventions and supports (SWPBIS) and restorative practices (RP) on violence, crime, and correlated outcomes. SWPBIS and RP address contextual factors to modify the school climate, while also often working to improve individual behavior. In Table X.1, we summarize the key program elements, typical target age group, characteristics of the target beneficiaries, and goals of SWPBIS and RP interventions.

School-wide positive behavioral interventions and supports offer an alternative to harsher school discipline policies by combining school-level activities focused on preventing new cases of problematic behaviors among the student body, with more intense group- and individual-level activities focused on students with ongoing behavior problems (Sugai and Horner 2006; Sanetti and Simonsen 2012; National Institute of Justice 2019a). Based on the public health theory of tiered prevention (Mallett 2016), SWPBIS consist of three tiers of interventions with increasing levels of intensity as summarized in Table X.2.

Table X.1.   Summary of SWPBIS and RP programs

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
School-wide behavioral interventions and supports (SWPBIS)1	Ages 6 through19 years	All students in schools with poor student behavior and high rates of disciplinary referrals and suspensions; students with behavior or disciplinary problems	Three nested tiers of nondisciplinary activities with increasing intervention intensity in each tier; activities focus on reducing problematic behaviors and promoting prosocial behaviors	1. Improvement in school climate (for example, expectations for positive behavior 2. Reduction in problematic behavior and disciplinary action 3. Increase in positive, prosocial behaviors
Restorative practices (RP)	Ages 6 through 19 years	All students in schools with poor student behavior and high rates of disciplinary referrals and suspensions; students with behavior or disciplinary problems	Support and tools to improve students' relationships with fellow students and teachers and to help students who commit problematic behaviors acknowledge the harm caused by their behaviors and repair relationships with those harmed by them	1. Improved relationships between students 2. Improved relationships between students and teachers 3. Improved relationships between students and parents 4. Improved student behaviors

1 This class of programs may be referred to as positive behavior supports (PBS), positive behavior interventions and supports (PBIS), school-wide positive behavior supports (SWPBS), or school-wide positive behavior interventions and supports (SWPBIS). In this chapter, given that we are examining programs aimed at improving both individual behaviors and supports for prevention and school climate, we refer to such programs as SWPBIS.

Table X.2.   Summary of SWPBIS tiers

Tier	Intensity	Target population	Typical components	Goals
Tier 1	Low	All students in school	• Establish expectations for classroom behavior • Demonstrate and encourage use of positive behaviors	• Prevent new cases of problematic behaviors • Increase use of positive behaviors
Tier 2	High	Students who demonstrate elevated risk of problematic behaviors	• Check-in/check-out (students earn points based on behavior and review them daily with mentor)	• Reduce rate of problematic behaviors • Increase use of positive behaviors
Tier 3	Highest	Students who demonstrate severe risk of problematic behaviors	• Function-based behavioral programs – Change in physical or social environment – Improved monitoring and evaluation of behaviors • Student-centered or "wraparound" planning rooted in student's and family's experience • Support from professional behavioral service providers	• Reduce severity of problematic behaviors • Increase use of positive behaviors

The first tier consists of low-intensity activities provided to the broad student body, the second tier consists of higher-intensity activities provided to individual students who demonstrate an elevated risk of problematic behaviors, and the third tier consists of even higher-intensity activities provided to students who demonstrate a severe risk of problematic behaviors. The tiers are nested so that students receiving the programs in Tier 2 also receive the programs in

Tier 1, and students receiving the programs in Tier 3 also receive the programs in the other two tiers. To avoid any backsliding in behavioral progress, student transitions from one tier to another requires careful planning (Estrapala et al. 2018). For example, if a child's behavior has stabilized under Tier 2, educators can systematically pull back the more intensive components of Tier 2, including the corresponding behavioral goals, feedback, reinforcement, and dosage, to ensure that the student can demonstrate success with less intensive programs before fully terminating them.

Restorative practices (RP) programs seek to use school- and student-level activities (1) to strengthen relationships among students and between students and their teachers and (2) to help students who engage in problematic behaviors acknowledge the harm they cause and repair their relationships with those adversely affected by their behaviors (Fronius et al. 2019; Berk et al. 2018; Gregory et al. 2015).[70] These activities may include preventive and whole-school approaches, such as universal staff training in restorative principles and community building, and targeted programs, such as restorative conferences with students whose behavior has harmed others, with those who feel wronged, and with staff and family. Education practitioners in Australia originally developed RP in the 1990s; they applied the principles of restorative justice to schools in order to strengthen the trusting and respectful relationships that characterize a school community, to reduce bullying and the perceived need for exclusionary discipline, and to overcome racial disparities in discipline (Froniufees et al. 2019).[71]

Practitioners may also combine SWPBIS and RP (OSEP Technical Assistance Center 2019; Connecticut State Education Resource Center 2019). For example, the School-Wide Positive and Restorative Discipline (SWPRD) program, reported by Vincent et al. (2015), promises to deploy the expectation-setting benefits of Tier 1 SWPBIS and simultaneously develop trusting relationships between students and teachers via restorative practices.[72] Practitioners may also combine SWPBIS with RP, Culturally Responsive Practices (Leverson et al. 2019), or existing counseling supports (Goodman-Scott et al. 2015).

Theory of change. SWPBIS and RP programs can affect social-emotional skills, risky and protective behaviors, school climate, and even directly reduce school violence. In addition, improvements in social-emotional skills, protective behaviors, and school climate may each contribute to improvements in one another and further reduce the likelihood of violence and crime.

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[70] Educators and administrators may use SWPBIS and RP to improve both the school climate and individual-level outcomes, such as disciplinary referrals or suspension. We reference these programs in Chapter XI (Dropout and Expulsion Prevention), but here we examine the broader evidence base on the interventions. SWPBIS is distinguished from SEL by the fact that SEL targets "long-term development of social and emotional competence of self-discipline," whereas SWPBIS prioritizes the "adult management of student behavior" (Bear et al. 2015; Durlak et al. 2016).

[71] Restorative justice is also used in juvenile courts, ex-offender re-integration, and post-conflict reconciliation (see, for example, Gomez et al. 2018; Shen 2016; and Howley 2007). Here, we examine only school-based restorative practices.

[72] This initial pilot suggests that, after intervention, race and sexual orientation played a smaller role in students' perceptions of bullying, and the school experienced fewer office discipline referrals and less racial disparity in discipline.

SWPBIS may improve students' social-emotional skills, bolster protective behaviors, improve school climate and perceptions of school safety, and even reduce school violence (Sugai and Horner 2006).[73] In the theory of SWPBIS, each tier of activities corresponds with a desired outcome. Tier 1 activities such as expectation-setting and positive behavior reinforcement may help students select more appropriate behaviors and thus improve school climate. By providing a targeted subset of students with additional feedback and tools, Tier 2 activities may reduce disruptive and inappropriate behavior among higher-risk individuals. Finally, Tier 3 activities are customized to respond to the challenges faced by students demonstrating the highest-risk behaviors and may help students respond to challenging stimuli from others or their environment in constructive and safe ways, avoiding school violence (OSEP Technical Assistance Center 2019).

RP programs, which are based on restorative justice theory, may improve social-emotional skills, increase protective behaviors, reduce risky behaviors, and decrease the risk of school violence (Fronius et al. 2019). Preventive practices, such as affective statements[74], may help build relationships between students and their peers and teachers and make students more aware of the potential harm caused by their actions. Reactive processes, such as restorative circles, may help reintegrate offenders through public shaming and forgiveness and may repair relationships and trust between offenders, victims, and members of the school community.[75] In turn, this allows reconciliation between offender and victim and then reintegration of the offender into the social network (Fronius et al. 2019). Finally, preventive and reactive activities may reduce the risk that students will practice disruptive or violent behavior that could damage the social bonds strengthened by such activities.

Target beneficiary profiles. In the United States, public primary and secondary schools most often turn to the SWPBIS approach to reduce high disciplinary referral and suspension rates (Bradshaw and Pas 2011), but preschools and alternative schools also rely on the SWPBIS approach (Gelbar et al. 2015). School-wide activities include all students regardless of individual behavioral risk level. Group activities in Tier 2 target students with moderate behavioral challenges, typically around 15 percent of the student body. Finally, the intensive, individualized activities in Tier 3 target the roughly 5 percent of students at highest risk of removal from school because of their behavior (Sugai and Horner 2006).[76]

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[73] Evidence from a recent study of students with behavioral challenges indicates that students' mental health, perceptions of school climate, and peer victimization are all correlated, suggesting that improvements to school climate via behavioral supports may have positive effects on bullying, school violence, and other outcomes of interest for at-risk youth (LaSalle et al. 2018).

[74] Affective statements are "I" statements where individuals express their feelings (Acosta et al. 2019).

[75] Unlike retributive justice, which uses shaming and punishment that excludes the perpetrator from the group (e.g. expulsions or suspensions), restorative justice uses "reintegrative shaming," a process by which the perpetrator of a harmful behavior is made aware of the harm he or she caused and his or her accountability in preventing future harm (Braithwaite 2004).

[76] A similar intervention, the Pyramid Model, uses a tiered approach to avoid exclusionary discipline in early childhood education (Allen and Smith 2015). The base of the pyramid prescribes the training of school staff in how to develop nurturing environments, and the top of the pyramid calls for targeted social-emotional supports and

On the other hand, RP programs simultaneously target all students in a school with teacher training activities while also targeting offenders and victims of poor behavior with restorative circles (Fronius et al. 2019). Policymakers and district officials typically implement RP programs in schools with poor student behavior and high rates of disciplinary referrals (Augustine et al. 2018). In the United Kingdom, some schools incorporate restorative approaches into peer mentorship programs. In those instances, by adopting a solution-oriented perspective, older students work with younger children who have experienced conflict and search for common ground and understanding (Yeo and Graham 2015).

In alternative schools that serve children and youth with behavioral and emotional challenges, both SWPBIS and RP are useful tools for educators to use in improving school climate and helping retain students (O'Gorman et al. 2015). As discussed later in the section, SWPBIS and RP in HICs frequently target students with Individualized Education Plans (IEP), who can benefit from special environmental conditions and academic and behavioral supports.

In LMICs and LAC, where educators in primary and secondary schools may use punitive discipline such as corporal or psychological punishment more often than in HICs, researchers have proposed the large-scale application of SWPBIS (Opartkiattikul et al. 2014) as well as the adoption of restorative approaches to discipline (Reyneke 2015; Zoysa 2018). As in HICs, pilot programs target schools with high rates of disciplinary referrals, but such programs may also target schools with high rates of physical discipline meted out by teachers. SWPBIS and RP programs undergo implementation (and evaluation) less often in LMICs and LAC than in HICs.

B. Findings from the evidence review

1. School-wide positive behavioral interventions and supports

Consistent with the logic of SWPBIS, we found moderate evidence of positive impacts of SWPBIS on school environment factors. We also found emerging evidence on school violence and weak, nonrigorous evidence of the impact on social-emotional skills and risky and protective behaviors. We could not find evidence on impacts of violent or nonviolent crime. We found no evidence in LAC and only one study in an LMIC; as a result, the evidence base relies largely on studies in HICs. We summarize the evidence on the effects of SWPBIS on violence, crime, and correlated outcomes in Table X.3. Our search process for school climate programs (SWPBIS and RP) identified 1,078 papers, of which 20 were eligible for inclusion in the classroom and school environment chapter. Of the 20 studies eligible for inclusion in the school climate section, 8 evaluated SWPBIS, including one study from an LMIC and 7 in HICs (no study evaluated activities in LAC). Appendix K presents more information about all studies of SWPBIS included in this review, including the age group of interest and type of program activities.

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intensive interventions for children struggling with behavioral issues. Pre-primary education and the early grades often rely on the Pyramid Model, whereas PBIS interventions find applications throughout the primary and secondary levels. Response to Intervention (RTI) is another model of tiered interventions, but it is typically designed to support the academic success of students with learning disabilities (rather than their behavioral stability or the school climate. However, in limited circumstances, educators have tested RTI models with behavioral components (Sugai et al. 2007).

Table X.3.   Strength of evidence on the impacts on outcomes of interest: SWPBIS

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
SWPBIS	HICs	◖	◖ (blue)	◖	⊖	⊖	○
	LMICs	∅	◖	◖	∅	∅	◖
	LAC	∅	∅	∅	∅	∅	∅

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 8 were eligible for inclusion.

◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ◖ = weak body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. A moderate evidence base from HICs suggests that SWPBIS, particularly Tier 1 activities, have beneficial effects on school environment factors. A randomized trial of SWPBIS Tier 1 activities in elementary schools in Hawaii and Illinois showed that, after one year of programming, School Safety Survey (SSS) scores (which reflect administrators' and teachers' perceptions of overall risk to student safety) were significantly better in treated schools than in control schools (Horner et al. 2009). In addition, among the control schools, SSS risk scores worsened in the first year after implementation (during which the schools did not receive the intervention) but improved in the following year after receiving the intervention. Waasdorp and co-authors (2012) used a randomized study design to examine the impacts of SWPBIS on reports of peer rejection among children in kindergarten through grade 2 in Maryland. Four years after implementation, researchers found that students in treatment schools experienced less peer rejection than students in control schools.

Findings from less rigorous studies, however, were more mixed. For example, a pre-post evaluation of an SWPBIS intervention with Tier 1 and 2 activities in the state of Georgia found, after one year of the program, reductions in reports of inappropriate behavior but increases in reports of disruptive and disrespectful behavior (Sherrod et al. 2009). Nelson et al. (2002) conducted a correlational study of an SWPBIS program in Washington State elementary schools and found no significant differences in student SSS scores between participating and nonparticipating schools. Finally, a pre-post study conducted by Griffiths et al. (2019) found no significant change in observations of positive teacher-student interactions.[77]

Emerging evidence in HICs suggests that SWPBIS can improve behavior and reduce school violence. The experimental evaluation conducted by Waasdorp and co-authors (2012) found that treatment schools accounted for significantly fewer reports of school bullying than control schools four years after program implementation. Similarly, a pre-post evaluation

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[77] Tier 1 activities included teacher training in acknowledging desirable student behavior and a ticketing system to incentivize compliance with behavioral expectations.

conducted by Simonsen and co-authors (2010) found that the addition of SWPBIS Tier 1 activities to existing Tier 2 and 3 activities was positively associated with reductions in serious behavioral incidents (including aggressive behaviors requiring restraint) in a California alternative school for 3- to 22-year-old students with IEPs. However, the pre-post study of Tier 1 activities in an alternative school conducted by Griffiths and co-authors (2009) found no significant changes in reports of physical threats and altercations.

Non-causal studies of SWPBIS programs in HICs generally demonstrate positive associations between the programs and better social-emotional and risky and protective behavior outcomes. The correlational study conducted by Nelson et al. (2002) found that the social competence of students in fully treated schools grew significantly relative to students in untreated schools.[78] In the pre-post study conducted by Sherrod and co-authors (2009), reported referrals for physical aggression at school decreased by 40 percentage points after one year of Tier 1 programming.[79] In another pre-post study, Farkas and co-authors (2012) examined the change in student behaviors in an alternative school for students ages 11 to 19 years with emotional disturbance or other health issues.[80] After two years of exposure to SWPBIS Tier 1 programming, the proportion of students demonstrating good behaviors throughout the school year was 13 percentage points higher than in the baseline year (59 versus 46 percent). Griffiths and co-authors (2019), however, found a decrease in defiant behavior but a small but significant increase in citations for delinquent behavior (drug-related issues, vandalism, theft, weapons) one year after the introduction of Tier 1 activities in an alternative school.

LMICs. **A correlational/qualitative study suggests that programs with both SWPBIS and RP are associated with reductions in school violence and improvements in the school environment and risky and protective behaviors, but the role of SWPBIS is impossible to isolate.** In a USAID-funded evaluation, Moubayed and co-authors (2014) examined the effects of the Learning Environment Technical Support program on primary and secondary schools and their students in Jordan.[81] This far-reaching program involved two components and targets. The first component focused on training teachers in positive discipline and expectation setting (activities incorporated by PBIS), building school-level capacities through activities to foster relationships (an important restorative practice), conducting improved assessments, and implementing community projects. The second component focused on building capacity in the

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[78] SWPBIS implementation included four elements: (1) school-wide organization practices; (2) classroom management interventions; (3) individualized, functional intervention plans; and (4) the formation of an SWPBIS leadership team.

[79] Tier 1 programming included lessons taught in homerooms to establish behavior expectations, and Tier 2 programming focused on children in grade 5 with high rates of disciplinary referrals; the Tier 2 programming included small-group lessons delivered by counselors on how to address the stimuli of poor behavior.

[80] Tier 1 programming included teacher training, expectation setting for student behaviors, positive social recognition, and rewards for good behavior.

[81] The evaluation was originally designed as a quasi-experimental study, but limitations and constraints forced the evaluators to use only correlational and qualitative methods that captured administrative records of disciplinary referrals and the perceptions of 469 principals, teachers, parents, and community members. This far-reaching program involved several components and targets. Because this intervention deploys activities from both SWPBIS and RP, we discuss the findings in this section and track the findings in both the SWPBIS and RP sections of the summary table above.

Ministry of Education to institutionalize best practices. After three years of program implementation, administrative logs of disciplinary referrals showed declines in citations of violence and bullying, and principals reported that students showed greater engagement in and leadership at school. Teacher-student and parent-school relationships improved in some cases, but the study offered no detail on degree or frequency. However, given that the program combined elements of both SWPBIS and RP, we cannot separately identify the association with SWPBIS.

LAC. We found no studies in LAC on the effects of SWPBIS on violence, crime or correlated outcomes.

2. Restorative practices

We found moderate evidence from HICs and LMICs of positive impacts of RP programs on school violence, school environment factors, and risky and protective behaviors. We also found from HICs emerging evidence on nonviolent crime and social-emotional skills and weak evidence on violent crime and, from LAC, emerging evidence of environmental factors. We found no other evidence from LAC. We summarize the evidence on the effects of RP programs on violence, crime, and correlated outcomes in Table X.4. Our search process for school climate programs (SWPBIS and RP) identified 1,078 papers, of which 20 were eligible for inclusion in the classroom and school environment chapter. Of the 20 studies eligible for inclusion in this section, 12 evaluated RP programs, including one study in LAC, 4 in LMICs, and 7 in HICs. Appendix K presents more information about all studies of RP programs in this review, including the age group of interest and type of program activities.

Table X.4.   Strength of evidence on the impacts on outcomes of interest: RP

| Intervention | Region | Impacts on outcomes correlated with violence and crime | | | Impacts on violence and crime | | |
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
RP	HICs	◖ (yellow)	◖ (blue)	◖ (blue)	◖ (grey)	◖ (yellow)	◖ (yellow)
	LMICs	⊘	◖ (blue)	◖ (grey)	⊘	⊘	◖ (blue)
	LAC	⊘	◖ (grey)	⊘	⊘	⊘	⊘

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 12 were eligible for inclusion.

◖ = moderate body of evidence with positive findings; ◖ = findings of no impacts in emerging or larger body of evidence; ◖ = weak body of evidence; ⊘ = no body of evidence.

HICs. **Moderate evidence from HICs suggests that RP programs can have positive impacts on school environment factors and risk and protective factors.** Augustine and co-authors (2018) conducted a randomized controlled trial with Pittsburgh public schools to evaluate the impacts of Pursuing Equitable and Restorative Communities (PERC), a program based on the International Institute for Restorative Practices' SaferSanerSchools intervention.[82] Teachers in PERC-treated schools rated teaching and learning conditions, school and teacher leadership, and conduct management significantly higher than teachers in control schools and were significantly more likely to report feeling that the school provided a safe working environment. Days lost to suspension declined significantly more in PERC schools (36 percentage points) than in control schools (18 percentage points), and the disparities in suspension rates between white and African American students also diminished more in PERC schools than in control schools. Elementary schools drove the overall decline in suspensions, but PERC did not lower suspension rates for male students and those with IEPs.

In another randomized control trial, Acosta et al. (2019) showed that two years of exposure to a restorative practices intervention in middle schools in Maine did not produce significant impacts on student bullying victimization, school connectedness, peer attachment, or school climate (including clarity of rules and expectations, teacher support, and positive peer interactions).[83] However, those outcomes were significantly associated with student-reported

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[82] This school-wide approach used informal, proactive practices, such as affective statements, and formal, reactive practices, such as restorative conferences to address student behavioral issues. Instead of prohibiting suspensions as a disciplinary tool, the intervention provided alternative means to resolve conflicts, re-integrate students into the school community, and prevent future behavioral issues. Implementing partners trained teachers and administrators in the program elements and supported staff with trained restorative practice coaches throughout the two-year intervention. Professional learning groups that brought together staff, restorative program materials such as videos, and district supports complemented the training sessions.

[83] Like most RP programs, the initiative trained educators in several practices, including affective statements, restorative questions, impromptu conferences, proactive circles, responsive circles, restorative conferences, fair process, re-integrative management of shame, restorative staff community, restorative approach with families, and

experience with RP, that is, the degree to which students saw the practices applied in their classrooms and schools. In other words, the degree of implementation by individual teachers may be the defining factor in the degree to which the intervention created a restorative environment in the classroom.

Correlational and pre-post studies provided consistent, descriptive evidence of a positive relationship between RP and school environments and risky and protective behaviors. Gregory and co-authors (2015) found that student perceptions of the application of restorative practices in the classroom were significantly associated with greater levels of perceived respect in the student-teacher relationship. Higher levels of student-reported RP implementation were also associated with a significant decline in disciplinary referrals for African American/Latino students (and a reduction in the discipline disparity between white/Asian students and African American/Latino students). In Oakland, California, Jain et al. (2014) examined the relationship between the degree to which schools implemented restorative justice and the student-level and school-wide outcomes.[84] The study demonstrated a positive relationship between the level of program implementation and staff reports of improvements in school climate, staff beliefs that the programming helped reduce suspension rates, and reductions in the discipline gap between African American and white students.

McMorris and co-authors (2013) conducted a pre-post study of the Restorative Conferences Program (RCP) and found that, after the program, students were significantly more likely than before the program to report that they knew someone at school they could ask for help if they needed it. School records showed that students also accounted for fewer suspensions and fewer days suspended one year after RCP implementation. Finally, Wong et al. (2011) sought to use the degree of implementation of the Restorative Whole-School Approach (RWsA) to identify the program's influence on bullying, student social-emotional outcomes, and school climate in Hong Kong public school grades 7 through 9.[85] After 15 months of treatment, students' positive perceptions about teachers remained unchanged in the RWsA school but dropped significantly in the non-RWSA school, as did students' sense of belonging at school and their perceived level of school harmony. Self-esteem rose significantly (0.21 standard deviations), and lack of empathy dropped significantly (0.12 standard deviations) at the RWsA school but not among students at the non-RWsA school.

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the fundamental hypothesis of high behavioral expectations and appropriate responses. Control group schools did not receive any such training, but all were already involved in some version of those restorative practices.

[84] This three-tier version of RP included Tier 1 as relationship and school-wide community building through proactive classroom circles, Tier 2 as positive responses to harmful behavior, and Tier 3 as proactive re-integration of juvenile offenders into public schools. In this system, a Whole School Restorative Justice (WSRJ) system incorporates all three tiers and Peer RJ involves peer-led conflict resolution in Tiers 2 and 3.

[85] The authors studied four schools with a total of 1,480 students, noting that "eventually, one school was assessed to have fully implemented RWsA, two schools had partially implemented RWsA, and one school did not implement any of the RWsA activities." Treatment was thus not randomized, and the sample of schools was small, which could hide confounders and bias estimates of program impacts. That said, schools showed no significant differences between bullying rates at baseline, and the authors claimed that "from the 1,480 participating students, 1,176 participants were successfully matched for within-subject pre-test–post-test comparison" (Wong et al. 2011, p. 853).

We found emerging evidence from non-experimental studies in HICs of program impacts on school violence, nonviolent crime, and social-emotional skills, but none of the experimental evidence showed evidence of such impacts. In their randomized controlled trial, Augustine and co-authors (2018) found that arrests did not significantly decline as a result of the Pursuing Equitable and Restorative Communities (PERC) RP intervention, either overall or across any subgroups except students without IEPs (the program did not significantly affect overall arrest outcomes such that the impact estimates for the non-IEP subgroup should be interpreted with caution).[86] The evaluators did not detect a program impact on suspensions for violence or weapons infractions. The experimental evaluation conducted by Acosta and co-authors (2019) similarly found no impacts of an RP intervention on social skills. In contrast, correlational/pre-post studies conducted by McCold (2008), Wong et al. (2011), and McMorris et al. (2014) showed positive associations with school violence; McCold (2008) showed a positive association with nonviolent crime; and Jain and co-authors (2014) and Wong et al. (2011) showed a positive correlation with social-emotional skills.

Weak evidence from HICs showed positive associations between RP programs and family environment factors and violent crime. We identified one correlational study that found a positive association with family environment (Jain et al. 2014) and one correlational study that found a negative association with recidivism (McCold 2008). However, neither study provided more than weak, suggestive evidence of the potential impacts of RP.

LMICs. **We found moderate and consistent evidence of positive impacts of RP programs on teacher-perpetrated violence and school environment factors.** Devries et al. (2015) used a cluster randomized design to examine the impacts of the Good School Toolkit (GST) on teacher-perpetrated violence and student safety in upper primary schools in Uganda. The GST is a comprehensive program that trains staff in alternative disciplinary measures and empowers students with committee membership for key activities. The goal was to reduce staff-to-student violence, improve relationships, and change the operational culture of the schools. After 18 months, students in treated schools reported that they experienced significantly less teacher-perpetrated violence in the past week than did students in comparison schools (31 versus 49 percent). The outcome corresponded to a 42 percentage point reduction in violence experienced in the past week, teachers reported significantly less use of violence as a disciplinary tool, and students reported greater feelings of well-being and safety at school.

Nkuba et al. (2018) used a cluster randomized design to examine the impacts of a similar RP program, Interaction Competencies with Children for Teachers (ICC-T), in public secondary schools in Tanzania. ICC-T is a teacher violence prevention program that uses restorative principles to build trust and supportive relationships between teachers and students. The program involved a 5.5-day training program for teachers. The training featured modules to help teachers build their skills in teacher-student relationships, maltreatment reduction, effective discipline strategies, the identification and support of burdened students, and implementation of ICC-T in the classroom. Three months after training, teacher and student reports of the use of physical and emotional violence in school declined significantly more in

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[86] A small but significant reduction of 0.42 percentage points was detected (effect size of -0.033).

treatment schools than in control schools. Among treatment schools, the study also found greater reductions in teachers' positive attitudes toward the use of physical or emotional violence.

The correlational and qualitative studies also consistently suggest RP programs' potential to reduce teacher-perpetrated violence and improve school environmental factors. Kyegombe et al. (2017) conducted a qualitative study of the GST program evaluated by Devries and co-authors (2015) and found that reductions in student violence could be explained by improved student-teacher relationships, improved student voice, less student fear, clearer behavior expectations and encouragement through rewards and praise, and improved teacher knowledge of positive and alternative forms of discipline. A reduction in teacher violence may also have positive effects on peer bullying; evidence from the Philippines suggests that harsh teacher discipline was associated with greater bullying victimization among primary school students through the channel of low perceived support from teachers (Banzon-Librojo 2017).

LAC. **We identified only one qualitative study of school environment factors in LAC, and its findings are consistent with those in HICs and LMICs. Grossi and Dos Santos (2012) used qualitative methods to examine the influences of restorative practices on teachers' and students' perceptions of bullying and school climate in Porto Alegre, Brazil.** Interviews showed that, after bullying incidents, most teachers and students found that restorative practices restored or maintained respect and peaceful relations among students, their peers, and teachers. The authors suggested that these perceived effects of the program improved school climate and decreased suspensions and disciplinary referrals.

Cost analysis. **Cost-effectiveness information is limited for school climate programs such as SWPBIS and RP.** For example, Jain and co-authors (2014) showed that the whole-school restorative practices program implemented in Oakland, California in 2005 and then again in 2009–2010 cost $420 per participant, but the researchers did not provide cost-effectiveness figures. Recent research on the GST discussed above revealed that the intervention cost $15 per year per student, with each case of physical violence averted costing $244. In other words, the annual cost to avert one case of physical violence was $96. These costs-per-case-averted compare favorably to those of other violence prevention programs in sub-Saharan Africa, such as the SASA! program to reduce inter-partner violence against women, which costs $485 per year per case of IPV averted (Greco et al. 2018).

C. Recommendations

1. Recommendations for future research

In this section, we examined the evidence of the impact of SWPBIS and RP programs on violence, crime, and correlated outcomes. Evidence from HICs and LMICs suggests that, when implemented with fidelity, SWPBIS and RP may have positive effects on the school environment, risky and protective behaviors, and, ultimately, school violence. Evidence on social-emotional skills, violent crime, and nonviolent crime is only emerging, but is largely positive, from RP programs in HICs. We could not identify evidence on the effects of either type of program in LAC. Given this evidence, we recommend funding causal research, including cost effectiveness analysis on the role of RP and SWPBIS programs in LMICs and LAC. Such research should also incorporate the piloting of cultural and contextual adaptations that may be necessary for some of these programs to be effective in LAC.

2. Recommendations for investing in SWPBIS and RP programs

Based on the evidence, we recommend that policymakers and funders implement SWPBIS and RP programs in developing countries, with a focus on the following:

- **Fund the development of SWPBIS and RP toolkits for global use.** Although schools in LMICs and LAC can deploy school climate programs such as SWPBIS and RP, they may not have access to information on best practices or tools for building an intervention that responds to a school's local challenges (or may not have the resources to secure formal training in such programs). To facilitate the successful application of these promising programs in developing areas, funders may wish to invest in creating a toolkit that draws on current research and provides an easy-access guide for applying school climate programs with fidelity in diverse settings. Given that the settings where the toolkits could be used vary widely, these products should explicitly identify which promising strategies can be used to address which challenges, such as teacher-perpetrated violence, negative school environmental factors, or school violence.

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XI. CLASSROOM MANAGEMENT

Evidence summary and mechanisms through which intervention can affect violence and crime				
	Overall evidence			
Intervention	**Correlated outcomes**	**Violence and crime outcomes**	**Evidence from LAC/LMICs**	**Mechanisms**
Classroom management	◐	◖	◐	• Improved classroom environment improves behaviors, social-emotional skills and academic learning, which in turn can affect violence and crime through a variety of pathways. • Improved social-emotional skills can affect violence and crime through different pathways, including through learning and improved behavior. • Improved behaviors can affect violence and crime through different pathways.
Legend: ● = strong body of evidence with positive findings; ◐ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ◯ = mixed findings in emerging or larger body of evidence; ◖ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◐ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ∅ = no body of evidence.				
The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.				

A. Program description

In this chapter, we review the evidence on how programs focused on classroom management affect student outcomes. Classroom management, broadly defined, is any process or strategy to make the classroom environment more conducive to academic and social-emotional learning (Oliver et al. 2011; Evertson and Weinstein 2006). Classroom management programs bolster teachers' capacity to create a classroom climate that more effectively supports learning. Though classroom management can refer to any processes or procedure used to moderate the classroom climate, a preventive approach to classroom management—intended to anticipate and prevent disruptive student behavior and to encourage positive behavior—is more effective than a reactive approach, that is, responding to negative student behavior as it occurs (Ari et al. 2016; O'Conner et al. 2017; Korpershoek et al. 2016). To this end, effective classroom management is based on student "cooperation, engagement, and motivation, and on students learning to be part of a dynamic system, rather than on compliance, control, and coercion" (Osher et al. 2010).[87] Classroom management seeks to promote change by modifying elements of the classroom climate, such as routines, rules, and relationships.

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[87] This emphasis on preventive classroom management reflects a shift from more punitive approaches that dominated classroom management before the emergence of a well-established body of research on prosocial learning (Jennings and Greenberg 2009). As classroom climate and student-teacher relationships become increasingly crucial features of classroom management efforts, Jennings and Greenberg (2009) noted the need for more attention to teachers' social-emotional competence. Even though few programs focus directly on teachers' own social-emotional skills, such skills may be an area for future research.

In Table XI.1, we summarize the key program elements, typical target age group, characteristics of the targeted beneficiaries, and goals of dropout and expulsion prevention programs.

Table XI.1. Summary of classroom management programs: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements[88,89,90]	Goals
Classroom management	Primary and secondary school	All students, through teachers	1. Promoting emotionally supportive teacher-student relationships (for example, engaging with students in a warm, caring manner) 2. Providing consistent structure and a predictable sense of routine to lessons and classroom time (for example, setting a consistent schedule) 3. Establishing standards (rules, procedures, and consequences) that monitor, codify, or establish responses to positive and negative behaviors (for example, teachers may transmit appropriate behaviors to students directly, model desired behavior, or provide positive behavioral supports)	1. Improved behaviors 2. Improved academic learning 3. Improved social-emotional skills

Note: See Bear 2014; O'Conner et al. 2017; Korpershoek et al. 2016

Classroom management encompasses many of the school levels and topics covered in this evidence review. Given the connections between positive behavior programs and supports (PBIS), social-emotional learning (SEL), student-teacher relationships, and school climate, this section relates closely to Chapter VII (classroom,-based SEL programming) and to Chapter X (school-wide positive behavioral interventions and support [SWPBIS]). In addition, programs focused on bullying and gender-based violence prevention, though linked to classroom climate issues, are addressed in Chapter XIII. Many of the programs discussed below touch on related

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[88] Research traditions and activities surrounding classroom management have varied since classroom management first underwent study as a component of teacher effectiveness (Emmer and Sabornie 2015). Bear's (2015) summary of three contemporary approaches to classroom management (ecological, behavioral, and social-emotional) captures some of the variations. The summary notes that, even though approaches share many classroom management activities, the SEL approach differs from the ecological and behavioral approaches in that it not only prioritizes the classroom's ability to optimize academic and social learning but also focuses on the classroom's broader ability to accommodate students' physical, cognitive, social, and emotional needs. The SEL approach also places a strong emphasis on the quality of classroom-based relationships.

[89] Student engagement falls under the umbrella of classroom climate, and instructional practices that optimize student engagement are sometimes connected to classroom management issues. As Oliver et al. (2011) note, although instructional practices are important for climate, they may be considered separately from classroom management because instructional practices alone do not necessarily improve behavior.

[90] In the early 1970s, 1980s, and 1990s, the classroom management literature addressed physical space and its ability to promote structure, encourage friendly interactions, and reduce aggression (Simonsen et al. 2008). The more recent literature, however, focuses less on physical space and instead on social-emotional development. Though beyond the scope of this review, physical space is still a major consideration for student-centered learning; the physical layout of a classroom (for instance, rows of desks versus small clusters or circles) is tied to active and student-directed learning processes.

themes and findings but focus on classroom climate and classroom relationships rather than on curriculum and violence prevention.

Theory of change. Classroom management programs can directly improve the classroom environment, social-emotional skills, and behaviors, each of which can each reduce crime and violence. Classroom environments that are stable and supportive can enable schools to be protective, especially in fragile settings, and can create a sense of stability and normalcy in children's lives, thereby helping to support children's psychosocial well-being and equipping students with the skills needed for present and future well-being (Aber et al. 2017b). If the classroom or school environment is not safe, students can have negative social-emotional outcomes and engage in risky behaviors. Evidence suggests that children's exposure to high-aggression classroom settings at a young age is linked to more aggressive behaviors later in life (Thomas et al. 2006). In addition, classroom management improves social-emotional skills directly by instituting practices that strengthen self-discipline (Bear 2014), including reliance on instructional practices and classroom procedures that prioritize social skills and the establishment of behavioral standards emphasizing self-regulation (Rimm-Kaufman et al. 2014; Jennings and Greenberg 2009). Research has also linked supportive student-teacher relationships to improved social-emotional skills (Bailey et al. 2013), particularly in young children. Classroom management can improve behavioral change directly or indirectly through improved social-emotional skills and improved teacher relationships (Gettinger and Fischer 2015). Reductions in students' inappropriate behavior in the classroom can improve educational outcomes as well, since there will be fewer disruptions and teachers can redirect time spent on handling misbehavior to academic instruction (Emmer and Sabornie 2015; Klevens et al. 2009; Richman et al. 2019).[91]

Target populations. In this chapter, we focus largely on universal classroom management in formal school settings, reflecting the reality that most research on classroom management addresses formal school contexts. Teachers are the primary target participants in classroom management programs, though student outcomes are often the ultimate focus of the programs. Classroom management is a consideration at all educational levels, but, globally, most programming and research focuses on younger students, particularly at the pre-primary and primary levels. Though classroom management is essential at all levels (and varies across student age groups and developmental levels), the evidence on classroom management at the secondary and post-secondary levels is limited. (Oliver et al. 2011).

B. Findings from the evidence review

Evidence of the effects of classroom management on violence and crime-related outcomes is promising, though there is virtually no evidence on its effect on violence and crime directly. Classroom management programs are often packaged with other programs, such as violence prevention, school climate initiatives, and social-emotional learning curricula, making it difficult to isolate the effects of classroom management. Even so, evidence suggests that programs targeting teachers' classroom management abilities have positive effects on social-emotional

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[91] Contrary to the expectation that time spent on classroom management may limit teaching time, effective classroom management can increase instructional time by reducing disruptions (Klevens et al. 2009). Indeed, an analysis of teacher instructional practices in schools participating in the Teacher Potential Project found that classroom management was associated with higher levels of student achievement. A classroom climate conducive to learning and characterized by fewer disruptions was connected with higher student achievement (Richman et al. 2019).

skills, school environment factors, and risky and protective behaviors. We summarize the body of evidence in Table XI.2. The summary reflects the literature we found through our foundational literature searches, our bibliographic searches of studies in LMICs and LAC, and our searches of websites for grey literature (as described in Chapter III) in LMICs and LAC (Appendix L provides a list of all studies included in this chapter). Our search process identified 1,687 papers, of which 14 were eligible for inclusion in the review of classroom management. Across those, 8 took place in HICs, 4 in LAC, and 2 in LMICs. The studies include meta-analysis, quantitative causal and quantitative correlational research designs. We discuss this literature below.

Table XI.2.   Strength of evidence on the impacts on outcomes of interest: classroom management

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Classroom management	HICs	◖	◯	◯	◖	⊖	⊖
	LMICs	◖	◖	∅	∅	∅	∅
	LAC	◖	∅	◖	∅	∅	∅

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 14 were eligible for inclusion

◖ = moderate body of evidence with positive findings; ◯ = emerging body of evidence with positive findings; ◖ = weak body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **There is moderate evidence that classroom management programs with varied strategies have positive effects on the school environment, student social-emotional skills and student behaviors, and may have effect on reducing violence.** A large body of literature point to these findings, as well as additional findings around to the different approaches to classroom management as we discuss below.

A focus on students' social-emotional development appears to be the most effective approach to classroom management, especially in supporting social-emotional and school environment outcomes. Korpershoek et al. (2016) performed a meta-analysis of 54 experimental and quasi-experimental studies of classroom management and defined 4 types of whole-class classroom management programs based on the programs' primary focus (teacher behaviors, teacher-student relationships, student behaviors, and student social-emotional skill development) to do so.[92] While classroom management programs can engage in a range of activities to affect teacher and student outcomes, the specific design focus of the intervention will affect how it is implemented, may include preventive and or reactive activities, and may train teachers to implement different behaviors. They found that programs focused on supporting

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[92] Note that some programs included in this study, particularly those focused on student behaviors and social-emotional skills, involve SEL curricular programs, discussed in Chapter VII.

students' social-emotional development tended to be more effective in improving students' outcomes—particularly their emotional outcomes—than programs with different foci. In line with many of the findings from Chapter VII (SEL), the authors' meta-analysis underscores the value of supporting students' social-emotional development as an avenue for addressing violence- and crime-correlated outcomes. However, it is important to note that other intervention groups have also been shown to be effective at improving the classroom environment, social-emotional skills, and student behaviors.

Many programs, such as the well-studied Incredible Years approach, whose curricular dimension was discussed in Chapter VII (SEL), unite classroom management initiatives with SEL curricula.[93] A study of Incredible Years training at the preschool level found that the intervention improved teachers' use of behavior management strategies, students' social-emotional skills, as well as hyperactive and acting out behaviors for students who had high levels of behavioral issues before the program started. However, the program did not improve teachers' emotional support or classroom organization or students' problem behaviors in the sample as a whole (Morris et al. 2014). The findings from that study suggest that training in the classroom management aspects of the intervention alone may not be as effective as uniting curricular and classroom management approaches in support of students' social-emotional development and behavior change. Similarly, in describing strategies for the most effective implementation of the Incredible Years curriculum, Webster-Stratton and Reid (2004) underscore the critical importance of uniting implementation of the curriculum with well-founded classroom management tactics such as routine, predictable schedules, and praise; their guidance points to the strong synergy between classroom management initiatives and social-emotional learning curricula in efforts to improve student behavior.

Student-teacher interactions lie at the heart of effective classroom management, and professional development and teacher support programs can improve the quality of these interactions, a measure of the classroom environment. A study of preschool teachers in the United States found that the consistency of teachers' emotional support was associated with students' self-regulatory and social-emotional behavior. Highly stressed teachers were less emotionally supportive and less consistent in their support than were other teachers. The findings underscore the need for programs that both foster teachers' ability to be emotionally supportive and address teacher stress (Bailey et al. 2013). Recognizing the importance of student-teacher interactions in classroom management, some programs specifically target these interactions. MyTeachingPartner (MTP) is a prekindergarten professional development approach that provides access to online curricular resources and videos of high quality teacher-student interactions, as well as web-based coaching that delivers feedback to teachers on their interactions with students. The first year of a two-year randomized controlled trial of MTP found that teachers receiving online support and coaching through the program achieved higher quality interactions with students than teachers who had access only to the online resources. The effects

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[93] Preliminary analysis of an intervention that trained teachers in classroom management and in the Incredible Years Dinosaur Social Skills curriculum in low-income schools found that intervention teachers used more positive strategies, that intervention classrooms achieved more positive classroom climates, and that intervention children demonstrated less aggressive, more prosocial behavior in conflicts. The methodology underlying the analysis is, however, unclear, thus limits the strength of this evidence and raising questions about whether the authors tested for statistical significance.

of the intervention were particularly strong in classes with high proportions of low-income students (Pianta et al. 2008). MTP demonstrated that programs can effectively support teachers in improving their interactions with students, and it highlighted what is well-established in the teacher development literature more broadly—that is, coaching and continuous support can be important avenues for supporting teachers and, by extension, students.[94]

Effective programs focus on several elements of classroom management, including the establishment of rules, routines, expectations and efforts to foster warm relationships in the classroom. Responsive Classroom is a teaching approach that prioritizes the development of emotionally supportive relationships in the classroom (both student-teacher and peer relationships) and the establishment of clear expectations (Rimm-Kaufman et al. 2014). Several of the approach's major elements relate directly to school climate and classroom management: use of well-established rules to foster students' sense of self-control and responsibility, organization of classrooms to motivate interaction and learning, and steps for establishing a warm classroom climate, a sense of routine, and behavioral expectations. In a three-year, quasi-longitudinal study of the Responsive Classroom approach, teachers reported an increase in their disciplinary effectiveness and an increase in their ability to create a positive school climate. In addition, intervention classes were more emotionally supportive, and students in those classes enjoyed warmer relationships with their teachers and experienced more growth in prosocial skills, or those social-emotional skills that promote strong social relationships such as helping others, than their counterparts in control schools (Rimm-Kaufman 2006). The Foundations of Learning (FOL) program similarly focuses on several elements of classroom management by training preschool teachers in how to build positive relationships with students, how to institute classroom processes such as establishing rules, and how to develop strategies that help students build their social skills. FOL also provided classroom consultations in which consultants supported delivery of the FOL approach; offered stress management for teachers; and provided developed individualized plans for children who required additional behavior support. The study found improved positive classroom management, warmer classroom interactions, and reduced problem behaviors among students. The authors found statistically significant impacts on children's observed conflict and externalized behavior, behavior control, and positive engagement at one research site and nonsignificant impacts at another. Intervention students also demonstrated higher levels of executive functioning (Morris et al. 2013). The school climate and social-emotional benefits of the Responsive Classroom and FOL approaches point to the value of programs that leverage several critical classroom management foci, such as warm relationships, rules, and expectations.

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[94] In their evaluation of a pilot of the Teacher-Child Interaction Training (TCIT) approach in low-income, urban classrooms, Lyon et al. (2009) suggested that professional development interventions for teachers can improve the quality of student-teacher interactions. With the aim of strengthening positive relationships in preschool classrooms, teachers participated in training sessions on child-directed and teacher-directed interactions, followed by several weeks of individualized coaching. The pilot found that the intervention had small positive impacts on teacher behavior, particularly teachers' use of praise. The study's sample of 12 teachers, its pre/post design, and the lack of testing for statistical significance severely limited the conclusions that could be drawn based on the study, but the pilot nonetheless suggested that training and coaching teachers on positive behavioral management strategies may improve teacher behaviors and teacher-child interactions; more rigorous research into such an approach could be valuable.

Group contingencies—particularly in the form of the Good Behavior Game—are among the best-studied approaches to classroom management, but they are most effective in conjunction with other programs. Group contingencies use a common set of shared expectations for a group of students, coupled with a shared positive result if students adopt the intended behavior. An evidence-based review of classroom management practices found that group contingency and token economy approaches (whereby students earn tokens, such as points, for good behaviors, which may then be exchanged for rewards) are often coupled. The findings build on earlier literature suggesting that such approaches are most effective in improving classroom behavior when paired with other strategies such as the establishment of classroom rules, expectation setting, self-management, and social skills development (Simonsen et al. 2008). One of the best-studied group contingency programs is the Good Behavior Game (GBG), a classroom management approach designed to discourage negative behaviors and promote positive behaviors in the classroom.[95] In the GBG, students are assigned to teams and receive points for negative behaviors. The team with the lowest number of points earns a reward. A meta-analysis by Bowman-Perrott et al. (2016) of 21 studies on the GBG showed that the intervention (which can be classified as teachers' behavior and students' behavior focused per the Korpershoek et al. 2016 meta-analysis) and its adaptations are associated with a reduction in problem behavior and an increase in prosocial behavior. Notably, however, the prosocial behaviors identified in the meta-analysis are largely associated with academic-adjacent outcomes, such as assignment completion, on-task behaviors, and concentration; though related to social-emotional and self-regulatory skills, these behaviors may translate less fully than do some other social-emotional skills to violence- and crime-related outcomes outside the classroom.

Effective classroom management strategies may have long-term benefits in reducing risky behaviors and violence and crime. In 1985, a large randomized field trial of the Good Behavior Game took place in grade 1 and 2 classrooms in Baltimore. Follow-ups with participants ages 19 to 21 years found that male students who participated in the GBG, particularly those with higher rates of disruptive or aggressive behaviors in grade 1, had fewer

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[95] Two small studies support the idea that the GBG operates most effectively in conjunction other interventions; both studies, however, involved small samples and pre/post withdrawal designs and did not test for statistical significance, limiting the strength of their evidence. Given the potential emotional effects of the original GBG version's reliance on response cost (Wright and McCurdy 2012), positive variations of the GBG have been developed. A study comparing the GBG and a positive variation in a U.S. elementary school found that the positive variation was no more effective in addressing disruptive behavior than the GBG and that student behavior returned to baseline levels when the interventions stopped (Wright and McCurdy 2012), meaning that the intervention must be maintained for the effects on student behavior to continue. Notably, implementation of the GBG in this study was resource-intensive, requiring several types of materials. Though analytically weak, the study pointed out that interventions that potentially improve student behavior in the classroom do not fully support the school environment factors and social-emotional outcomes of interest in this review. A study of the GBG in a low-income urban school in the United States found that the GBG was effective in improving on-task behavior and reducing disruptive behavior, but teacher praise did not increase in conjunction with the GBG despite improved student behavior (Lannie and McCurdy 2007). These studies underscore the value of classroom management approaches that also emphasize a supportive classroom climate, warm student-teacher relationships, and social-emotional development, including self-regulation and student-teacher relationships. Lannie and McCurdy (2007) noted the need for teaching practices that maintain the on-task behavior that the GBG can help institute, underscoring that the GBG is more effective when coupled with other supports.

negative outcomes related to dependence disorders and substance abuse, violence and crime, anti-social personality disorder, and suicidal thoughts. The effects for female students were fewer and weaker, though suicidal thoughts, dependence disorders, and alcohol abuse were somewhat affected (Kellam et al. 2008; Kellam et al. 2011). The long-term findings presented in Kellam et al. (2011) suggest that programs addressing misbehavior at a young age through effective classroom management may have protective benefits in the long term.[96]

LMICs. **Though understudied in LMICs, changes to classroom ecologies—with a shift toward warm and trusting relationships in the classroom—present limited evidence of better psychosocial outcomes among students.** The evidence from LMICs aligns with the emphasis on trusting relationships and social-emotional development as discussed in the literature on classroom management in HICs. Learning to Read in a Healing Classroom (LRHC), an intervention implemented by the International Rescue Committee, is one of very few rigorously evaluated SEL- and classroom management–focused initiatives delivered in fragile settings. The LRHC is a teacher professional development intervention that relies on teacher resources and teacher learning circles to build primary school students' academic and social emotional skills. The intervention focuses on the incorporation of SEL principles in reading instruction. A randomized trial in the Democratic Republic of the Congo examined LRHC's theory that changes to school quality and classroom ecologies can lead to changes in academic and psychosocial outcomes. Torrente et al. (2015) found that students in treatment schools perceived their learning environments to be less predictable than control schools, but more supportive. Impacts on students' well-being were, on the whole, not significant. Aber et al. (2017b) similarly found that LRHC did not significantly change children's victimization scores at the school level but that the intervention significantly improved perceptions of schools and teachers as caring and supportive. Students perceived that schools associated with lower levels of victimization were more supportive. Though indirect, the findings point to the value of fostering warm, trusting classroom relationships. Schools perceived as more predictable and cooperative accounted for lower levels of victimization, underscoring the value of relationships, routine, and predictability—foundational principles of classroom management—in supporting students' social-emotional outcomes.

As discussed in the chapter on SWPBIS, teacher-student relationships are essential to building a positive classroom climate, which in turn may be associated with improved student outcomes. In the previous section of this review, we discussed the violence prevention elements of the Interaction Competencies with Children for Teachers (ICC-T) and the Good School Toolkit, but here we highlight their relevance to classroom management. The Good School Toolkit is a flexible activity-based toolkit that includes classroom management as one of its major focus areas. A qualitative study in Uganda found that schools using the Good School Toolkit achieved an improvement in student-teacher relations, a critical element of effective classroom management that is closely tied to the outcomes of interest (Kyegombe et al. 2017). An ICC-T study in Tanzania, a training workshop that aimed to improve student-teacher

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[96] As discussed in the previous footnote, another (methodologically and analytically weak) study by Wright and McCurdy (2012) found that student behavior returned to pre-intervention levels following withdrawal of the GBG. Such conflicts point to the need for more rigorous study of the short- and long-term impacts of classroom management interventions.

relations and reduce corporal punishment, found an improvement in classroom relationships and student behavior (Kaltenbach et al. 2018). Though the evidence is weak given the Tanzania study's design and small sample size, the findings on ICC-T and the Good School Toolkit underscore the possible efficacy of teacher-focused strategies for improving student-teacher relationships. In view of the evidence connecting these relationships with improved classroom management and violence- and crime-related outcomes, programs focused on positive discipline or violence prevention offer valuable insights for designing and implementing classroom management programs, particularly within the context of broader positive behavior initiatives.

Classroom management programs in LMICs may be adapted from well-studied programs in HICs, where more research on classroom management models has been conducted. In Malaysia, for instance, the development of social-emotional skills was a major area of need among Burmese refugees in community schools (O'Neal et al. 2018b). The Resilient Refugee Education (RRE) training intervention adapted the TeacherCorps manual, which is based on the previously discussed Incredible Years approach, to support teachers' classroom management abilities and students' social-emotional well-being. As adapted for teachers in informal Burmese community refugee schools in Malaysia, the manual focused on refugee mental health, safe activities in schools, classroom management, and teacher self-care (O'Neal et al. 2018a). Though student outcomes associated with RRE have yet to undergo assessment, the intervention's adaptation process points to the prevalence of certain well-studied models such as Incredible Years. Perhaps more important, it highlights the ways in which crucial contextual factors must guide adaptation; for instance, the emphasis on addressing teacher stress in RRE to facilitate improved classroom management reflects an important change from the Incredible Year approach that served as the foundation for RRE's adapted training manual.

*LAC***. Four programs have been successful at impacting outcomes correlated to violence and crime in LAC, including in low-resource contexts with at-risk students.** A study of the Good Behavior Game in Chile with at-risk students in grades 1 and 2 found a decrease in aggression and improvements in focus after a year and a half of exposure to the GBG (Pérez et al. 2005).[97]

In primary schools in Periera, a high-risk, high-violence city in Colombia, a teacher training intervention increased students' prosocial behavior. Klevens et al. (2009) conducted a cluster randomized trial examining the effects of a teacher training intervention and coupled the intervention with a parent intervention. Teachers attended 10 four-hour weekly training workshops on classroom management techniques (such as the physical arrangement of the classroom and the establishment of clear rules), strategies for improving student behavior (such as modeling behavior), communication, and violence prevention approaches. Teachers from schools in a second intervention group received the same training, and parents from these schools received training in similar topics. The study found that, even though student aggressive and anti-social behavior increased in control schools, both the teacher-only intervention and the

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[97] The Good Behavior Game was also implemented in Belize; a small preliminary trial using a single-subject experimental design had some effect in reducing specific disruptive behaviors, but the evidence is severely limited by a small sample size, reliance on a pre/post design, and, the seeming absence of testing for statistical significance (Nolan et al. 2014).

teacher and parent intervention schools maintained their baseline levels of behavior. Meanwhile, students' prosocial behavior increased only in the teacher-only intervention group. The study nonetheless demonstrates that a relatively low-cost, teacher-oriented intervention can have meaningful, if small, impacts on violence- and crime-correlated outcomes in low-income, high-violence contexts.

The Incredible Years Teacher Training program in Jamaica[98] further underscores the value of providing in-service training to teachers on classroom climate and behavioral management, followed by in-class coaching. The Incredible Years training program was adapted to the Jamaican preschool context with a focus on building positive relationships with students by proactively managing student behavior. The adaptation process involved the addition of video segments of the training that showed Jamaican classrooms; the development of role plays and training activities designed to match Jamaican teachers' experiences; and the inclusion of contextually relevant examples in training handouts. Teachers from intervention schools attended training workshops and received in-class modeling and coaching. A cluster randomized trial of the intervention found that intervention students showed an improvement in their behavior, developed stronger friendship skills, reduced their behavioral challenges, and demonstrated greater social skills (Baker-Henningham et al. 2012). The study points to value of this approach to teacher training focused on behavior management and positive relationships as an impactful, low-cost approach to improving prosocial skills and behavior.

A cluster randomized trial of a professional development program at the preschool level in low-income municipalities in Chile points to the challenges of translating changes to teacher practice into changes in student outcomes. The study looked at the impact of *Un Buen Comienzo* (UBC), an early childhood teacher professional development program. The UBC intervention combined professional development workshops, in-class coaching, and the provision of 100 books per classroom. It focused on three areas of preschool quality, one of which was social-emotional development.[99] Yoshikawa et al. (2015) conducted an RCT and found improvements in classroom climate, particularly in emotional support and classroom organization. Yet, the impacts on selected SEL outcomes were small, with increased self-regulation and reduced problem behavior of only marginal significance and no observed improvements in students' academic outcomes.

Classroom management does not occur in a vacuum, and classroom management programs may be stronger in conjunction with curricula that support development of prosocial (a subset of social-emotional) skills. Given the findings from the UBC study and the design of the intervention, Yoshikawa and coauthors highlight the potential value of in-service coaching for improving classroom climate but also point to the need for curricular approaches, which are often more intensive in their aim to improve social-emotional skills than classroom management programs, to have a substantial effect on children's social-emotional skills. Such

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[98] See Chapter VII (SEL programming) for a discussion of the curricular dimensions of a pilot of the intervention in Jamaica.

[99] UBC also focuses on early literacy and oral language skills and on linking early childhood with health services (Yoshikawa et al. 2015).

findings underscore the need to align classroom management and climate programs with curricular and other efforts to support students' prosocial development.

C. Recommendations

1. Recommendations for future research

The current global body of evidence suggests that classroom management programs are promising in their ability to reduce violence and crime through their effects on social emotional skills and student behaviors. However, classroom management programs are often packaged with other programs, such as violence prevention, school climate initiatives, and social-emotional learning curricula, making it difficult to isolate the effects of classroom management. Even so, evidence suggests that programs targeting teachers' classroom management abilities have positive effects on student's social-emotional skills, school environment factors, and student's risky and protective behaviors. Going forward, researchers and funders might consider funding rigorous research on classroom management programs in a wider number of settings in LAC countries and LMICs, to determine their effectiveness well as which components matter most in different contexts. In addition, rigorous, long term studies in LAC and LMICs on the effects of these programs on violence and crime themselves and their cost-effectiveness would be important. Because adapting programs to different low-resource context can be challenging, we recommend supporting research that enables policy makers to understand which are the key elements of effective programs that matter most. In addition, research should include the following:

- **Invest in more research on classroom management, emotional support, and student-teacher relationships at higher educational levels and in LAC and other LIMCs.** A wealth of research addresses emotional support and relationships in HICs, much of which focuses on young children, often at the pre-primary level. Emotionally supportive relationships remain important throughout the course of a student's education. Understanding how these relationships function in relation to relevant outcomes at later educational levels and how programs can best foster these relationships at different levels and with different ages of students is critical to the creation of needed programs. In addition, targeting more such research to the LAC context could help build a stronger evidence base on this critical topic. In addition to understanding how programs from HICs have been adapted to LAC, as discussed below, it would be valuable to invest in examining successful programs that have been fully developed in the LAC context.
- **In researching adaptations of evidence-based programs from HICs, pay attention to the sociocultural dimensions of the adaptation process.** A few well-researched programs from HICs, such as the Good Behavior Game and Incredible Years, have been implemented in LAC countries and LMICs. Research demonstrating the efficacy of such programs across contexts is useful, but it rarely addresses the adaptation process itself. Given the strong sociocultural dimensions of social-emotional development and teacher-child relationship-building, a better understanding of how evidence-based programs have been and can be effectively adapted in response to contextual needs could provide valuable insight into the most relevant approaches for supporting effective classroom management in different settings.
- **Support research to better understand how to reframe older and more traditional classroom management approaches in the context of broader shifts to student-centered**

education and social-emotional well-being. Many of the programs discussed in this chapter address social-emotional learning and positive behavioral development or fit within the education sector's growing interest in student-centered and student-directed educational processes. Certain programs, however, such as the well-studied Good Behavior Game, still rely on response cost or quasi-punitive approaches to behavior management. We did not identify any rigorous studies of positive reframing of the GBG approach though, and a better understanding of the possible benefits of programs that go beyond response cost, particularly with regard to social-emotional development and classroom relationships, would be helpful. Along those lines, more (and more rigorous) research into possible variations of well-established classroom management approaches such as GBG could provide valuable context for the design and implementation of positive classroom management programs.

- **Support research to better understand how the cost effectiveness of curricular SEL activities compares with that of classroom management activities.** Many of the activities profiled in this chapter complement curricular SEL activities or work to support social-emotional skills development and their ultimate outcomes. It is imperative to develop a better understanding of how these approaches—curricular SEL programs and classroom management—compare in their cost effectiveness and in the cost effectiveness of using them in tandem or alone, thereby ensuring that funds for these efforts are expended as effectively and efficiently as possible.

2. Recommendations for investing in classroom management programs

Based on the global evidence, we recommend that policymakers and funders focus on the following:

- **Focus on social-emotional development when designing classroom management programs and embed classroom management programs within larger social-emotional learning and positive behavior programming.** As discussed in this chapter, effective classroom management is closely tied to positive, emotionally supportive relationships in the classroom and to students' social-emotional well-being. Classroom management programs focused on students' social-emotional development are among the most effective programs for improving all outcomes for students and particularly for improving students' social-emotional skills. Many of the programs discussed in this chapter encompass built-in implicit or explicit social-emotional components; accordingly, the design and implementation of classroom management efforts should consider students' social-emotional needs in context. In addition, classroom management programs tend to be most effective when coupled with curricular programs similarly focused on supporting students' development. Moreover, classroom management programs fit well within the broader strategies designed to improve positive discipline and the school climate. Improving classroom management—and supporting the associated student outcomes—may be most effective when part of broader curricular, disciplinary, pedagogical, or school climate initiatives that similarly target social-emotional development and school-based relationships.
- **In designing programs, consider incorporating key evidence-based approaches to improving classroom management and student outcomes.** As discussed above, programs that combine mutually reinforcing approaches—such as relationship building, procedure setting, and group contingencies—can be more effective than reliance on a single approach to improving classroom management. The Good Behavior Game and Incredible Years

programs in HICs and *Un Buen Comienzo* in Chile reflect the value of multipronged approaches to improving classroom management and, more broadly, coupling classroom management efforts with other programs, such as a SEL curriculum. Intervention planning should thoughtfully consider the ways in which several strategies might reinforce one another to tackle the challenges specific to a given context.

- **Support classroom management-oriented coaching for teachers.** Coaching is among the most effective approaches to teacher professional development, often more impactful than workshops or one-off trainings alone. In many of the programs discussed above, such as FOL in the United States, the violence prevention intervention in Colombia, and UBC in Chile, teacher coaching was an important component. As demonstrated by the MyTeachingPartner intervention in the United States, the provision of ongoing support for teachers through coaching can be a meaningful avenue for equipping teachers with the strategies needed to foster warm classroom climates, build strong relationships, and establish effective rules and routines. Though coaching is often logistically challenging in certain contexts, particularly in hard-to-reach and under-resourced settings, localized or remote coaching might be an alternative worth considering. Classroom management programs could draw on programs that have developed low-cost coaching strategies or other long-term teacher supports focused on classroom management.

- **Invest in developing strategies for addressing teacher stress in order to support effective classroom management and improved student outcomes.** Teacher stress is occasionally discussed in the context of classroom management programs in both HIC and LMIC contexts, and evidence suggests that teacher stress is connected to teachers' ability to manage their classrooms and their students' social-emotional outcomes effectively. As a complement to training teachers in classroom management strategies, an investment in broader support mechanisms to help mitigate teacher stress could be a meaningful strategy for supporting teachers and improving student outcomes.

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XII. CLASS SIZE REDUCTION

Evidence summary and mechanisms through which class size reductions can affect violence and crime				
	Overall evidence			
Intervention	**Correlated outcomes**	**Violence and crime outcomes**	**Evidence from LAC**	**Mechanisms**
Class size reduction	◖	⊘	⊘	Improved social-emotional skills may reduce violence and crime directly or through other outcomes. Additional, improved school engagement can reduce school dropout and participation in risky behaviors, potentially improving long-term learning and employment outcomes while reducing violence and crime.
Legend: ● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ◯ = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ⊘ = no body of evidence.				
The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.				

A. Program description

In this chapter, we review the impacts of class size on outcomes correlated with violence and crime. The issue of large class size has grown in importance in recent years as population growth and increased rates of enrollment have combined to increase class sizes in many LMICs (Benbow et al. 2007). Class size reduction often comes to the fore in discussions of education policy because of the broad support for small class sizes fueled by parents' expectations that students will receive more individualized attention in smaller classes and teachers' expectation that smaller classes will reduce their workload while allowing teachers to devote more attention to each student (Chingos 2013; Finn 2019).

Policymakers achieve class size reductions by hiring additional teachers or building new schools. In many places, class size is determined by a maximum class size that triggers the hiring of an additional teacher when enrollment exceeds a threshold number. In some cases, policymakers have focused on hiring contract teachers—teachers hired for a one-year contract with renewal contingent on strong performance (the relationship of annual teacher contracts to teacher incentives is discussed in Chapter XVII). In this chapter, we focus on the effects of the reduction in class size on students. In Table XII.1, we summarize the key program elements, typical target age group, characteristics of the targeted beneficiaries, and goals of class size reduction.

Table XII.1. Summary of programs to reduce class size: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
Class size reduction	Primary or secondary school students	Any students enrolled in primary or secondary school	Ministries of education, school districts, or schools determine how many teachers to hire and how to assign them to classes for each school's student population. Decision makers may choose to hire additional teachers to reduce class sizes and may target specific classes, such as early grades, for class size reductions. If large classes are split into smaller classes, students may be grouped by ability or some other characteristic.	1. Reduce the number of students per class to allow teachers to spend more time per student 2. Enable ability-based tracking or instruction for more specialized subjects when dividing large student groups into smaller groups

Theory of change. Class size reductions may improve social-emotional skills and, by increasing school engagement, reduce participation in risky behaviors. Students' social-emotional skills may improve because students in small classes may be more likely to feel a part of the class community and to develop a feeling of belonging and attachment and are more likely to benefit from personal attention from their teachers (Anderrman 2002; Finn 2019). Students' school engagement may improve as the quality of instruction improves with more time on task, more opportunities to participate, and fewer interruptions from discipline and administrative tasks (Finn 2019). If students are more engaged in school, they may have improved attendance and a reduced likelihood of dropping out of school, leading to reduced participation in risky behaviors. Improved social-emotional skills and reduced participation in risky behaviors can lead to a reduction in crime and violence as discussed in Chapter II.

Target beneficiary profiles. The rationale for reducing class size applies to both primary and secondary school, though most studies focus on the impacts of reducing class size in primary school. Evidence suggests that, in the early grades, disadvantaged students are more likely to benefit from reduced class sizes (Schanzenbach 2014).

B. Findings from the evidence review

Emerging evidence from HICs shows that a reduction in class size may have positive impacts on outcomes correlated with crime. However, we found no studies from LAC countries or LMICs that tested the impacts of reduced class size on violence, crime, or correlated outcomes. We summarize the body of evidence in Table XII.2, which presents the overall description of the evidence of class size reduction on the outcomes of interest. The summary reflects the literature we identified through our foundational literature review, our bibliographic searches of studies in LMICs and LAC, and our searches of websites for grey literature (as

described in Chapter III) in LMICs and LAC. Appendix M presents additional information about the studies included in this topic review. Our search process on class size identified 1,335 papers, of which 4 were eligible for inclusion in the study. All of these studies took place in HICs and include 2 from a randomized controlled trial and 2 quasi-experimental studies.

Table XII.2. Strength of evidence on the impacts on outcomes of interest: class size reduction

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Class size reduction	HICs	◖	⊖	⊖	⊖	⊖	⊖
	LMICs	∅	∅	∅	∅	∅	∅
	LAC	∅	∅	∅	∅	∅	∅

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 4 were eligible for inclusion.

◖ = moderate body of evidence with positive findings; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **Moderate evidence from HICs suggests that reductions in class size can improve students' social-emotional skills in the short and long terms.** Studies show that small class sizes in both primary school and lower secondary (middle) school generate impacts on social-emotional skills. The Tennessee STAR study showed that small class sizes in kindergarten through grade 3 led to improvements in student behavior and engagement in class through grade 7 (Finn and Achilles 1999) and in social-emotional skills in grades 4 and 8. Social-emotional skills in grades 4 and 8 were correlated with increased earnings in adulthood (Chetty et al. 2011). Dee and West (2011) undertook same-student, cross-subject comparisons by using national survey data from the United States and found that middle school students in small classes were more likely to find those classes useful and less likely to be afraid to ask questions in class, among other outcomes related to school engagement. In Sweden, Fredericksson, Ockert, and Oosterbeek (2012) found that smaller class sizes in the second half of primary school improved social-emotional skills at the end of primary school, but the outcome did not persist three years later.

Studies from the US and Sweden find evidence of positive returns to investments in class size reduction. Two studies from the US and Sweden use national survey data to estimate the internal rate of return (IRR); or, the discount rate at which expected costs equal expected benefits) for class size reductions. In their study using national survey data from the US, Dee and West (2011) found an overall IRR that ranged from 0.036 to 0.056 for the overall population and a higher IRR of 0.069 to 0.090, for a one standard deviation reduction in class size, depending on the assumption of the rate of productivity growth for students. Fredricksson, Ockert, and Oosterbeek (2012) found that class size reductions in the last three years of primary school led to improved cognitive and non-cognitive ability at age 13 and improved cognitive skills at age 16,

which the authors estimate leads to increased earnings in adulthood that translate to an IRR of nearly 18 percent.

LMICs/LAC. We did not identify any eligible studies.

C. Recommendations

1. Recommendations for future research

The evidence on the role of reduced class size on violence, crime and correlated outcomes is scant and based entirely on evidence from HICs. Evidence from the US and Sweden shows that class size reduction has the potential to improve social-emotional skills, behavior and engagement in class in primary and lower secondary school, but these impacts did not always persist several years after the class size reduction. We recommend rigorous research on the impacts of class size reduction in LAC countries and LMICs to include outcomes correlated with violence and crime.

- **New research should help policymakers identify whether reducing class sizes is effective at improving social emotional skills in LAC countries and LMICs.** Research from HICs on the impacts of class size on academic outcomes showed variation in impacts based on teacher qualifications (see Woessmann and West 2002's multicountry study) and student demographics (Krueger 1999; Finn and Achilles 1999). New research assessing to what extent a similar dynamic would influence impacts of class size reduction on social emotional skills in LAC countries and LMICs would be valuable.
- **Research should also assess potential threshold effects in class size reduction.** Although most class size reduction studies we identified from LAC countries and LMICs found positive impacts on learning, Duflo et al. (2015) found no impacts on learning after reducing civil service teachers' class sizes in Kenya by nearly half—from an average of 82 to 44 students (see Appendix M for a review of the literature), suggesting that classes were still too large to teach effectively. This potential threshold effect is likely relevant for violence, crime, and correlated outcomes.

2. Recommendations for investing in class size reduction to improve outcomes

Although the evidence shows moderate evidence of positive impacts on social-emotional skills in HICs, we did not find evidence from LAC countries or LMICs on the effects of class size reduction on social-emotional skills or other outcomes of interest. Given this weak body of evidence, we cannot provide recommendations on how to use class size reductions to improve violence, crime, or correlated outcomes in developing country contexts.

XIII. SCHOOL-BASED ANTI-BULLYING AND SCHOOL-RELATED GENDER-BASED VIOLENCE PREVENTION PROGRAMS

	Evidence summary and mechanisms through which programs can affect violence and crime			
	Overall evidence			
Intervention	**Correlated outcomes**	**Violence and crime outcomes**	**Evidence from LAC**	**Mechanisms**
School-based anti-bullying programs	◖	◖	◖	Improved school environment and social-emotional skills improve risk and protective behaviors and vice versa. These then result in reduced bullying, gender-based and other school related violence, which can result in reduced criminal and violent activity in the long run.
School-related gender-based violence prevention	◖	◖	◖	

Legend: ● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ◉ = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ∅ = no body of evidence.

The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.

A. Program descriptions

School violence is generally defined as any act intended to harm others at school or near school grounds (Capp et al. 2017). School shootings or suicides are well-publicized, shocking forms of extreme violence, but they are rare. The more common types involve physical violence toward others that does not necessarily result in fatalities; student fighting, bullying, or corporal punishment; psychological violence in the form of cyberbullying or verbal abuse; and sexual violence, including sexual harassment or rape. Schools implement a wide range of approaches to combat school violence, including security measures, deterrence policies, psychosocial programs, and positive behavioral intervention supports (PBIS) which are discussed in the previous chapter on school climate. We focus this chapter on school-based programs whose primary aim is to prevent any form of bullying or gender-based violence regardless of whether it occurs inside or outside the school.

School-based bullying and school-related gender-based violence are specific forms of violence that share characteristics with other forms of violence including use or possession of weapons, or more serious violent behavior (Ttofi and Farington 2011). Bullying is a specific form of violence involving (1) repeated behavior intended to inflict fear, distress, or harm, and (2) an imbalance of power between perpetrator and victim (Nansel et al. 2001). It encompasses physical, verbal, and psychological acts like hitting, choking, name-calling, malicious teasing, and the use of obscene gestures, among others. Bullying typically occurs in the school, although it can occur outside of schools. Gender-based violence (GBV) refers to harmful acts or threats directed to a person because of their gender. These can be sexual, physical, verbal, or psychological in nature and arise because of gender norms and unequal power dynamics (UNESCO 2018). Typical examples are intimate partner violence, sexual assault by a non-partner, sexual harassment, female genital mutilation, and child abuse. Although gender-based

violence encompasses violence toward men, it is more commonly carried out against women and girls, who could be more vulnerable to sexual assault and exploitation (Stockl et al. 2013; Fulu et al. 2013). Indeed, most gender-based violence programs focus on reducing violence directed toward women and girls. In this chapter, we define school-related gender-based violence (SRGBV) as GBV that occurs in and around schools.

Although the full extent of bullying and gender-based violence in school is difficult to quantify because of the lack of comparable data worldwide, the United Nations International Children's Emergency Fund (UNICEF) estimates that 38 percent of boys and girls ages 11 to 15 have been bullied in school at least once in the past few months (UNICEF 2018). For the LAC region, the study estimates a lower rate of bullying, at 35 and 33 percent for boys and girls, respectively. In addition, it is estimated that over 120 million (or 1 in 10) girls under the age of 20 have been victims of some form of sexual violence in the past (UNESCO 2018). Again, reliable statistics are difficult to come by, primarily because gender-based violence is underreported, but the data that are available on the LAC region suggest that sexual violence is not uncommon in the lives of many girls. In the Dominican Republic, for example, more than 8 percent of girls ages 15 to 20 reported that they have ever been forced to have sexual intercourse or other sexual acts, and this rate is as high as 10 percent in Haiti.

In Table XIII.1, we summarize the key program elements, typical target age group, characteristics of the target beneficiaries, and goal of anti-bullying programs and gender-based violence prevention programs.

Table XIII.1. Summary of school-based anti-bullying and school-related gender-based violence prevention programs: age group, target beneficiaries, program elements, and goal

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goal
School-based anti-bullying programs	Children and adolescents in primary or secondary school, ages 6 to 18	Programs are designed for the whole school or particular groups of students who are at risk for bullying behavior (e.g., perpetrators or victims)	Awareness-raising efforts for teachers, parents and students; enactment of anti-bullying school policies; peer mediation or mentoring; improved playground supervision; teacher training on classroom management; conflict resolution; work with professionals to deal with bullies and victims; curriculum reform; social or behavioral group training	To reduce the prevalence of bullying in and around schools
School-related, gender-based violence prevention programs	Children, adolescents, and young adults in primary, secondary, or tertiary schools, ages 8 to 21	Programs have training sessions for females only, for males only, or for both genders together	Group training that builds awareness, knowledge, or skills related to gender-based violence	To reduce the prevalence of gender-based violence in schools

School-based anti-bullying programs. School-based bullying prevention programs explicitly aim to reduce the prevalence of bullying in school. These programs can consist of

awareness-raising efforts for teachers, parents and students; adoption of formal anti-bullying policies that communicate how students should treat each other, along with corresponding sanctions for misbehavior; peer mediation or mentoring; improved playground supervision; teacher training on classroom management; conflict resolution; and counseling sessions to deal with the personal issues of bullies and victims. In their survey of programs, Ttofi and Farington (2009) found that many programs follow a whole-school interdisciplinary approach that combines these elements. Other typical approaches involve a curriculum intervention only, or social and behavioral group training for a select group of students (Vreeman and Carroll 2007).

School-related gender-based violence (SRGBV) prevention programs. These school-based programs are designed to decrease the incidence of violence directed to a particular gender, usually females. In this review, we consider only programs that were implemented in a school setting, which commonly take the form of group training. Group training can be administered to either gender (males or females) or both at the same time. At their core, these programs aim to steer potential perpetrators toward acceptable behavior and empower potential victims through a series of training sessions that address underlying expectations about roles and behavior, conflict resolution, and other gender-based issues (Ellsberg et al. 2015). Group training includes bystander intervention programs designed to foster a positive social environment by encouraging witnesses of gender-based violence to prevent it when they can.

Common theory of change. Bullying and gender-based violence prevention programs in schools should improve the school environment, social-emotional skills development, protective behaviors, and risk behaviors. In doing so, they should lower the likelihood of perpetration of violence inside and outside of school. In practice, school-related bullying behavior and gender-based violence are difficult to distinguish, because bullying can be gender-based (Espelage, Basile, De La Rue, and Hamburger 2015; Pepler 2012). Both types of violence share similar risk factors. Adolescents who experience family conflict, depression, little monitoring by their mothers, and feelings of anger are prone to perpetrate bullying and physical dating violence and sexual harassment (Foshee et al. 2016). The quality of peer associations has also been found to have a profound effect on the tendency to perpetrate bullying or gender-based violence (Cho et al. 2019; Jewkes 2002).

Research has shown that early exposure to violence, whether through bullying or gender-based violence, can have far-reaching consequences. For example, both perpetrators and victims of bullying have a greater risk of delinquency and more serious forms of aggression later in life (Ttofi et al. 2012; Ttofi et al. 2011a; Ttofi et al. 2011b). Compared with their peers, bullies are more likely to participate in criminal activity as young adults (Bollmer et al. 2006; Heydenberk et al. 2006). In addition, the experience of violence in early childhood is often related to the acceptance of the use of violence in the future, as young people repeat behavior they have come to regard as acceptable (Heise 2011). These findings can motivate early programs that tackle violent tendencies before they can develop into more serious forms of aggression.

Common target beneficiary profiles. Bullying and gender-based violence are a common concern for students from childhood to the beginning of puberty and into young adulthood. Children are natural targets for these forms of violence because they have less maturity, experience, and knowledge than adults do. Studies show that the prevalence of bullying appears to peak at age 13 (Currie et al. 2008). The statistics are less clear for gender-based violence,

because underreporting prevents accurate assessment of its prevalence by age. However, it is generally understood that students at all ages are vulnerable to sexual victimization (UNICEF 2014). Our review of programs covered in this chapter reveals that school-based bullying prevention programs are typically administered in schools with children from ages 6 to 18, whereas school-related gender-based violence programs are generally designed for children from ages 8 to 21 (that is, those in primary, secondary, or postsecondary grades).

B. Findings from the evidence review

1. School-based anti-bullying programs

The Olweus Bullying Prevention Programme (OBPP) in Norway is perhaps the most widely recognized of all school-based anti-bullying programs around the globe. It is the first large-scale program that was implemented nationally, in Norway, and evaluated rigorously, and it is a prototype for many bullying prevention programs. OBPP's comprehensive approach involves the school, classroom, individual, and community in an effort to change the overall school climate and norms around bullying. At the school level, the program establishes a bullying prevention committee; conducts staff trainings; introduces new school rules against bullying; and facilitates parent-teacher meetings and staff discussion groups, among other things. At the classroom level, the program establishes rules and activities that help students address bullying. At the individual level, the intervention offers counseling sessions with bullies, victims, and parents to avoid future incidents. At the community level, the program helps spread anti-bullying messages.

Evaluations of the original OBPP have shown that it led to dramatic decreases in the incidence of bullying in Norwegian schools (Olweus 1991). In particular, bullying perpetration and victimization among students in 7th and 8th grades decreased by as much as 64 percent (from 10.0 to 3.6 percent) and 53 percent (from 7.6 to 3.6 percent), respectively. Since then, the adoption of OBPP in other HICs has produced mixed results, showing both positive and null impacts on the prevalence of bullying (Olweus and Limber 2010). This suggests that although the OBPP may be a model to emulate, the positive effects of the program will not necessarily transfer to all contexts and settings.

In our review, we found that the evidence on the effects of anti-bullying programs on our outcomes of interest was skewed toward programs implemented in HICs. Indeed, as Gaffney et al. (2019) point out, 80 percent of evaluations conducted globally take place in one of just 12 countries (Australia, Canada, Cyprus, Finland, Germany, Greece, Italy, Netherlands, Norway, Spain, the United Kingdom, and the United States). Our search process identified only six relevant studies conducted in LMICs and two studies conducted in LAC.

Table XIII.2 summarizes our findings on the impacts on violence and crime and on outcomes correlated with violence and crime. Evaluations typically measure effects of bullying perpetration or victimization directly. The evidence is strong that programs in HICs reduce bullying, but it is weak for programs conducted in LAC or LMICs. The table covers the literature we found through our foundational literature review, our bibliographic search of studies in LMICs and LAC, and our search of websites for grey literature in LMICs and LAC. Our search process identified 4,255 articles, of which 12 papers that were eligible for inclusion in the study. Of those, four were in HICs, two were in LAC and six were in LMICs. The studies include

quantitative causal, quantitative correlational and qualitative research. We discuss this literature below. See Appendix N for more information about the studies included in this review.

Table XIII.2. Strength of evidence for impacts on outcomes of interest: anti-bullying programs

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
School based anti-bullying programs	HICs	⊖	⊖	⊖	⊖	⊖	🔵
	LMICs	◖	∅	∅	∅	∅	⚪
	LAC	∅	∅	∅	∅	∅	◖

Note: Among the studies located through the global foundational and grey literature searches and the systematic bibliographic literature search in LMICs and LAC, 12 were eligible for inclusion.

🔵 = strong body of evidence with positive findings; ⚪= emerging body of evidence with positive findings; ◖ = weak body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. Several literature reviews provide foundational evidence for the impact of anti-bullying programs on the prevalence of bullying. In our assessment, the most exhaustive is the review by Gaffney et al. (2019), which summarizes evidence from 100 independent evaluations conducted in a variety of countries around the world. Other literature reviews apply restrictive inclusion criteria on time frames and research designs (for example, by only including randomized controlled trials), and this practice might exclude other high quality non-randomized studies. In contrast, Gaffney et al. (2019) includes quasi-experimental and cohort studies from 1983 to 2016. The study also incorporates both published and unpublished reports, as well as reports in languages other than English.

In HICs, school bullying prevention programs are often effective at reducing bullying at schools; in addition, comprehensive whole-school approaches and specific intervention components are associated with larger impacts on school bullying. On average, Gaffney et al. (2019) calculate that programs yield reductions in school-bullying perpetration and victimization of around 19 to 20 percent and 15 to 16 percent, respectively. Program impacts vary significantly by country, however, suggesting that impacts are context-dependent. Programs implemented in Greece, for example, reduced bullying by as much as 40 percent, whereas evaluations conducted in Finland, Germany, and the United Kingdom found that programs reduced bullying by much less. A similar, but older, meta-analysis by Wong (2009) likewise suggests that school bullying prevention programs reduce perpetration and victimization by as much as .109 and .188 standard deviations. A meta-analysis by Ttofi and Farrington in 2011 examined design features that make up successful anti-bullying programs. Comprehensive, whole-school approaches, those that follow the OBPP, produced significantly better effects than programs that only focus on a select group of students. In addition, programs that have a longer duration and work more intensely with teachers and students are significantly associated with a decrease in the prevalence of bullying. Other elements that seemed to produce better outcomes included stronger disciplinary methods for bullying and playground supervision, although the finding on disciplinary methods could be driven by large impacts found for the Olweus program, which incorporates a range of

sanctions on bullies. It is possible that playground supervision is critical, because most bullying could be taking place on breaks or recess. Findings also suggest that programs yield more positive effects when administered to older students (those 11 years old and above). This might be because late adolescence into adulthood is the period when students increasingly develop the mental capacity to absorb prosocial ideas that many anti-bullying programs seek to impart (Eisenberg and Morris 2004; Soto et al. 2011).

Although effective on average, it is unclear whether anti-bullying programs are ultimately cost-effective. Despite numerous studies on the topic, we found that evaluators normally do not report on the costs associated with implementation, and do not calculate cost-effectiveness. The lack of information on cost-effectiveness is a gap in the literature that might significantly hamper the take-up of such programs by schools and policymakers.

LMICs. **The emerging evidence from LMICs reveals mixed results for school bullying prevention programs, although the evidence that does exist supports the idea that a whole school approach works.** We identified six eligible studies in our review: four that were randomized controlled trials, and two that were quasi-experimental designs. Two quasi-experimental evaluations in Turkey showed that whole-school approaches were effective at reducing bullying by elementary students (Albaryak et al. 2016; Dogan et al. 2017). An experimental evaluation in the same country found that empathy training sessions both boosted empathy skills and reduced bullying among 6th grade students who were already exhibiting problematic behavior (Sahin 2012).

In contrast, programs in Romania (Trip et al. 2015) and South Africa (Meyer and Lesch 2000) that incorporated teacher and student trainings aimed at reinforcing positive behavior produced no statistically significant effects on bullying behavior among students ages 12 to 16 at the secondary level. A separate randomized study in South Africa (Naidoo et al. 2016) evaluated the impact of classroom-based trainings delivered to 10th grade students, but yielded mixed impacts: no impacts were found on victimization, but perpetration seems to have decreased. The small sample sizes and high attrition in these studies, however, could be important reasons why evaluations of anti-bullying programs in LMICs produced varied results in general. The study by Meyer and Lesch (2000) included 54 students randomly allocated to treatment and control conditions, and Sahin (2012) had a sample of 61 students. Although both Trip et al. (2015) and Naidoo et al. (2016) include data from many more students, both studies suffer from attrition rates of over 35 percent. These sample issues mean the evaluations may not produce impact estimates that are unbiased if students who leave the sample have particular characteristics, or if small sample sizes do not produce comparable students in the treatment and control groups.

LAC. **Overall, we found a weak evidence base, with mixed findings for the direction of the potential impact, for school bullying prevention programs based in secondary schools.** Our search process yielded two studies that fit our inclusion criteria—both of which studied programs in secondary schools, one in Peru and the other in Brazil. Gutierrez et al. (2018) reported on the effects of a school-wide intervention implemented in randomly selected secondary public schools in Peru. In 2015, the Peruvian government conducted awareness-raising efforts for students, encouraging them to stand up against bullying. These consisted of workshops, hands-on activities (such as role-playing games, poster-making sessions, and in-school parades), and informational material about school violence in select schools. Activities

were supplemented by the rollout of an online platform that allowed students to confidentially report incidents of violence at their schools. Two months after the intervention, findings suggested that the effort led to increased willingness of students to intervene when witnessing violent acts and to report these incidents to the online platform. However, the study found no overall changes in the school climate or in-school violence as perceived by students.

Da Silva et al. (2018) investigated the impact of a unique intervention delivered to high school students in Brazil. Based on the Theater of the Oppressed, the intervention had two components. The first consisted of in-class workshops about bullying. In the second, students acted as spectators on a stage and sought strategies for overcoming a hypothetical problem. A bullying situation was presented, and the spectators were asked to respond and in so doing, reveal their feelings, thoughts, and desires. The evaluation showed that measures of aggression and victimization stayed more or less the same in the intervention group after a period of six months, whereas these measures increased for the control group in the same time frame. The authors concluded that the intervention was effective at curbing bullying, although the study did not statistically test whether changes in the treatment group were statistically significant from those in the comparison group. In the end, more studies in the region are necessary to demonstrate whether the same findings hold for school bullying prevention programs in general.

2. School-related, gender-based violence prevention programs

The past two decades have seen an increased interest from policymakers and donors around the world in programs designed to prevent gender-based violence. In the developing world, concern grew out of the recognition that women in particular are doubly vulnerable, as gender-based violence might reinforce their susceptibility to HIV (Ellsberg et al. 2015). Broadly, prevention strategies range from services provided to survivors of violence to programs for perpetrators, livelihood strategies, community mobilization, and high-level policy and legislative reform. Here, we consider the evidence on programs that are school-based, recognizing that it is only one of many types of programs designed to curb violence against women and girls.

Like the literature on bullying prevention programs, the evidence on the effects of school-related, gender-based violence programs on our outcomes of interest is concentrated in HICs. Our search process identified 10 papers eligible for inclusion in the study. We based our review on a few recent literature reviews on gender-based violence programs around the world (Lester et al. 2017; Ellsberg et al. 2015; and Arango et al. 2014) and from five eligible articles in LMICs discovered in our search process. We found two eligible evaluations from the LAC region. Because much of the evidence is from HICs, it could have limited generalizability to countries that arguably have far fewer resources available to implement such programs. Table XIII.3 summarizes our findings from this literature on the impacts on violence and crime and on outcomes correlated with violence and crime. See Appendix N for more details about the studies included in this review.

Table XIII.3. Strength of evidence for impacts on outcomes of interest: programs to prevent school-related gender-based violence

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
School-related gender-based violence prevention programs	HICs	⊖	⊖	⊖	⊖	⊖	🔵
	LMICs	∅	◖	∅	◖	∅	◖
	LAC	∅	∅	◖	∅	∅	◖

Note: Among the studies located through the foundational global literature search, systematic bibliographic literature search in LMICs and LAC, and global grey literature search, 10 were eligible for inclusion.

🔵 = strong body of evidence with positive findings; ◖ = weak body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **In general, results from programs that use group trainings to prevent violence toward intimate partners show some promise, though overall the effectiveness is limited.** The evidence base consists of findings from over 50 studies, mostly randomized controlled trials (Lester et al. 2017; Ellsberg et al. 2015). These studies reveal that in general, programs can influence knowledge and attitudes about violence, but they are likely to have limited impacts on behavior. Nevertheless, three programs (Safe Dates, Fourth R, and Shifting Boundaries) stand out in the literature as having positive impacts. Safe Dates works to raise awareness about healthy and abusive dating relationships, equipping students with social-emotional skills related to anger management, positive communication, and conflict resolution. Its sessions include lectures, poster-making contests, and peer theatre production. Fourth R promotes relationship skills by providing students with guided practice and steps to activate healthy relationships. The program uses videos, handouts, and role-playing. Shifting Boundaries uses lectures and discussions to emphasize the consequences of unwanted behavior and teaches youth how to set personal boundaries. The three programs share similar features: they are designed for adolescents in relationships (those in grades 6 to 9), are implemented by teachers, and last up to eight weeks. Studies of Safe Dates have shown that its impacts on several forms of violence persist for as long as three years.

Similarly, programs designed to prevent sexual assault by non-partners often have muted impacts on the incidence of sexual assault. Most of these findings are based on programs delivered to students in a university setting, designed to prevent "date rape," or acquaintance-perpetrated sexual assault. A range of programs exist, which may consist of delivering lessons to students, placing educational posters on walls, encouraging bystander support, and teaching students skills for building healthy relationships. In reviewing 17 experimental and quasi-experimental evaluations, Arango et al. (2014) found that only 2 delivered positive results for reducing violence against women, although the majority of the programs were successful at improving attitudes and perceptions about date rape. Those two programs delivered educational training to female college students through videos, discussion groups, and role-playing. It is unclear, however, why these two programs were more successful

than others. Future research could be designed to isolate the aspects of these types of training programs on that are most likely to deter gender-based violence.

LMICs. **Overall, there is weak evidence that group training programs can work to avert violence against women in LMICs.** Our assessment draws from five studies identified through our literature search. In Kenya, Sarnquist et al. (2014) explored the promise of six two-hour sessions on empowerment and self-defense, delivered to adolescent girls in secondary school. The study compared the outcomes of session attendees with those of another group of women who received a general life skills training endorsed by the government. Girls who received the intervention reported lower rates of victimization from sexual violence from baseline to follow-up, whereas girls in the comparison condition had no change in their experience of sexual assault or harassment. More than half of girls who attended the sessions said they had used strategies they learned during training to deter assailants. Training participants became more likely to disclose their assault to others over time—including to the proper authorities—in contrast with the comparison group, which demonstrated no change in this behavior. A separate but complementary intervention delivered to boys was equally successful in reducing gender-based violence in the same context. Keller et al. (2017) conducted a quasi-experimental evaluation of the "Your Moment of Truth" (YMOT) intervention, which encouraged adolescent boys to intervene if they witnessed violence toward women. Like the program for girls, YMOT consisted of six two-hour sessions. After nine months, self-reports from boys who received the training indicated that they were more than twice as likely to successfully intervene when witnessing gender-based violence than boys who did not receive training were. A later RCT studying the implementation of educational programs for boys and those for girls simultaneously confirmed that the combination of programs significantly reduced the rate of sexual assault in the population after one year (Baiocchi et al. 2017). Another group of authors is set to evaluate a scaled-up version of the program soon (Sarnquist et al. 2019).

A pre-post evaluation of the five-year Safe Schools program of USAID in Malawi and Ghana found that the initiative improved knowledge of and attitudes toward school-related gender-based violence (USAID 2009).[100] Among other things, the intervention consisted of student and teacher trainings on how to prevent and respond to gender-based violence, including the implementation of a code of conduct for teachers that addresses school-related gender-based violence. At the end of the program, students and teachers were more likely to view physical violence as unacceptable; teachers became more vigilant about the types of sexual violence that occur in schools. The study did not, however, measure or report whether actual levels of gender-based violence decreased.

On the other hand, a study by the International Center for Research on Women (ICRW 2012) produced somewhat ambiguous results on the effectiveness of group training sessions on gender and violence that were carried out in public schools in India. Through the intervention, education sessions and a schoolwide campaign involving competitions, debates, and short plays were delivered to 6th and 7th grade students. Six months after the intervention, attitudes toward gender equality improved sharply among students in intervention schools compared to those in non-intervention schools. However, boys and girls in schools where the intervention was carried

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[100] We were able to obtain an executive summary of this evaluation, but could not get access to the full report.

out also disclosed more perpetration of violence in the last three months than they had during the baseline. In contrast, in schools that did not receive any intervention, there was no change in violence levels. Although these results suggest that the group training sessions failed, it is possible that students who received training became sensitized to violent actions, like teasing and pushing, that they originally considered as nonviolent. Because the study's results are based on self-reports by students, the increased violence in intervention schools might simply be a product of greater awareness among students of what constitutes sexual assault and harassment.

LAC. **There is a dearth of studies conducted in LAC on gender-based violence prevention programs in schools; however, those that do exist points to a potential positive impact.** Our search yielded two eligible articles for review. As part of its Effective Schools Program in the Dominican Republic, USAID implemented a Safe Schools initiative in 91 elementary schools in crime-ridden and drug-infested communities. The initiative consisted of training given to teachers, students, and members of the educational community on how to define and respond to gender-based violence and create a safer learning environment. Qualitative interviews with project beneficiaries revealed that Safe Schools contributed significantly toward reducing violence in schools: respondents perceived a reduction in bullying, fighting, and use of abusive language among students. Respondents claimed this led to improved classroom management by teachers and better academic performance by students (USAID 2015). It is hard to attribute these effects solely to Safe Schools, however, because there was no counterfactual group of schools, which would be necessary to estimate causal impacts.

In Ecuador, Bustamante et al. (2019) carried out an experimental evaluation of a school-based child sexual abuse (CSA) prevention program, delivered to students ages 7 to 12. The 10-week educational curriculum, which has been implemented elsewhere in LAC and Africa, consisted of lectures to improve children's knowledge of self-protection strategies and information on how to boost self-esteem, identify inappropriate touching, learn how to say "no," and report abuse, among other things. The researchers found that the program had significantly raised the level of knowledge about protecting oneself from CSA on the part of children who received the lectures compared to the knowledge levels of a comparison group of students. The study could not verify if this ultimately changed behavior, however, because that was not measured in the evaluation.

C. Recommendations

1. Recommendations for future research

In general, the evidence for bullying and gender-based violence prevention in HICs is well established, but it is not so in LMICs or LAC. In HICs, there is strong and credible evidence for the effectiveness of bullying prevention programs, and the literature reveals that several gender-based violence prevention programs consistently yield positive impacts. These studies, however, do not guarantee that results will be easily replicated in LMICs or LAC. The cost-effectiveness of successful programs is also not well known. Therefore, we recommend piloting anti-bullying and gender-based violence prevention programs before implementing them at scale in LMICs or LAC, investing in expanding the evidence base in LMICs and LAC, evaluating the longer-term impacts of anti-bullying and gender-based violence prevention programs, and documenting the costs and cost-effectiveness of such programs.

2. Recommendations for investing in anti-bullying and gender-based violence prevention programs

Based on the evidence, we recommend that policymakers and funders focus on the following:

● A comprehensive, whole-school approach tends to work better at reducing bullying than programs that work individually with bullies or victims. Programs that incorporate firm disciplinary measures for tackling bullying, implement playground supervision, and last longer are also likely to have more positive results. When in doubt about features to include in a program, the Olweus Bullying Prevention Program can be a useful guide, but the model needs to be adapted to the local context.

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XIV. DROPOUT AND EXPULSION PREVENTION PROGRAMS

Evidence summary and mechanisms through which intervention can affect violence and crime				
	Overall evidence			
Intervention	**Correlated outcomes**	**Violence and crime outcomes**	**Evidence from LAC/LMICs**	**Mechanisms**
Dropout prevention programs	○	○	○	Improving factors associated with dropout and expulsion, including learning, social-emotional skills development, environmental factors, and risk behaviors, to keep children and youth in school can affect violence and crime in the short and long term through different pathways. In addition, reducing dropout and expulsion themselves, can improve violence and crime in the short and long term.
Expulsion prevention programs	◖	∅	∅	

Legend: ● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; 🟡 = mixed findings in emerging or larger body of evidence; 🟡 = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ∅ = no body of evidence.

The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.

A. Program description

In this chapter, we review evidence on the impact of dropout and expulsion prevention (DEP) programs on violence, crime, and correlated outcomes and then propose areas of future research. DEP programs seek to reduce the likelihood that students abandon or are excluded from school through disciplinary action. In this chapter, we discuss two general types of DEP programs: programs designed to prevent dropout and absenteeism (what we refer to as dropout prevention programs) and programs designed to prevent expulsion or suspension from school (what we refer to as expulsion prevention programs). In Table XIV.1, we summarize the key program elements, typical target age group, characteristics of the targeted beneficiaries, and goals of dropout and expulsion prevention programs.

Table XIV.1. Summary of dropout and expulsion prevention programs: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
Dropout prevention programs	Ages 6 through 19 years	Children and youth most at risk of dropout, including: 1. In HICs: students of color, those from low-income households, and those with high rates of behavioral infractions, often at the secondary level 2. In LMICs: students from lower-income households and those with high rates of behavioral infractions, often at the primary level 3. Whole schools	Early warning systems (EWS), performance, enrichment, attachment activities, family supports, and information provided to parents	1. Improved school attachment, commitment, and completion 2. Reduced rates of absenteeism and dropout
Expulsion prevention programs	Ages 6 through to 19 years	Children and youth most at risk of exclusionary discipline[101], including groups similar to those listed above under dropout prevention programs	Positive behavioral programs and supports, restorative practices, social-emotional learning activities, counselling and mentoring, teacher training	1. Improved school climate 2. Reduced behavioral infractions 3. Reduced rates of suspension and expulsion

In addition to those elements in Table XIV.1, DEP programs often include activities that are discussed in other chapters, including: SEL programs (Chapter VII), school climate programs (particularly those in Chapters X and XI), extracurricular programs (Chapter XXII), and bullying and violence prevention programs (Chapter XIII). Dropout prevention strategies may even include programs such as pre-primary education (Chapter IV) and workforce development (Chapter XX) programs (Addis and Withington 2016). In this chapter, we focus on programs that (1) set forth an explicit, primary goal to prevent school dropout, absenteeism, suspension, or expulsion; (2) target youth at points when dropout or exclusionary discipline risk is high; and (3) are not reviewed in other chapters.[102]

Dropout prevention programs seek to improve school attachment (sentiments toward school), school commitment (attendance and grades), and school completion (Petrosino et al. 2013). Such programs typically involve a combination of the following activities:

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[101] Exclusionary discipline refers to a set of practices school administrators or teachers may apply which exclude targeted students from typical classroom or social environments, usually as a result of some behavioral infraction, and which commonly include suspension and exclusion.

[102] We include one study in this chapter (Heller et al. 2017) that evaluates a CBT-based violence and dropout prevention program, Becoming a Man (BAM). Given the SEL elements of the BAM, program details are consolidated in Chapter VII, Classroom-Based Social-Emotional Learning, but the Heller study is included in the evidence base of both chapters.

- Early warning systems (EWS) that identify students at risk of dropout based on attendance, behavior, and course performance (ABC) indicators so that teachers and administrators can take timely action. EWS are tiered to address the level of dropout risk presented by a child or youth and typically include data reporting and analysis components for ABC indicators and might include automatically deployed responses and activities
- Performance, enrichment, and attachment activities that aim to improve students' academic achievement and sense of belonging at school[103]
- Family supports and information provided to parents to increase parents' engagement and investment in and their child's attendance and educational attainment[104]

Expulsion and suspension prevention programs seek to avoid the application of exclusionary discipline (suspension or expulsion) (Fenning et al. 2012). Activities can include programs to reduce the likelihood that school staff need to apply exclusionary discipline as well as policy changes that adjust the automatic application of exclusionary discipline (Skiba and Losen 2015; Lacoe and Steinberg 2017). Expulsion and suspension prevention programs may involve a combination of the following district, school, and individual-level components:

- Reforms to zero tolerance policies and implementation of alternative corrective tools, such as restorative practices (RP) based on relationship building and victim-offender reconciliation (often called restorative justice) (discussed in more detail in Chapter X)
- Social-emotional learning elements, including conflict resolution and self-regulation training (discussed in more detail in Chapter VII)
- Structural changes such as positive behavioral interventions and supports (PBIS) (discussed in more detail in Chapter X)

Common theory of change. Dropout and expulsion prevention programs work to improve factors associated with dropout and expulsion, including learning, social-emotional skills development, environmental factors, and risk behaviors, to keep children and youth in school. These factors, as well as dropout and expulsion themselves, can each affect violence and crime in the short and long term through different pathways. By improving social-emotional skills, children and youth may engage in less risky behaviors as well as violence and crime. By keeping children and youth in school for longer resulting in higher educational attainment, violence and crime can be improved through incapacitation effects in the short term. Higher education attainment, as well as learning and social-emotional skill development, can lead to improved employment in the longer term, which can reduce violence and crime as described in Chapter II.

The literature has shown that behavioral issues, academic problems, absenteeism, suspensions, expulsions, dropout, and contact with the criminal justice system are related to one

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[103] De Hoyos et al. (2016) classified interventions to reduce dropout in LAC as demand-side (financial incentives or information targeted to students and families) or supply-side (social-emotional interventions, pedagogical interventions, EWS, school management changes, and extension of schooling). For the purposes of this report, we review financial interventions such as conditional cash transfers and scholarships in Chapter XVI, social-emotional interventions without explicit dropout-prevention focus in Chapter VII, and longer school days in Chapter XV.

[104] These may include cash transfers (particularly common in LMICs and LAC), pay-for-performance and student incentives, school feeding programs, and scholarships. We review these interventions in Chapter XVI.

another in a variety of ways (Christenson and Thurlow 2004; Machin 2011; Morgan et al. 2014; Valdebenito et al. 2018; REL 2018; de Looze 2015; Veenstra et al. 2010). For instance, an observational study in El Salvador showed that academic difficulties and low future orientation (not feeling hopeful and confident about the future) contribute to youth delinquency and violence and that these risk factors, along with empathy deficits, a lack of social support, and gang affiliation, contributed to violent and criminal acts on the part of the observed youth (Olate et al. 2012). Expulsion and suspension prevention programs could make positive impacts on risk factors, e.g. learning, social-emotional skills, and risky behaviors, before they become cause for exclusionary discipline. Separation from school can, however, mark the early end of children or youths' educational career and thus their formal human capital formation, leading to negative impacts on future earnings and employability. Expulsion and/or dropout can also undermine students' social-emotional skills and abilities, such as self-esteem, motivation, and confidence. At the same time, separation from school can eliminate the incapacitation effect (Jacob and Lefgren 2003) of educational engagement, produce conditions for youth to engage in additional risk behaviors such as drug abuse, and open avenues for engagement in crime and violence (Christenson and Thurlow 2004; Machin 2011; Morgan et al. 2014; Black et al. 2014).[105]

The adverse outcomes discussed above are not the sole result of expulsion or dropout—they can also be the cause of separation from school. Outcomes examined in this review (crime, violence, and correlated outcomes) can push children and adolescents toward expulsion or dropout. For example, students with high risk factors such as substance use face a significantly higher risk of school abandonment and suspension (Morgan et al. 2014; Esch et al. 2014), and environmental factors such as walking to school along streets with high rates of violent crime can increase absenteeism (Burdick-Will et al. 2019). In contrast, positive school behaviors and strong school motivation (such as not skipping class and not being sent out of class for inappropriate behavior) can help protect youths from engaging in activities associated with aggression, violence, and delinquency (Olate et al. 2014 in El Salvador). DEP programs deploy behavioral, social-emotional, and environmental activities to improve dropout and expulsion outcomes (Josephson et al. 2018; Ekstrand 2015; Hammond et al. 2007).

Target beneficiary profiles. DEP programs target individual students experiencing challenges as well as entire schools. In HICs, dropout prevention programs typically targeted populations most at risk of exclusionary discipline and dropout, including children of color and children from low-income households (Koon 2013). Expulsion prevention programs in HICs targeted both individual students experiencing behavioral challenges and entire schools with high rates of misconduct or disciplinary referrals. DEP programs in LMICs and LAC also focused on lower-income children, but, unlike HIC programs, which tended to focus on secondary school students, programs in LMICs and LAC often targeted children in primary and lower secondary school. This was because educational attainment was generally lower in LMICS and LAC than

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[105] In turn, these individual-level outcomes produce immense social costs: Rumberger and Losen (2016) used National Center for Education Statistics (NCES) data and estimated that the 3,527,855 suspensions of grade 10 students in the United States in a 2001–2002 cohort increased the number of dropouts by more than 67,000, incurring long-term social costs of more than $35 billion.

in HICs, and efforts to improve school completion began earlier in students' educational paths (Tyler and Lofstrom 2009; Creative 2011).

B. Findings from the evidence review

The evidence for the impact of DEP programs on violence and crime-related outcomes is largely emerging and shows mixed though somewhat positive results.[106] Given that we identified only a single correlational study of expulsion prevention programs, the evidence base consists almost entirely of studies focused on dropout prevention programs. The emerging evidence on crime and violence suggests that programs may improve outcomes, but the evidence on correlated outcomes shows mixed results. We summarize the evidence on the effects of DEP programs on violence, crime, and correlated outcomes in Tables XIV.2 and XIV.3, which reflect what we found through our global foundational literature review and our bibliographic search of studies in LMICs and LAC, as well as our search of websites for grey literature (as described in Chapter III). Our search process for dropout and expulsion prevention programs identified 943 papers, of which 9 were eligible for inclusion in this chapter. The eligible studies include individual studies that used quantitative causal and quantitative correlational designs.

1. Dropout prevention programs

The evidence for the impact of dropout prevention programs on risky and protective behaviors is emerging and shows mixed results overall. In particular, we found emerging evidence of reductions in rates of school-related violence, violent crime, and nonviolent crime as well as improvements in social-emotional skills and environmental factors. We found only one experimental study in LMICs and one experimental study in LAC; therefore, the strongest evidence relies almost entirely on evaluations of projects in HICs. In Table XIV.2, we summarize the evidence on the effects of dropout prevention programs on violence, crime, and correlated outcomes. Of the nine studies eligible for inclusion here, eight evaluated dropout prevention programs, including one review, two studies in LAC, three studies in LMICs, and three studies in HICs (one eligible study evaluated expulsion prevention programs).[107] Appendix O provides more information about all studies of dropout prevention programs in this review, including the age group of interest and type of activities.

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[106] The large share of studies of DEP programs assesses impacts on the standard outcomes of attendance, suspension, expulsion, and dropout rates. Research suggests that attendance issues, suspension, expulsion, and dropout are risk factors for future exposure to violence and crime (Christenson and Thurlow 2004; Machin 2011; Morgan et al. 2014; Valdebenito et al. 2018; REL 2018; REL 2018a; REL 2018b; de Looze 2015; Veenstra et al. 2010). However, because the literature has already established those associations, we consider such outcomes to be "standard" indicators and not among the violence and crime outcomes of interest. We do include in our review studies reporting such indicators if the paper also evaluated violence and crime outcomes for which we have searched.

[107] In this chapter, we searched for all DEP studies and did not disaggregate by dropout or expulsion prevention programs.

Table XIV.2. Strength of evidence on the impacts on outcomes of interest: dropout prevention programs

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Dropout prevention programs	HICs	◐ (yellow)	○	● (yellow)	○	○	○
	LMICs	○	◐	○	⊘	⊘	⊘
	LAC	◐	⊘	◐	⊘	⊘	◐

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 8 were eligible for inclusion. ○ = emerging body of evidence with positive findings; ◉ = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ◖ = weak body of evidence; ⊘ = no body of evidence.

HICs. **An emerging evidence base from HICs showed mixed impacts of dropout prevention programs on protective behaviors, no impact on social-emotional skills, and positive impacts on environmental factors.** A randomized controlled trial of the Diplomas Now dropout prevention program found mixed impacts among students in grades 6 and 9 (Corrin et al. 2016). Diplomas Now involves EWS, teacher training, teacher teams to support students, curriculum improvements, school culture development, and tiered programs (whole school, at risk, and at highest risk of dropout). After one year, students reported that confidence, self-worth, engagement, tenacity, or study habits did not differ significantly in the treatment versus control schools. However, treated students were significantly more likely to be participating in after-school activities (program effect size of 0.20), and teachers in treated schools reported a more positive school climate, but at a level that was only weakly statistically significant.

In a randomized controlled trial, Parise et al. (2017) examined the effects of Communities in Schools case management on dropout and other outcomes. Two years of programming yielded no significant differences between case-managed and non-case-managed students in terms of participation in extracurricular activities or educational self-perception and effort (related to confidence and perseverance). However, students receiving case management to prevent dropout were significantly more likely than their non-case-managed peers to report that they had a caring adult at home (effect size [ES] of 0.15), had a caring adult at school (0.14 ES), had quality friendships (0.15 ES), and were engaged at school (0.11 ES).

We found emerging evidence from HICs of positive impacts on violence and crime. In an experimental evaluation of Becoming a Man (BAM), a program using cognitive behavioral therapy to target violence and dropout in Chicago high schools, Heller et al. (2017) found that adolescent males participating in the program experienced significant reductions in arrests relative to untreated youth.. (See Chapter VII, Classroom-based Social Emotional Learning, for more detail on this SEL-based intervention).

LMICs. **An emerging evidence base from LMICs suggests that dropout prevention programs may have positive effects on protective behaviors and social-emotional skills.** Researchers in Sierra Leone used a randomized design to evaluate the Youth Readiness

Intervention (YRI), a 10-week CBT-based program designed to support the academic success of war-affected youth.[108] The researchers found that the program had promising effects on participants' social-emotional skills and behaviors (Betancourt et al. 2014). Compared to peers who received only educational subsidies and to a control group that received no intervention, the YRI participants—by the conclusion of the intervention—achieved significantly greater gains in prosocial attitudes and behaviors, social support, and emotional regulation and significantly greater reductions in functional impairment. The differences did not persist six months later (because the control group's outcomes improved), but teachers reported that YRI participants exhibited significantly improved classroom behavior than their peers who received only the educational subsidy.

In Romania, Opre et al. (2016) tested the efficacy of the ToolKit school engagement and dropout prevention program. Implemented over the course of three months, the ToolKit involved career counseling, parent counseling and awareness-raising activities, school-community partnership building, diversity workshops, and other elements. Pre-post analysis showed significant improvements in participants' self-efficacy, expectations for success, perceived usefulness, and motivation. Children with parents working abroad or with mothers with lower levels of education benefitted more from the program than did other children.

We found weak evidence from LMICs suggesting no impacts of dropout prevention programs on family environment factors. The School Attendance Initiative (SAI), also conducted in Romania, was a five-component intervention aimed at reducing absenteeism and dropout through the forging of community networks, future visualizations, and parenting education (Preda et al. 2014). A quasi-experimental evaluation indicated that exposure to SAI did not have significant impacts on parent reports of beating their children.

LAC. **An emerging evidence base from LAC suggests that dropout prevention programs had no significant effects on social-emotional outcomes.** In Argentina, the Scholarship and Mentoring Program (SMP) for at-risk secondary students yielded disappointing results in a randomized evaluation, despite a theoretically sound program model (Ganimian et al. 2018). Implementers deposited a monthly scholarship of $40 in participants' accounts (contingent on their not repeating grades, not being suspended, and maintaining enrollment in a program-affiliated school) while the students were paired with trained psychosocial professionals or social workers for monthly nonacademic mentoring sessions. After three years, participants were significantly more likely than control group students to demonstrate preventive and corrective academic behaviors[109], but they exhibited no difference in perseverance, learning strategies, attendance, test scores, or the Big 5 social-emotional traits (openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism). The exception among those

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[108] While we cover CBT in other chapters of this report, this particular intervention is reviewed in this chapter because it uses CBT specifically as a means to promote academic reintegration and success and avert dropout.

[109] Preventive behaviors were defined as actions students could take which would support completion of homework, preparation for tests, and prevention of absenteeism, while corrective behaviors referred to actions students could take to gain back academic footing in response to failing or flunking academic items, missing class, or mis-spending time in their free period.

traits was conscientiousness, which showed a small but significant negative impact, but the difference was partially attributable to improved performance in the control group.[110]

We found weak evidence of mixed impacts on risk and protective behaviors and positive effects on school violence. Josephson and co-authors (2018) conducted a less rigorous quasi-experimental evaluation of the Construye T program in Mexico.[111] Construye T is designed to use school environment improvements and social-emotional skill-building programming to reduce dropout. The authors found benefits in terms of violence prevention but were uncertain about impacts on risky and protective behaviors.

2. Expulsion prevention programs

The evidence is sparse for the impact of expulsion prevention programs on violence, crime, and correlated factors. We identified only one such study— a descriptive study from the United Kingdom on the association between an expulsion prevention program and risky and protective behaviors; the research found no association between the program and violence and crime and correlated outcomes of interest in this review. In Table XIV.3, we summarize the evidence on the effects of expulsion prevention programs on violence, crime, and correlated outcomes. Appendix O presents more information about the study on expulsion prevention program in this review, including the age group of interest and type of activities.

Table XIV.3. Strength of evidence on the impacts on outcomes of interest: expulsion prevention programs

		Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
Intervention	Region	Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Expulsion prevention programs	HICs	⊖	⊖	◖	⊖	⊖	⊖
	LMICs	∅	∅	∅	∅	∅	∅
	LAC	∅	∅	∅	∅	∅	∅

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, one was eligible for inclusion.

◖ = weak body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **We found weak evidence of no impact of exclusion prevention programs on risky and protective behaviors.** In a non-experimental study carried out under the School Exclusion Trial in the United Kingdom, researchers with the Institute of Education (2014) used multilevel modeling to examine the correlation between the level of resources and responsibility given to

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[110] Unfortunately, it is difficult to disentangle the impact of the two treatment elements (scholarship and mentoring). For that reason, we also consider this paper in the section on scholarships in Chapter XVI.

[111] Unfortunately, the comparison group comprised state schools, while the treated schools were all federal. Such nonrandom assignment threatened the validity of the study's conclusions.

schools to prevent school exclusion and students' academic and behavioral outcomes. First, the model looked at the relationship between the intervention activities with schools' provision of relevant programming. Then, the model linked the resulting school programming with student outcomes. Schools armed with greater resources and responsibilities from their local authorities developed various policies and tools aimed at reducing the expulsion or transfer of students with problematic behaviors. These policies included "Alternative Provision", or AP, a temporary formal education system outside of typical school environments. After two years of the new programming, teachers in trial schools—those with the resources to set up AP programs—reported fewer instances of students permanently excluded from school. However, the study showed no significant differences between teacher reports of disruptive behavior among students who received AP and those who did not. The results suggest that, even though possible policy shifts may have reduced the application of exclusionary discipline, such shifts did not mitigate disruptive behaviors in the classroom and school.

LMICs/LAC. Our search did not identify any studies examining the impacts of exclusion prevention programs on violence, crime, and correlated outcomes (excluding "standard" indicators such as suspensions and expulsions) in LMICs or LAC.

3. Cost analyses

Cost-effectiveness analyses of DEP programs that focus on violence, crime, and correlated outcomes are rare. Measures of the cost effectiveness of programs to reduce exclusionary discipline are particularly sparse. Among the programs considered above, only three offer cost information, and one produced cost-effectiveness calculations. Ganimian et al. (2018) estimated the cost of the SMP in Argentina at $733 per participant per year. Heller et al. (2017) showed that the costs of Becoming a Man (Chicago) were $1,100 and $1,850 per participant per year and suggested that benefit-cost ratios for the program ranged between 5:1 and 30:1, considering improved crime and graduation outcomes. Finally, in Romania, the School Attendance Initiative cost $16 per child per year (in 2012–2013), or $3.16 per extra hour of attendance per child (Preda et al. 2014).

C. Recommendations

1. Recommendations for future research

Evidence on dropout prevention programs suggests that dropout programs may reduce violence and crime, but the evidence is only emerging and relies on only two studies (one RCT in an HIC [Heller et al. 2017] and one in LAC [Josephson et al. 2018]). Emerging evidence on correlated outcomes is more mixed, making it difficult to draw policy conclusions about these outcomes. We recommend rigorous research on the impacts of dropout and expulsion prevention programs on violence, crime and correlated outcomes in LAC and LMICs, that also incorporates cost-effectiveness analysis.

2. Recommendations for investing in dropout and expulsion prevention programs

Based on the available body of evidence, we cannot provide recommendations on how best to use dropout prevention programs or expulsion prevention programs to improve violence, crime, or correlated outcomes aside from their direct effect on improving expulsions and suspensions, which, in turn, can affect violence and crime.

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XV. INCREASED CLASS TIME

Evidence summary and mechanisms through which intervention can affect violence and crime

Intervention	Overall evidence			Mechanisms
	Correlated outcomes	Violence and crime outcomes	Evidence from LAC/LMICs	
Increased class time	○	● (yellow)	○	Reduced risky behaviors are expected to lead to reduced crime and violence. Improved learning and school engagement may lead to improved educational attainment and employment, in turn reducing violence and crime. Stronger social-emotional skill development is also expected to reduce violence and crime.

Legend: ● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ◯ = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ∅ = no body of evidence.

The evidence summary in this box highlights the strongest and most promising evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.

A. Program description

This chapter looks at the existing evidence on the impacts of additional class time or time in school—including policies to extend the school day or lengthen the school year—on social-emotional skills, other outcomes correlated with violence, and on violence and crime. We do not review the impact of increasing access to school for those who would otherwise be without it (see Chapter XVII for that discussion). Nor does this section report a systematic search for the impacts of increasing time that is on task within an established schedule (see Chapter XI). After-school programming is another way to provide more structured time, which we cover in Chapter XXII. The focus of this section is changes in the length of the standard school day or school year for all students enrolled in primary or secondary school.

Increased class time—either by extending the school day or school year—may influence outcomes correlated with violence and crime in at least three ways. First, for youth who might otherwise engage in risky behaviors while outside school, increasing time in school can reduce their exposure to those risky behaviors through an incapacitation effect. Second, if class time is productive, increased class time may help students learn existing curriculum or broaden the curriculum to include new topics of interest to students, potentially improving both learning and student engagement in school. Third, increased class time may lead to improved social-emotional skill development either because of direct instruction on social-emotional skills or because of improved school engagement. Improved learning and social-emotional skills may lead to improved employment.

In XV.1, we summarize the key program elements, typical target age group, characteristics of the target beneficiaries, and goals of programs designed to increase class time.

Table XV.1. Summary of programs designed to increase class time: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
Extended school day or year	Primary school or secondary school	Any primary or secondary school	The school day is extended by starting earlier or ending later. A common approach is to move from offering morning or afternoon school to all-day school. OR The school year is made longer.	1. Increase class time 2. Increase the number or variety of classes

Theory of change. Increasing class time could reduce violence or outcomes correlated with violence in at least four ways: (1) reductions in risky behavior are expected to reduce participation in violence and crime; (2) improvements in learning and school engagement may improve educational attainment and employment and reduce violence and crime; and (3) increased opportunities for instruction on social-emotional skills, which are expected to reduce violence and crime. At the same time, for students who work outside school, a mandatory extension of the school day could have the unintended consequence of driving students to drop out. Chapter II presents definitions of violence, crime, and correlated outcomes.

Target beneficiary profiles. Increasing class time could increase the amount of learning and improve other outcomes at the primary or secondary school levels. Reducing dropout rates and minimizing time that could be spent engaging in risky behavior could be important at both the primary and secondary school levels, but are likely to be more important for students in secondary school, when dropout rates are higher. Changing a school schedule or calendar would affect all students, but students would be affected in different ways. For students who engage in risky behaviors outside class time, extending the school day or adding school days would reduce their exposure to risky behaviors, it would have less effect on students who were not otherwise engaged in such behaviors.

B. Findings from the evidence review

Estimating the impacts of longer class days on learning impacts or outcomes correlated with violence and crime is challenging for studies that are not randomized controlled trials (RCTs), because of the correlation between time spent in class and the characteristics associated with achievement. For example, academic schools likely devote more class time to academic subjects than vocational schools do, and academic schools are also likely to attract students who score higher on academic tests. Furthermore, motivated parents could seek schools that offer more class time, potentially biasing estimates based on correlations between class time and achievement. At the same time, lower-achieving students are sometimes required to spend extra time on academic subjects they are struggling with. In some education systems, for example, advanced students can skip the last few weeks of the school year, introducing a bias in the other direction (Rivkin and Schiman 2015). A few studies have used RCTs. Other rigorous studies have taken advantage of exogenous variation in the timing of standardized tests or the rollout of schedule changes. Another approach has been to use the variation in class time across subjects to allow cross-subject, within-student comparisons to estimate the impact of class time. We

summarize the findings from the foundational literature on the impacts of class time on academic achievement in Appendix P.

The literature provides little evidence on the impacts of increased class time on outcomes correlated with violence and crime, such as social-emotional skills, crime, or violence, even though extending the school day or year can have an important impact on students' time use. Our search process identified 1,513 papers, of which 4 were eligible for inclusion in the study. Of those, 1 was in an HIC, 2 were in LAC, and 1 was in an LMIC. These studies used various quasi-experimental methods to estimate causal impacts. Most studies focused on immediate impacts on learning; only a handful of studies estimated impacts on crime and violence (Berthelon and Kruger 2011; Lavy 2016; Pires and Urzua 2015) or any long-run outcomes (Llach et al. 2009). Appendix P includes additional details on the studies summarized in Table XV.2.

Table XV.2. Strength of evidence on the impacts on outcomes of interest: increased class time

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Increased class time	HICs	⊖	◗	⊖	⊖	⊖	◗
	LMICs	∅	∅	◯	∅	∅	∅
	LAC	◗	∅	◯	⬤	⬤	∅

Note: Among the studies located through the global foundational literature search, bibliographic literature search in LMICs and LAC and global grey literature search, 4 were eligible for inclusion.

◯ = emerging body of evidence with positive findings; ⬤ = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **One study from an HIC found that increased class time had no effect on school violence or the school environment.** In Israel, a policy change that allowed some schools to have longer days improved test scores, but did not affect students' satisfaction with school, social satisfaction with class, or the levels of violence or perceptions of the threat of violence in schools (Lavy 2016). Lavy used school fixed effects, instrumental variables, and cross-subject comparisons to identify the policy's impacts. The policy change in Israel did not require schools to use the additional class time to cover more curriculum, which could explain why the policy did not affect students' social satisfaction or satisfaction with school.

LMICs. **One study in Indonesia found that increased class time for female students led to more contraceptive use, an improvement (decrease) in a risky behavior (or an increase in a protective behavior), and fewer live births.** A change in the start of the school year resulted in one academic year being six months longer than was typical in 1978. The authors used a regression discontinuity design to estimate the impact of the longer year on cohorts enrolled during that year (Samarakoon and Parinduri 2015).

LAC. **Two studies found that a full-day school program in Chile reduced students' risky behaviors and one of the two found reductions in crime.** Berthelon and Kruger (2011) used a fixed effects model to estimate the impact of the full-day school program on the probability of adolescent motherhood and juvenile crime among secondary school students. The authors found that the policy reduced the incidence of both crime and adolescent motherhood for poor families in urban areas. This may be due to a displacement effect through which students are less likely to engage in risky behaviors because the longer school day leaves them less free time to do so. Pires and Urzua (2015) used propensity score matching to evaluate the same reform, and also found a reduction in the incidence of adolescent motherhood. In the overall sample, the impact on adolescent motherhood was close to but not significant, but this was driven by significant impacts on students whose mothers had less education. Authors found no impacts on social-emotional skills or arrest[112] in the overall sample or subgroups.

C. Recommendations

1. Recommendations for future research

This review found an emerging evidence base for the impact of class time on violence, crime, and outcomes correlated with violence and crime. We recommend that future research build on emerging evidence of the impact of a full day schedule or extended academic calendars on risky and protective behaviors. Future research should evaluate how impacts vary according to how extra time is used (emphasizing existing curriculum, adding new curriculum, or offering non-academic enrichment), estimating how impacts might vary by context, and assessing long-term impacts. Finally, we recommend that new research include cost-effectiveness analysis.

2. Recommendations for investing in increasing class time

Based on the evidence, we have three recommendations for investing in programs that increase class time.

- **Consider extending the school day using teaching aids, tutors, or volunteers if it is too expensive or otherwise not feasible to extend teachers' hours.** The benefits of increasing class time might come in the form of increased learning, decreasing exposure to unproductive or risky behaviors outside school, or both. Extending teachers' work day may be cost-prohibitive or infeasible if teachers are not willing to extend their work day. In this case, policy-makers might consider hiring individuals with lower salaries, such as teaching aids, tutors, or trained volunteers to provide additional structured educational time—a strategy that increased test scores in India (Banerjee et al. 2007). We have not found studies that tested the relative cost-effectiveness of this approach, but expect it to be less expensive than expanding teachers' hours.
- **Consider students' interests and needs when determining what material to cover in additional class time.** Increased class time is likely to be most impactful if it is focused on areas that will motivate students to continue attending school or to stay at school longer. These could be job training courses that students consider valuable, or arts classes that

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[112] The studies reported on impacts on crime and arrests without distinguishing between violent crime and non-violent crime. We report these impacts in both the violent crime and non-violent crime outcomes in the summary table.

students consider enjoyable. If additional class time reduces dropout rates, it could further reduce students' exposure to risky behaviors.

- **Consider using additional class time for programming to improve students' social-emotional skills.** This approach could leverage the additional class time to improve an outcome that is correlated with reducing violence and crime.

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XVI. TRANSFER PROGRAMS

Evidence summary and mechanisms through which intervention can affect violence and crime				
	Overall evidence			
Intervention	**Correlated outcomes**	**Violence and crime outcomes**	**Evidence from LAC/LMICs**	**Mechanisms**
Cash transfers (conditional and unconditional)	◑	◑	◑	Improved educational attainment, learning, social-emotional skills, behaviors and home environment can affect violence and crime both directly and indirectly.
Scholarships and other student financial incentives	● (yellow)	∅	● (yellow)	Improved educational attainment, learning, social-emotional skills, and behaviors can affect violence and crime both directly and indirectly.
School feeding, take-home rations, and other in-kind transfers	○	∅	○	Improved social-emotional skills, behaviors, and learning, can improve educational outcomes and further improve risky behaviors including violent and criminal behavior.

Legend: ● = strong body of evidence with positive findings; ◑ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ◐ (yellow) = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◐ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ∅ = no body of evidence.

The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.

A. Program description

In this section, we review the literature on educational transfers, payments, or goods provided to individual students or their families to reduce barriers to and increase demand for schooling (Damon et al. 2016). The core function of such transfers is to reduce barriers to accessing school, in contrast to tools such as vouchers, lotteries, merit-based scholarships to elite schools, and single-sex school options that aim to move children into higher quality education settings (the next section discusses these programs). Cash and in-kind transfers to students and their families may reduce the direct or opportunity costs of schooling, boost incentives for school engagement, and improve educational attainment and academic achievement (Snilstveit et al. 2015; Damon et al. 2016; McEwan 2015; Ganimian and Murnane 2016; Glewwe and Muralidharan 2015; Kremer et al. 2013). These programs may also improve family nutrition and environment factors as well as student behavioral outcomes. We review the evidence on basic transfers, focusing on cash transfers,[113] scholarships[114] and other student financial incentives,

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[113] Our discussion of transfers focuses on those distributed through—or somehow attached to—the education system. We restrict our review of conditional cash transfers (CCT) to those conditioned on school-related behaviors and outcomes. We review CCTs conditioned solely on health outcomes, such as HIV status, briefly in the foundational section of this chapter. Even though unconditional cash transfers (UCT) are not school-based or conditioned on schooling, we find that funders often aim to improve education outcomes through such benefits; therefore, we include them in this review.

[114] Many countries offer scholarships for post-secondary education. In the present discussion, we focus on scholarships in primary and secondary-level education.

and school feeding, take-home rations., and other in-kind transfers[115] In Table XVI.1, we summarize the key program elements, typical age group, characteristics of the targeted beneficiaries, and goals for these programs.

Table XVI.1. Summary of transfer programs: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
Cash transfers (conditional and unconditional)	Ages 3 through 17 years	Children whose families have incomes below a certain threshold or meet other needs-based criteria	Regular cash disbursements provided to mothers in income-eligible households, sometimes proportional to the number of age-eligible children and, in many cases, conditional on children's school attendance and family health checkups	1. Provide incentives for school attendance 2. Improve child and family health and nutrition 3. Reduce child labor 4. Reduce poverty
Scholarships and other student financial incentives	Ages 5 through 17 years	Children at risk of school abandonment because of resource constraints	Regular cash disbursements, school fee reductions, or similar incentives provided to children or their families based on need (because of poverty) or merit[116] (academic performance)	1. Defray schooling costs 2. Incentivize continued school attendance 3. Reduce child labor
School feeding, take-home rations, and other in-kind transfers	Ages 5 through 17 years	Children at risk of poor nutrition and school abandonment in favor of labor or other activities; children at risk of school abandonment because of resource constraints	Daily breakfast, lunch, or snacks or take-home rations, including cooking oil, produce, grains or other staples, school requirements such as uniforms, in some cases conditional on school attendance rates	1. Provide incentives for school attendance 2. Improve child and family health and nutrition 3. Reduce household poverty 4. Defray schooling costs

   Cash transfer programs involve the transfer of cash directly to households, either conditional on beneficial household behaviors or outcomes or unconditionally. Conditional cash transfers (CCT) are widely used in developing countries to support school attendance of children from lower-income families. These CCTs are often targeted at mothers of school age children., though not always Twenty-eight distinct CCTs are currently deployed in 21 countries in LAC,

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[115] Although other conditional supports, such as bicycles for school transportation, may reduce barriers to schooling (Fiala et al. 2018), we focus here on basic cash and cash-like transfers (such as food, cooking oil, and school uniforms). because they share a common theory of change: they reduce opportunity costs incurred by families when their children attend school. Bicycles and busing operate more through time savings and/or the potential for safer journeys to school in some places.

[116] We review the evidence on merit-based scholarships in Chapter XVII.

benefitting millions of households (ECLAC 2019).[117] In many CCTs, the benefit size is proportional to the number of school-age (or younger) children in the family and is conditioned on children's health checkups and vaccinations, school enrollment, and regular school attendance (for example, 85 percent of school days or more).[118] The transfer is typically disbursed monthly to mothers, based on the assumption that women are more likely than men to reinvest the funds in the well-being of their children (Hidrobo et al. 2016; Baird et al. 2014; Molina-Millan et al. 2016; Lundberg et al. 1997).[119] Some CCTs, however, focus solely on family nutrition and are conditioned on mothers' participation in regular nutrition training sessions (Hidrobo et al. 2016). Other education-conditioned CCTs are delivered in lump-sum amounts at key decision points, such as immediately before re-enrollment periods or immediately after graduation and enrollment in a tertiary institution (Barrera-Osorio et al. 2017). NGOs and governments in LMICs also use CCTs to reduce risky behaviors. Desired impacts may include HIV prevention (Taaffe et al. 2016; Cluver et al. 2016; Kennedy et al. 2014; Packet et al. 2012) and contraceptive use and birth spacing (Feldman et al. 2009). Unconditional cash transfers (UCT) do not require children to meet conditions (for example, school attendance goals) for their family to receive the benefit. Instead, the program design assumes that recipient families may not be able to meet conditions or that the conditions will distract parents who already know how best to allocate their resources to achieve maximum well-being in the family (Baird et al. 2014).[120] In many cases, countries disbursing CCTs either do not have the capacity to monitor beneficiaries' compliance with conditions, or instead monitor compliance but do not enforce conditions by withholding transfers (Gentilini 2016). Both cases mean that the transfers operate as UCTs with explicit goals. Conditioning cash transfers on school attendance may reinforce the desired outcomes, while unconditional transfers may allow families the flexibility to allocate labor and meet their financial needs, improving children's long-term prospects (Baird et al. 2013b, 2014).[121]

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[117] Robles et al. (2017) showed that CCTs in LAC lack accurate targeting and selection of beneficiaries. According to their analysis, as of 2017, only 50.5 percent of CCT-eligible households in countries with CCT programs received the transfers, and 40.1 percent of current CCT beneficiaries were not poor (calculated according to national and international poverty lines).

[118] Unless otherwise noted, CCTs referenced in this chapter are conditioned on the attendance and/or enrollment of school-age children in school and (optionally) on children's and other family members' health checkups.

[119] Evidence from rural Burkina Faso, however, suggests that distribution to fathers may have substantial benefits (Akresh et al. 2016). Researchers conducted a randomized controlled trial with four treatment wings: CCTs distributed to mothers or fathers and UCTs distributed to mothers and fathers. As expected, conditional transfers improved schooling relative to the unconditional and control groups. More surprisingly, cash transfers to fathers significantly improved children's nutrition in low-rainfall years; distribution to mothers did not produce those effects. Similarly, fathers invested more than mothers in household and agricultural assets.

[120] If completely fungible and unconditioned, cash transfers could theoretically increase negative behaviors among recipients. Handa et al. (2018) used evidence from eight evaluations of UCTs in sub-Saharan Africa to refute that hypothesis, showing that the cash is not spent on alcohol or tobacco, is often invested, does not increase dependency or fertility, does not distort local economies, and may be fiscally sustainable. Evans and Popova (2014) confirmed the same finding, examining 30 studies of cash transfers and finding no support for the theory that the additional income increases expenditures on temptation goods.

[121] Ansong et al. (2018) showed that, when a student perceived financial hardship in his or her family, the student traveled down one of two decision paths: a motivational pathway ("I will persist in school despite these challenges")

   Scholarships and other student financial incentives provide students and their families with financial assistance to support continued school attendance. Scholarships reduce barriers to access to education by providing awards based on merit indicators (such as test scores in the top 15 percent of students) or need (a family's poverty status) (Snilstveit et al. 2015). Merit-based scholarships may be further subdivided into those that offset the costs of standard schooling for high-scoring students (to encourage continuation) and those that allow exemplary students to enroll in higher quality schools. We review the latter type the next chapter (Chapter XVII). Need-based scholarships are awarded according to family income or measures of household asset value. Both types of scholarships may be conditional on enrollment, high attendance, or passing grades. Student incentives and pay-for-performance schemes aim to motivate students to attend school, maintain respectful behavior, master the material, perform well on examinations, and advance from grade to grade (Fryer 2010; Raymond 2008; Bettinger 2010). In the United States, where incentive programs are common, teachers and administrators evaluate student behavior and academic effort and achievement against specified criteria and make cash awards, contribute to a student's college savings, and distribute tokens for purchase of goods in the school store as appropriate.[122]

   Need-based scholarships are essentially conditional or unconditional transfers for students in lower-income families, and merit-based scholarships reward student achievement with supports that enable further attainment. Unlike CCTs and UCTs, however, many scholarships are designed to offset the direct costs of schooling, but not the opportunity costs (Filmer and Schady 2014). In LMICs, eliminating school fees or providing free uniforms could serve a similar purpose, substantially reducing the costs of education and improving families' perceptions of school access (Morgan et al. 2012). Student incentives (such as cash for high test scores or number of books read) may also motivate students to study hard and attend class and may even boost students' financial well-being in lower-income families (Levitt 2016; Fryer 2010). Even though critics argue that providing cash and in-kind incentives could diminish students' intrinsic drive to work diligently, proponents of such programs suggest that students should have access to all available incentives (Viadero 2007).

   School feeding, take-home ration programs, and other in-kind transfers are designed to address hunger, improve educational outcomes, and reduce the costs of schooling. School feeding and take-home rations are designed to improve poor cognitive, social-emotional, and behavioral outcomes by addressing hunger and malnutrition among students (Kristjansson et al. 2007). These programs operate in over 150 countries and are motivated by studies in LMICs showing that hunger is significantly associated with negative psychosocial outcomes, such as bullying victimization and suicidal ideation (World Bank 2010; Swahn et al. 2009; Mwambene et al. 2013). To mitigate those potential outcomes, school feeding programs deliver breakfast, lunch, snacks, or a combination thereof. In HICs, the government often subsidizes school feeding programs progressively. For example, in the United States, schools typically bill parents for their children's meals unless a family's income makes the family eligible for free and reduced-price lunch (U.S. Department of Agriculture 2018). In LMICs, school feeding programs are typically

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or a demoralizing pathway ("I won't engage in school because it doesn't matter"). If unconditional transfers reduce a family's extreme financial stress, students may be more likely to follow the motivational route.

[122] Other nontransfer incentives include certificates of merit, access to special activities, and special uniforms.

made available to entire schools or are targeted to specific communities or regions (Bundy et al. 2013). The United States government supports school feeding in LMICs through USAID programs and USDA McGovern-Dole programs; for example, see programs in Lao-PDR (NRMC 2018), Senegal (International Solutions Group 2018), Cambodia (DC Research 2017), and Malawi (Webb et al. 2018). Take-home rations are typically offered to lower-income families conditional on their children's school attendance. The rations include staples such as grain and cooking oil that can be readily consumed by the whole family or bartered and sold for additional income (Damon et al. 2016). School feeding may improve a child's caloric and nutrient intake (at school and at home), and feeding programs could have positive effects on physical and cognitive growth and, in turn, behavior, school attendance, and achievement (Adelman et al. 2008; Bundy et al. 2012). Linking food disbursement to school attendance (whether through lunches or take-home rations) incentivizes both children and families to prioritize school attendance—outcomes that could, in turn, produce long-term impacts in career success through improved employment opportunities and higher earnings. Non-food in-kind transfers (such as the provision of free school uniforms) are designed to stimulate school attendance by reducing a family's costs for sending their child to school, in much the same way as a take-home ration program (Duflo et al. 2006).

Theory of change. By providing financial or in-kind supports to students, transfer programs can improve educational attainment, learning, social-emotional skills, behaviors and home environment, which can affect violence and crime both directly and indirectly through various pathways. They can reduce the costs of schooling (direct and/or opportunity costs) and stimulate demand for education (Damon et al. 2016; Alderman and Bundy 2012), thereby improving educational attainment, learning, social-emotional skills, employment, and earnings. They can also reduce poverty thereby improving a student's home environment, which can improve social-emotional skills, behaviors and education outcomes. In addition, cash transfers can also reduce child labor which will allow the child to attend school and build human capital. School feeding programs can directly improve behavior, social-emotional skills and learning, all of which can improve educational outcomes and further improve behaviors including violent and criminal behavior. More time in school may produce an incapacitation effect, which reduces the likelihood that young people will have time to engage in delinquent activities. Furthermore, more time in school may mean greater human capital accumulation, which could increase students' self-esteem and reduce the appeal of risky behaviors (such as teenage sex or drug use) and criminal lifestyles (Jacob and Lefgren 2003). Higher family incomes (as a result of cash transfers) could also diminish financial stressors in the family, thereby reducing the perceived need among youths to engage in criminal livelihoods and the likelihood of domestic violence between fathers and mothers, especially if mothers receive and have control over the cash benefit (Buller et al. 2018). In addition, in many CCT beneficiary families, mothers and fathers are younger than 29, meaning that both children targeted with the education-conditioned benefit and the parents who receive the cash are youth. Therefore CCT's ,impacts on domestic violence are effects on both violence and family environment factors.

Target beneficiary profiles. Target beneficiary profiles typically vary across contexts. For example, school feeding programs in HICs are typically widespread and target lower-income families, but programs in LMICs tend to target food-insecure communities (Snilstveit et al. 2015; Bundy et al. 2012). Policymakers in LMICs often use CCTs and UCTs to reduce poverty and build human capital in middle- and lower-income families, but such programs are rare in HICs

(Baird et al. 2014).[123] Finally, education systems deploy scholarships in diverse settings (across HICs and LMICs) to help students and families overcome financial barriers to education (Damon et al. 2016).

B. Findings from the evidence review

In general, the evidence on the effects of transfer programs on violence and crime-related outcomes is emerging, but it is moderately strong for a few outcome areas. For example, evidence suggests that cash transfer programs may reduce youth participation in violent crimes and help youth develop protective behaviors and reduce risky ones. Findings from scholarship studies are less conclusive, with a weaker body of evidence showing mixed and nonsignificant effects of the programs on noncognitive skills and risky and protective behaviors. Finally, an emerging body of evidence suggests that school feeding, take-home ration programs, and in-kind transfers (such as the provision of school uniforms) reduce risky behaviors such as transactional sex or early marriage. We summarize the body of evidence on these effects in Tables XVI.2, XVI.3, and XVI.4, which reflect the findings from our global foundational literature review, our bibliographic searches of studies in LMICs and LAC, and our searches of websites for grey literature (Chapter III). Our search process for transfer programs identified 2,868 papers, of which 37 were eligible for inclusion in this section. The eligible studies include individual studies using quantitative causal, quantitative correlational, and qualitative research designs as well as systematic reviews and meta-analyses.

1. Cash transfer programs

Emerging to moderate evidence on education-linked cash transfer programs suggests that the programs may reduce violence, crime, and associated outcomes in targeted children as well as in adults in targeted families. We found moderate evidence from LMICs that CCTs and UCTs for children and their families may reduce risky behaviors and improve protective behaviors among children and youths and improve environmental factors. In LAC, emerging to moderate evidence suggests that CCTs may reduce violent and nonviolent crime among recipient youths as well as improve family environment factors and risky and protective behaviors.

We summarize the evidence on the effects of cash transfer programs on violence, crime, and correlated outcomes in Table XVI.2. Of the 37 studies eligible for inclusion in this section, 28 evaluated cash transfer programs, including 13 studies in LAC, 14 studies in LMICs, and one study in an HIC.[124] Appendix Q presents more information about all studies of cash transfer programs in this review, including the age group of interest and type of program activities.

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[123] Most beneficiaries appreciate cash, scholarships, and food, but some recipients greet transfers with suspicion or shame. In KwaZulu Natal, some of the targeted beneficiaries in USAID-funded programs for orphans and vulnerable children (OVC) were unwilling to request and receive cash grants and free uniform benefits because of the resultant stigma (Khulisa Management Services 2011). The stigma most affected participants during public ceremonies. Boys perceived that receiving such benefits as young Xhosa men implied an inability to provide for their families.

[124] Two studies included in this section examined cash transfer *and* feeding programs and are therefore included in the school feeding section of this chapter.

Table XVI.2. Strength of evidence on the impacts on outcomes of interest: cash transfers (conditional and unconditional)

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Cash transfers (conditional and unconditional)	HICs	◗	◗	○	⊖	◗	⊖
	LMICs	○	◖	◖	●	∅	∅
	LAC	○	●	●	◖	○	∅

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 28 were eligible for inclusion.

◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ● = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. Emerging experimental evidence from the United States suggests that conditional cash transfers can moderately reduce risky behaviors but do not affect social-emotional skills, the family environment, or nonviolent crime. The Opportunities NYC –Family Rewards program, a cash transfer conditioned on students' school attendance and behaviors, showed promising effects on teenage aggressive behaviors and substance abuse in a randomized evaluation (Morris et al. 2012). Specifically, the three-year program appeared to increase significantly the proportion of academically proficient teenagers who spent time on academic activities versus social activities (compared to peers in the control group). It also significantly reduced aggressive behaviors, substance abuse, and the number of friends whom treatment teenagers reported to have abused substances in the last month. Authors suggest that changes in treated students' time use may have driven the observed reductions in aggressive behaviors, and that program effects on treated students' choice of peer groups may have driven the treated students' reduction in substance abuse (and that of their friends). However, the results did not suggest any program impacts on delinquent behaviors. Further, there was no evidence of program effects on teenage depression or anxiety or on students' intrinsic motivation (in response to concerns that CCTs replace intrinsic motivation with cash incentives). Finally, the treatment did not appear to affect parents' engagement in their child's activities and did not change reported rates of parent-child conflict (an important family environment factor).

LMICs. Moderately strong evidence from LMICs suggests that cash transfers reduce risky sexual behaviors and may improve recipients' social-emotional skills and family environment factors, and reduce violence in the household. In sub-Saharan Africa, seminal studies show that conditional and unconditional cash transfers can reduce risky behaviors. Manley et al. (2016) reviewed evidence on the impacts of cash transfers in the region and found that programs reduced teenage pregnancy while increasing secondary school attendance. For example, the experimental Schooling, Income, and Health study of the Zomba Cash Transfer program in Malawi found that the CCT (conditioned on 80 percent school attendance) and UCT treatments produced significant effects on adolescent girls' schooling and risky sexual behaviors (Baird et al. 2010, 2011, 2013a). The program targeted girls who had already dropped out of school

(baseline dropouts) as well as girls who were in school but at an age at which dropout is a high risk (baseline schoolgirls); the program split the transfers between girls and their families to align the girls' and their families' incentives. In the conditional treatment wing, families and girls received different cash amounts ($4 to $10 for families, $2 to $5 for girls), permitting researchers to test whether the dosage affected the outcome. The research studies growing out of the cash transfer program suggested that UCTs and CCTs reduced risky behaviors, such as teenage sex resulting in pregnancy, over the short term. However, these desirable effects on girls' behavior appeared to fade once the transfers ceased (Baird et al. 2019).

The desirable effects of the UCT in terms of reducing early marriage and child-bearing reflect the fact that some girls dropped out of school after the program began, indicating that it was the nonconditionality that allowed the participants to leave school and maintain financial independence. As the researchers explained, "The success of the [CCT's] conditionality in promoting the formation of human capital among the compliers appears to be achieved at the cost of denying transfers to non-compliers who are shown to be particularly 'at risk' for early marriage and teenage pregnancy" (Baird et al. 2011). School attendance did not improve with the availability of the UCT, suggesting that the UCT did not change families' calculus with respect to the need for additional help at home during the lean season. Even though the CCT produced significant increases in test scores and school attendance over the control group, researchers did not detect UCT impacts on those outcomes.

A follow-up study (Baird et al. 2019) showed that the desirable effects of the UCT on baseline schoolgirls' child-bearing, delayed marriage, and psychological distress disappeared soon after termination of the disbursements. Similarly, CCT effects on risky sexual behavior and psychological distress faded out, but declines in early marriage and child-bearing persisted. The follow-up study's longitudinal perspective also allowed the researchers to determine that the young children of UCT beneficiaries had higher height-for-age than their untreated peers, indicating that the unconditional benefit may have yielded positive intergenerational effects on nutrition and (avoiding) stunting.

Additional evidence from sub-Saharan Africa and South Asia contributes to the literature showing that cash transfers may have desirable effects on risky sexual behaviors (Handa et al. 2015). Among girls ages 12 through 24 from low-income families with a deceased or chronically ill parent, a national UCT program significantly reduced the likelihood (5 percentage points, or 34 percent) that recipients would become pregnant four years after initial disbursement of the UCT. The effect is twice as large for out-of-school girls. However, school enrollment was a protective factor in predicting/preventing a first pregnancy, although the UCT did not influence early marriage. Nonetheless, Handa and coauthors found that unconditional transfers targeted to vulnerable households did not necessarily produce significant reductions in risky sexual behaviors among youths. In cluster randomized trials, Dake et al. (2018) evaluated the impacts of two similar unconditional cash transfer programs in Malawi and Zambia. The programs targeted poor, labor-constrained, female- or elderly-headed households with orphans. After two to three years of transfers, the cash programs appeared to have significant impacts on youths' educational attainment and reductions in family poverty. However, estimates of impact on early marriage and pregnancy were not significant. In Pakistan, however, a conditional cash transfer aimed at high school girls' educational attainment did produce marginally significant effects among

participants in the areas of risky sexual behaviors, delayed marriage, and teenage child-bearing (1.4 years delayed and 0.3 fewer children) (Alam et al. 2011).

There is moderate evidence on the impacts of cash transfers on violence, family and community environment factors, and social-emotional skills. Using data from a randomized trial in Kenya, Haushofer et al. (2019) found that the UCT disbursements significantly reduced physical violence and sexual violence in the home, thereby improving the family environment. In households in which women were the UCT recipients, female empowerment (a composite variable) increased, also improving the family environment. Female empowerment in male-recipient households was not significantly different from zero, and only physical violence (not sexual violence) declined. The positive spillover of these impacts was significant: untreated households in proximity to treatment households experienced significant reductions in physical violence and a significant increase in female empowerment over the pure control group. In Turkey, researchers used a qualitative research design to examine the perspectives of CCT recipients in a Social Risk Mitigation Project (Yildirim et al. 2014). Beneficiary mothers reported that their children were more enthusiastic and happier about school since the family began receiving the CCT and that the children showed improved social-emotional skills including self-confidence and self-esteem. Mothers who had experienced domestic violence before disbursement of the CCT reported that, since they started receiving the transfer, the violence had decreased or ended. In addition, women reported that, since receiving the CCT, they had achieved a stronger voice in the family with regard to financial decision making, nutrition, and daily consumption. However, in Tanzania, a UNICEF (2018b) cluster randomized trial of the Productive Social Safety Net (PSSN) cash transfer showed that the program did not affect rates of sexual, physical, or emotional violence experienced by girls and women, and did not have significant impacts on risky behaviors, such as transactional sex. The also program did not appear to affect community environment factors, such as social supports or community networks of beneficiaries.

Evidence from Tanzania suggests that, depending on the form of disbursement, CCTs may affect trust in local government and citizen engagement. These two outcomes are a protective factor and a positive community environment factor, respectively, both associated with reduced violence and crime. In Tanzania, researchers used an RCT to test the impact of delivering the Tanzanian Social Action Fund (TASAF) through either local government bodies (community management committees, CMCs) or standard central authorities (Evans et al. 2019). In control villages, where central authorities were responsible for CCT disbursements, trust in local CMCs dropped over time; however, in villages, where the CMCs administered the program, trust in the local bodies remained stable (resulting in treatment villages with a 26 percent higher level of trust than in control villages). Treatment villages were also 10 percent more likely to report that they were very satisfied with the village council (in terms of perceived honesty and responsiveness). Nonetheless, treatment did not appear to have an impact on either engagement in local government or voting behavior, except in voting for CMC members who would have control over CCT disbursement.

LAC. The body of evidence from LAC provides moderate evidence that cash transfers reduce violent crime as well as weak to emerging evidence of reductions in nonviolent crime and risky behaviors and improvements in family environment factors. Evidence of the programs' impacts on intimate partner violence (IPV) is mixed. Cash transfers can reduce IPV in recipient

families through increased economic security, improved emotional well-being, and women's empowerment, along with a reduction in intrahousehold conflict (Buller et al. 2018).[125] Several studies show this relationship by examining Juntos, a CCT in Peru designed to incentivize children's education and improve household economic security by conditioning mothers' receipt of the benefit on children's school attendance. Perova and Vakis (2013) used quasi-experimental methods to show that women who received the Juntos benefit were significantly less likely than their nonrecipient peers to have suffered physical or emotional violence at the hands of their partner in the last 12 months (by 9 and 11 percentage points, respectively, or over 50 percent lower likelihood on each indicator). Burga (2014) corroborated the findings by using a difference-in-difference design to show that receiving Juntos was significantly associated with reductions in emotional violence (14 percentage points). However, the effects on emotional violence appeared to fade over time. In contrast, the rate of physical violence reported by Juntos recipients was not significantly different from that of nonrecipients at 6 months, but, over the long term, the program appeared to produce a 9 percentage point (or 56 percent) reduction in physical violence. The CCT also appeared to increase the frequency of women reporting that they participated in household decision making (by 8 percentage points, or 11 percent). Evidence from LAC suggests that receipt of a CCT may improve the family environment by empowering women and reducing marital strife. Using a quasi-experimental design, researchers in Peru found that recipient mothers in the Juntos CCT program were significantly more likely than their untreated peers to report shared household decision making, high self-esteem, and high quality of life (Alcazar et al. 2016).[126]

In Ecuador, Hidrobo and Fernald (2013) found that the Bono de Desarollo Humano (BDH) transfer[127] did not produce significant impacts on physical violence or emotional violence (yelling, insulting, threats of abandonment) reported by recipient women, but did significantly reduce controlling behaviors. However, the effects of the program appear to depend on education levels of adults in the household. At endline, the program had significantly increased emotional violence (by 9 percentage points) against women with six or fewer years of education but still with more schooling than their partners. Among women with more than six years of education, in contrast, the program appeared to have reduced emotional violence they experienced (by 8 percentage points) and their partners' controlling behaviors (by 14 percentage points).[128] The researchers suggest that by changing women's incomes, the BDH affects economic household

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[125] These mechanisms operate beyond education-conditioned CCTs; a benefit in Ecuador that was conditioned on mothers' participation in nutrition training sessions produced significant decreases (6 to 7 percentage points) in IPV (Hidrobo et al. 2016). Researchers suggest that the mechanism through which the CCT decreased violence was lower poverty-related stress, greater bargaining power among mothers, and an increase in cooperative domestic labor carried out by both women and men in the household.

[126] In a CCT evaluation in Macedonia, transfers distributed to mothers rather than to heads of household appear to have increased the proportion of household income spent on food, perhaps indicating that women were empowered in financial decision making as a result of their new income (Armand and Carneiro 2018).

[127] BDH was originally designed as a CCT with child schooling and health care conditions. The conditions were never enforced, making the program a UCT with education and health goals.

[128] In Ecuador, another study of cash, food voucher, and in-kind food transfers conditional on attendance at monthly nutrition programs found that all three treatment types had similar and significant effects on IPV and reduced controlling behaviors and physical/sexual violence in the home by 19 to 30 percent (Hidrobo and Fernald 2016).

bargaining, which in turn can affect whether the male partners feel threatened or feel like their control or preferences are at risk. For recipient women, having six or fewer years of education but still more than their partner switched the direction of the effect of income on IPV outcomes (from reducing emotional violence toward them to increasing it) through that economic household bargaining channel.

In Mexico, researchers found that, six years after the initial disbursement of a CCT, women in Oportunidades-beneficiary households were 40 percent less likely to experience IPV than their nonbeneficiary peers (Bobonis et al. 2013). However, beneficiary women (mothers of children targeted with the education benefit) were just as likely as nonbeneficiary women to experience emotional abuse and were significantly more likely than their untreated peers to receive threats of abuse without associated physical violence. The results suggest that, even though a CCT may promote the safety of women through enhanced income and decision-making empowerment, it does not mitigate the risk of emotional abuse, thereby having mixed effects on the home environment.

One piece of contrary evidence from LAC suggests that CCTs may increase the risk of domestic violence, especially in rural households where mothers have low levels of education. Researchers in Brazil used a quasi-experimental design and a nationally representative household survey data set to explore how the Bolsa Familia program affected IPV (Moreira et al. 2016). By matching treatment women with similar untreated women, Moreira et al. showed that the CCT appeared to have significantly increased physical violence perpetrated by men against women in the household context. The effect was more pronounced among women in rural areas whose education and income levels were below those of their husbands. The authors suggest that, to avoid the risk of increased IPV, the CCT should also be conditioned on mothers' regular reliance on and engagement of health supports and on social protection agencies' intrafamilial monitoring.

Overall, emerging evidence from LAC suggests that cash transfers reduce crime and, in particular, theft. In Brazil, researchers used geolocated crime databases and an instrumental variable approach to estimate the impact on crime of the Bolsa Familia's expanded coverage (Chioda et al. 2012). They found that a policy change that expanded Bolsa from 15-year-olds and younger to include 16- and 17-year-olds was associated with a significant reduction in crime (6.5 percent). Even though the percentage is small, the reduction implies 2.1 fewer crimes annually per additional student covered under the expansion. The expansion appeared to have the greatest effect on property crime (especially robberies), but violent crime rates were also significantly and negatively associated with the expanded coverage. The financial support had a negative and significant association with crime in neighborhoods around schools on nonschool days and in the evening and at night, with the rate of all crimes negatively (but not always significantly) reduced during school hours. The results suggest that the incapacitation effect (Jacob and Lefgren 2003) is not the channel of impact. Instead, mechanisms could include household income effects, peer group effects, and altered household routines.

Recent observational research from Brazil complements the above findings. Machado et al. (2018) examined the effects of the Bolsa Familia program on violent crime by using data on homicides and hospitalizations across Brazil. Municipalities with higher rates of Bolsa coverage among the eligible population had significantly lower homicide rates and fewer hospitalizations

as a result of violent crime. The findings were robust to different model specifications, and the models included other factors correlated with homicide as controls.

Evidence from Colombia shows that immediately following the monthly disbursement of the Familias en Acción CCT, crime fell in beneficiary-dense neighborhoods of Bogotá (Camacho and Mejía 2012). Specifically, theft of property decreased significantly upon the electronic transfer of benefits to Familias beneficiaries' bank accounts. With a regression discontinuity design, the authors suggest that a 10 percent increase in CCT coverage led to a further 6.2 to 7.1 percent reduction in personal crime in those areas. The reduction in personal crime was even more pronounced in rich neighborhoods adjacent to high-disbursement neighborhoods (7.7 to 12 percent decrease per 10 percent increase in the number of beneficiaries). Associations between disbursement and homicide or household robbery were not significant. These data do not support the incapacitation effect channel either, which should show a relationship between school attendance times in CCT-beneficiary-dense areas and lower crime; instead, the outcomes suggest that it was the income effect that changed the attractiveness of crime. Contrary evidence from Uruguay, however, indicated that the modality of the CCT benefit may be a critical determinant of theft rates (Borraz and Munyo 2015). The authors used the expansion of a major Uruguayan CCT (increases in both coverage and size) to examine the effects of the disbursements on property crime. They found significant increases in property crime (theft/robbery) after the expansion of CCTs. The program paid transfers in checks, which were immediately cashed, rather than transferring funds to electronic accounts. The authors argued that the method of disbursement increased the appeal of street-level theft and robbery, leading to 3.5 new property crimes per 1000 beneficiaries, or a 1.4 percent increase, which is significant at the 1 percent level. The authors' findings are in keeping with evidence from the United States, suggesting that increased electronic benefit disbursement and smaller amounts of cash carried by beneficiaries may have a negative association with street crime (Tekin et al. 2014; Armey et al. 2014).

CCTs may also have long-term impacts on violence and crime by limiting the degree to which children engage in child labor in illicit industries. In Peru, childhood exposure to an exogenous price increase in illegal coca was strongly associated with higher rates of child labor in coca cultivation and processing, lower schooling attainment, and, over the long term, lower earnings and higher rates of incarceration (Sviatschi 2017). The study, which used time-series data from coca-producing regions of Peru, suggested that high coca prices affected criminal activity later in life through child coca workers' accumulation of illicit human capital. However, children in early-implementation districts of the Juntos CCT (which was gradually introduced across Peru) experienced different outcomes. Children who were both (1) eligible for the CCT, which was not yet available in their district, and (2) exposed to high-price illegal coca markets eventually were 30 percent more likely than similar CCT-enrolled children to be incarcerated as adults for drug-related and violent crime.[129] In the view of parents, CCT increased the costs of child labor, reduced child labor at the time of the price shock, increased schooling, and reduced drug production. Sviatschi estimated that coca production during the price spike was 34 percent lower as a result of the CCT. These effects are primarily attributable to a schooling-work

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[129] Adults studied who were ages 11 through 14 at the time of the price escalation were most affected because it is at that age that children transition from primary to secondary school (and commonly drop out).

substitution effect and less to an income effect, given that results did not change when stratified by poverty level and that adult labor increased after the introduction of the CCT.

As in LMICs, strictly enforced cash transfers in LAC may reduce risky sexual behaviors among youth. Researchers in Colombia examined the impact of two CCTs—Familias en Acción (FA) and Subsidio Escolar (SE)—on teenage pregnancy in Bogotá (Cortes et al. 2016). The FA CCT did not appear to have significant impacts on teen pregnancy rates after one year of girls' program exposure, but the SE CCT did. The authors indicate that the difference was attributable to the design of the programs: FA was conditioned only on school attendance and could be reacquired if lost due to noncompliance. However, SE was conditioned on both school attendance and academic performance and could not be reinstated if lost through noncompliance. Therefore, the incentive to avoid risky sexual behavior was higher in the program in which teenage pregnancy would irreversibly terminate the transfer.

CCTs may also reduce behavior problems among younger children. In Mexico, Fernald et al. (2009) assessed the health, cognition, and behavior effects of the Oportunidades CCT on children ages 8 to 10. They found that children whose families were randomly assigned to start receiving the CCT earlier than other families (and thus had 10 years of exposure instead of 8.5 years) had significantly lower behavior problem scores on an adapted Strengths and Difficulties Questionnaire (a behavior problem score of -0.09 versus 0.13 for same-age, late-starting peers).

The receipt of a CCT may however, also influence children's trust in government (a protective factor) and mothers' perceptions of well-being—in undesirable ways.[130] Escobal and Benites (2012) used a quasi-experimental design to show that children whose families received the Juntos CCT were significantly less likely than similar untreated children to report that "the government is doing the right thing for kids like me" (54 versus 74 percent), indicating reduced trust in government. Further, mothers in recipient families were significantly less likely than matched nonrecipients to report satisfaction with their life achievement (a 30 percentage point gap) and expressed lower satisfaction with their general quality of life. The authors suggest that these negative associations reflected the fact that children who continued to receive the transfer were still obligated to perform housework (the amount of housework appeared to have increased over that required of untreated children) while also meeting school attendance goals, both of which added stress to the child's life. Meanwhile, the recipient mothers may have felt burdened with obligations to enforce their children's school attendance and health visits.

2. Scholarships and other student financial incentives

An emerging body of evidence from LMICs and LAC suggests that scholarships have mixed or nonsignificant effects on noncognitive skills, risky behaviors, and protective behaviors. In Table XVI.3 we summarize the evidence on the effects of scholarships and other student financial incentives on violence, crime, and correlated outcomes. Of the 37 studies eligible for inclusion in this section, 6 evaluated programs that provided scholarships or other student financial incentives, including one study in LAC, 5 studies in LMICs, and no studies in HICs. Appendix Q presents more information about all studies of scholarship and other student

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[130] Our search terms for risky and protective behaviors included terms for trust in government and public institutions. Appendix D provides the full list of search terms used.

financial incentive programs in this review, including the age group of interest and type of activities.

Table XVI.3. Strength of evidence on the impacts on outcomes of interest: scholarships and other student financial incentives

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Scholarships and other student financial incentives	HICs	⊖	⊖	⊖	⊖	⊖	⊖
	LMICs	🟡	∅	🟡	∅	∅	∅
	LAC	◗	∅	∅	∅	∅	∅

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 6 were eligible for inclusion.

🟡 = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. Our search of the foundational and grey literature did not yield eligible studies from HICs that examine the impact of scholarships on violence, crime, or associated outcomes.

LMICs. Limited evidence from LMICs suggests that scholarships and student incentives have mixed effects on social-emotional outcomes and protective behaviors. In a longitudinal randomized trial in Cambodia, treatment children (grade 4 students) received three years of scholarships based on need or merit, contingent on school attendance and basic performance (Barrera-Osorio et al. 2018). Nine years after the scholarships ended, researchers found that the need-based scholarships led to increased educational attainment by an average of four months and that the merit-based scholarships produced significant positive cognitive effects, marginally significant ($p < .1$) positive employment outcomes, and significant positive family socioeconomic impacts. However, neither the need nor merit scholarships produced significant impacts on prosocial, internalizing, or externalizing behavior indicators or on any of the Big 5[131] social-emotional measures. In a quasi-experimental study of another need-based scholarship in Cambodia, Filmer and Schady (2014) found that the disbursements had mixed effects on risky behaviors; six years after the children first received the scholarship (and three years after the last disbursement), they were significantly more likely than their untreated peers to have attained greater schooling (0.6 additional grades), but they were no more or less likely to have an adolescent child, get married, score higher on tests, have a job, or earn more income.

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[131] The social-emotional skills known as the "Big 5" are: openness to experience, conscientiousness, emotional stability, extraversion, and agreeableness (OECD brochure on Social and Emotional Skills (no date), found at https://www.oecd.org/education/school/UPDATED%20Social%20and%20Emotional%20Skills%20-%20Well-being,%20connectedness%20and%20success.pdf%20(website).pdf).

Mixed evidence from China suggests that scholarships may improve recipients' social-emotional skills under specific circumstances. In the Compassionate Heart Scholars Program, middle and high school students nominated their peers for a scholarship and then voted on the nominees (Luo et al. 2011). Winners received 400 to 800 yuan (for middle and high school students, respectively) and a mandate to design and complete various community service projects. Receiving a nomination for and then winning the scholarship each had significant impacts on academic scores (relative to changes in the nonwinner, non-nominee group).[132] A nomination for or election to the scholarship program also appeared to have significant impacts on students' self-esteem relative to the normal (non-nominated or nonwinner) students, even before the scholarship was disbursed or community service projects commenced. Qualitative evidence from interviews with nominated and winning students confirmed that those students selected by their peers had greater confidence and drive following the election. After completion of the community service component, elected scholars also developed more self-efficacy and social responsibility than their nonwinner peers (significant only at the 10 percent level). However, Luo and coauthors could not show that the apparent effects of the program on winning scholars' social-emotional skills was due to receiving cash, given that the peer selection process and the subsequent service project requirements could have produced those effects instead.

However, experimental evidence from China suggests that the early commitment of financial aid (ECFA) did not have an impact on short-term social-emotional outcomes. Liu et al. (2013) used a randomized design to examine the effects of a scholarship promised to lower secondary students, a stipend that would defray the costs of attendance at their future upper high school. One year after the promise and following several reminders from implementers about the promise, treatment students were more likely than their untreated peers to matriculate into upper high school. However, the incentive did not appear to have significant effects on either dropout (in the last year of lower secondary school) or students' self-esteem. The program did appear to reduce dropout significantly among the lower-performing subgroup of students.

Even though scholarships can improve academic outcomes and protective behaviors, they may simultaneously reduce faith in established political systems. Kremer et al. (2009) found evidence that a merit-based scholarship program for girls in Kenya increased enrollment, school attendance, and test scores among treatment participants. In a follow-up evaluation, Friedman et al. (2016) found that positive effects of the program on attainment, enrollment, and test scores persisted and that the program affected behavioral outcomes. Girls who had received scholarship were significantly (27 percent) less likely than their untreated peers to accept domestic violence as a justifiable action and 57 percent less likely to have their parents choose their spouses (significant only at $p < 0.1$). The program increased news literacy and political awareness among treatment girls but did not affect their voting intentions or likelihood of engagement in community groups. Treatment girls were also significantly less likely to be satisfied with—and

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[132] It is important to note that the students consistently nominated (and subsequently elected) peers who were already significantly stronger students than the non-winners with respect to their Chinese, mathematics, English, self-esteem, self-efficacy, and social responsibility scores, according to baseline (prenomination) data. Therefore, one limitation of the study is that students who were nominated and elected may have simply been more prepared to learn as a result of their initially higher cognitive skill. Finally, it appears that the election produced the academic benefit and that the scholarship/community service produced the self-esteem and self-efficacy and social responsibility benefits, but the authors cannot parse effect of the scholarship allocation itself.

show respect for—state authority and to be satisfied with Kenyan democracy (-0.048). Most important, treatment girls were 26 percent more likely than control girls to agree that political violence was acceptable. Researchers suggest that education increased political knowledge and dissatisfaction with the status quo and the current (democratic) means of achieving change. In the same way, education may reduce recipients' acceptance of existing authority at home, perhaps explaining the reduction in acceptance of domestic violence.

LAC. Emerging evidence from LAC suggests that scholarship supports may not be effective in improving academic and social-emotional outcomes. In Argentina, researchers (Ganimian et al. 2018) used a randomized design to test the effects of the four-year Scholarship and Mentoring Program (SMP) on academic and social-emotional outcomes. The SMP offered (1) monthly student cash incentives, conditioned on no grade repetitions, no suspensions, and continued enrollment in a program-affiliated school and (2) monthly mentoring sessions with university-educated, paid mentors. The program appears to have significantly improved preventive and corrective academic behaviors, such as catching up on missed schoolwork, but it had little to no impact on academic mindsets (students' beliefs about their own performance and efficacy), perseverance, learning strategies, school performance (attendance and grade repetition), or student achievement (test scores). Most important, the SMP did not have significant impacts on the Big 5 social-emotional traits.

3. School feeding, take-home rations, and other in-kind transfers

An emerging body of evidence from HICs and LMICs suggests that school feeding, take-home rations, and other in-kind transfers (such as the provision of school uniforms) may help improve recipients' engagement in risky and protective behaviors. Our search found no evidence on violence, crime, or other correlated outcomes. In Table XVI.4 we summarize the evidence on the effects of school feeding and take-home ration programs on violence, crime, and correlated outcomes. Of the 37 studies eligible for inclusion in this section, 5 evaluated programs that provided school feeding and take-home rations, including no studies in LAC, 3 studies in LMICs, and 2 in HICs. Appendix Q provides more information about all studies of school feeding, take-home ration programs, and in-kind transfers in this review, including the age group of interest and type of activities.

Table XVI.4. Strength of evidence on the impacts on outcomes of interest: school feeding, take-home rations, and other in-kind transfers

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
School feeding, take-home rations, and other in-kind transfers	HICs	⊖	⊖	●	⊖	⊖	⊖
	LMICs	∅	∅	○	∅	∅	∅
	LAC	∅	∅	∅	∅	∅	∅

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 5 were eligible for inclusion.

○ = emerging body of evidence with positive findings; ● = mixed findings in emerging or larger body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **Evidence connecting school meals to violence, crime, and correlated outcomes is limited and mixed in HICs.** In the United States, Schanzenbach and Zaki (2014) used data from a randomized trial to show that neither universal before-school breakfast nor universal breakfast in the classroom improved student behaviors, as reported by teachers. In England, Kitchen et al. (2013) used a quasi-experimental design to evaluate a free school meal program. After two years of programming, the researchers found that parents whose primary school–age children received the school meals were significantly more likely (9 percentage points) than parents of untreated students to report that it was "certainly true" that their child was obedient (an important family environment factor). However, when those "true" responses were combined with those from parents of treated children reporting that their child's obedience was "somewhat true," the obedience effect of school meals program disappeared. The results suggest that parents in treatment families were more confident in their children's obedience, but the findings should be interpreted with caution.

LMICs. **Limited evidence from LMICs suggests that education-related food and in-kind transfers may reduce risky sexual behaviors.** In non-experimental studies in South Africa, researchers examined whether the receipt of specific social supports was associated with reductions in risky behaviors (Cluver et al. 2014, 2016). Principal component analysis suggested that adolescents whose families received cash-type supports designed to improve school attendance and enrollment (grants, school feeding, and food gardens) exhibited significantly fewer risky sexual behaviors than adolescents who did not receive those supports. Adolescents who received "cash and care" (both cash-type supports and positive parenting and teacher support) saw an even greater reduction in the odds of risky sexual behaviors (approximately half the rate of their "non-cash and care" peers). Transactional sex among young women who received free schooling and grants dropped from 10 to 2 percent. School feeding appeared to reduce rates of risky sexual behavior from 15 to 10 percent and reduced the rates further to 7 percent when combined with good parental monitoring.

In Bangladesh, researchers (Buchman et al. 2018; Field et al. 2018) used a randomized design to evaluate the effects of (1) the Kishoree Kontha Positive Youth Development (PYD) program, (2) a cooking oil transfer conditional on no adolescent marriage or child-bearing, and (3) the two treatments combined. By targeting risky behaviors such as adolescent marriage or early childbearing, the conditional cooking oil transfer was designed to delay those outcomes directly and thereby increase girls' educational attainment. The conditional cooking oil transfer reduced girls' likelihood of bearing children in their teenage years by 11 percent, relative to their untreated peers. Similarly, the oil incentive reduced by 21 percent the likelihood of treatment girls' (ages 15 through 17 years at program outset) early marriage.[133] The PYD program, which included literacy tutoring, financial training, and life skills training, made no significant impact on early pregnancy or child marriage, but did improve school enrollment. The combined program, which included both the PYD and cooking oil components, generated impacts on girls' early childbearing and marriage that were similar to (and not significantly different from) those produced by the cooking oil transfer alone.

In Kenya, Duflo et al. (2006) conducted a randomized controlled trial to assess the impact of three treatments on risky sexual behaviors (as a proxy for HIV/AIDs risk). The researchers found that the provision of school uniforms (an in-kind transfer with a logic similar to that underlying take-home rations) had significant impacts on the outcomes of interest. Two years after the program's introduction, free school uniforms had reduced dropout by 15 percent, reduced girls' likelihood of teenage child-bearing by 10 percent, and reduced girls' likelihood of teenage marriage by 12 percent (a marginally significant difference). For boys, the reduction in the likelihood of marriage was 40 percent.

LAC. Our search of the literature has not yielded eligible studies in LAC that examine the impact of feeding or in-kind transfers programs on violence, crime, or associated outcomes.

4. Cost effectiveness of transfer programs on outcomes of interest

Limited cost-effectiveness calculations suggest that CCTs and conditional take-home rations are resource-efficient tools for reducing risky behavior and crime. In Malawi, Baird et al. (2010, 2011, 2013a) showed that the Zomba CCT treatment was more cost-effective than the UCT program with regard to school attendance and dropout, given that the treatment's monitoring and administrative costs were marginal; the UCT transfers would have had to be significantly larger to achieve the same impacts. However, the UCT was more cost effective regarding the temporary reduction of teen pregnancy and marriage. In Bangladesh, Buchman et al. (2018) estimated that for every $1,000 spent, the cooking oil incentive averted 1.3 child marriages, delayed child marriage by 6.3 years, and increased time in school by 4.3 years. The PYD empowerment component increased enrollment by 4.3 years for every $1,000 spent. However, only the cooking oil incentive produces a net present value in education greater ($1,078) than the current investment ($1,000). In Kenya, Duflo et al. (2006) calculated that the cost effectiveness of

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[133] As noted above in the discussion on cash transfers, non-education–related food transfers may have impacts on IPV. In Ecuador, food, food voucher, and cash benefits conditioned on mothers' attendance at nutrition training sessions produced significant decreases (of 6 to 7 percentage points) in IPV (Hidrobo et al. 2016). Researchers suggest that the mechanism through which the CCT decreased violence encompassed lower poverty-related stress, mothers' greater bargaining power, and women's and men's increased cooperation in household labor.

providing uniforms to adolescents was $300 per one pregnancy averted; however, it cost only $91 simply to inform girls about HIV rates among men of different age groups (another treatment arm).

C. Recommendations

1. Recommendations for future research

In this chapter, we examined the evidence on the impact of three types of transfer programs—cash transfer programs, scholarship and other student financial incentive programs, and school feeding and take-home ration programs—on violence, crime, and correlated outcomes. We found a promising evidence base in LAC countries and LMICs for the effect of cash transfer programs on violence, crime and correlated outcomes. In LMICs, evidence suggests that cash transfers can reduce risky behaviors and improve family environment factors, including risky sexual behavior and intrahousehold violence. Evidence from LAC suggests that cash transfers can reduce violent crime. However, evidence on cash transfers is insufficient to identify the mechanisms through which transfer programs produce effects on crime, violence, and correlated outcomes. The evidence on scholarships, school feeding programs, and in-kind transfers, however, is only emerging and merely touches on risky and protective behaviors and social-emotional skills. There are, however, limited cost-effectiveness analyses indicating that CCTs and conditional take-home rations are resource-efficient tools for reducing risky behavior and crime. We therefore recommend additional rigorous research on the channels through which cash transfers can affect violence and crime, research using longitudinal studies, and research that looks at impacts on violence and crime for males separately from females. We also recommend incorporating cost-effectiveness analysis in future rigorous research on cash-transfers. We also recommend that future research on scholarships, school feeding, and in-kind transfers programs in LAC and LMICs incorporate social-emotional skills and behaviors as outcomes.

2. Recommendations for investing in transfer programs

Based on the global evidence, we recommend that policymakers and funders focus on the following:

- **Support CCTs to impact violent crime among youth.** Moderately strong evidence from Peru and Brazil, as well as from Kenya, suggests that cash transfer programs conditioned on school attendance and continued health checkups can reduce the incidence of violent crime, including among youths up to age 17.

- **Support cash transfer programs to reduce the incidence of risky behaviors.** Evidence from LMICs suggests that exposure to cash transfer programs may reduce the incidence of risky behaviors, such as risky sexual practices, but we lack strong evidence to suggest the relative value of conditioning versus not conditioning such transfers.

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XVII. EXPANDING ACCESS TO HIGH QUALITY SCHOOLS

Evidence summary and mechanisms through which intervention can affect violence and crime				
	Overall evidence			
Intervention	**Correlated outcomes**	**Violence and crime outcomes**	**Evidence from LAC/LMICs**	**Mechanisms**
Vouchers	◐	◐	○	Access to improved instruction, a higher quality school environment and peer groups with lower risky behaviors reduce violence and crime through various mechanisms. Improved instruction leads to improved social-emotional skills and greater school engagement, which lead to improved educational attainment and employment outcomes, both of which can reduce crime. An improved school environment is expected to reduce violence and crime by improving the relational climate and reducing bullying and school violence, which may reduce risky behaviors and dropout. Exposure to peers with fewer risky behaviors is expected to reduce participation in risky behaviors in the short term and to reduce participation in violence and crime in the short and long run. Merit-based scholarships motivate students to maintain good grades to keep their scholarship, improving school engagement and learning, which can contribute to improved employment outcomes, which can reduce crime in the long term.
Lotteries	○	◐	∅	
Merit-based scholarships	○	∅	○	
Single-sex instruction	◐	○	○	Improved instruction and school environment as a result of reduced classroom disruptions and bullying can improve violence and crime through various mechanisms. Improved instruction is expected to lead to increased school engagement, which will lead to improved educational attainment and employment outcomes, expected to reduce crime. An improved school environment, including reduced bullying, can improve the acquisition of cognitive, self-esteem, and social-emotional skills, which are expected to improve violence and crime in the short and long run.
Legend: ● = strong body of evidence with positive findings; ◐ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ◉ = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◐ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ∅ = no body of evidence.				
The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.				

A. Program descriptions

In this section, we review the evidence on how programs that provide access to higher quality public or private schools affect participant outcomes. Programs that enable students to transfer to higher quality schools involve vouchers, lotteries, merit-based scholarships, and single-sex instruction. Vouchers, lotteries, and merit-based scholarships typically target low-

income, at-risk students in kindergarten through grade 12. Single-sex instruction does not always target the same at-risk student population. The principal goals of these programs are to improve student enrollment, attendance, academic achievement (including grades and test scores), and academic attainment (including graduation rates and enrollment in higher education). In addition, single-sex instruction typically aims to improve students' self-concept and self-efficacy in traditionally "gendered" subjects such as mathematics. In Table XVII.1, we summarize the key program elements, typical target age group, characteristics of the targeted beneficiaries, and goals of programs providing access to high quality schools.

Table XVII.1.   Summary of programs providing access to high quality schools: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
Vouchers	Primary school or secondary school ages	Low-income public-school students or students not currently enrolled in school; or universally available to all students	Targeted vouchers pay some or all of a student's education at a fee-paying private school. Universal vouchers are typically a flat fee that covers part of the cost of private school.	1. Improved academic achievement 2. Improved academic attainment 3. Improved enrollment and attendance
Lotteries	Primary school or secondary school ages	Low-income public-school students or students not currently enrolled in school	Students apply to a public school or government subsidized "charter" school of their choice through lotteries, which are typically randomized and targeted to students from lower-income families.	1. Improved academic achievement 2. Improved academic attainment 3. Improved enrollment and attendance
Merit-based scholarships	Primary school or secondary school ages	Low-income public-school students or students not currently enrolled in school	Merit-based scholarships distribute financial support to students who have already been admitted to a private school but are unable to attend because of cost. "Merit" is determined by GPA, test scores, or other indicators of academic achievement.	1. Improved academic achievement 2. Improved academic attainment 3. Improved enrollment and attendance
Single-sex instruction	Primary school or secondary school ages	All students, but historically female students	Single-sex instruction refers either to schools that are single sex or to single-sex classes within coeducational schools.	1. Improved academic achievement 2. Improved academic attainment 3. Improved self-concept and self-efficacy 4. Improved classroom environment and reduced disruptions

Vouchers are government payments for children attending a fee-charging school. Students might receive a voucher to attend a higher quality school through either universal or targeted programs. In Chile, a universal voucher program gave financial assistance to any student who wished to attend a private school. In Colombia, a targeted voucher program for low-income students, which operated through a lottery, covered the cost of public school. In India and the

United States, targeted and universal voucher programs facilitate "school choice," enabling students to enroll in private schools or government-subsidized private schools (called charter schools in the United States).[134] With the exception of Chile, all voucher programs in this chapter relied on a full or partial lottery system. Vouchers can pay for some or all of a student's private school fees. Typically, private schools apply to be part of a voucher program. Vouchers vary in length from a specific period (such as high school) to all of a child's schooling.

Lotteries aim to give students the opportunity to study at the school of their choice—typically in charter or public schools. In the United States, lotteries frequently become a necessity when public or charter schools are oversubscribed, but lotteries also find use as a standard open-enrollment method for public or charter schools, whereby schools turn to a lottery to allocate all their available slots. In LMICs, lotteries are usually coupled with voucher programs; therefore, we will review them together in this chapter.

Merit-based scholarship (MBS) programs enable students to transfer to higher quality schools and are premised on goals similar to those underlying both vouchers and lotteries: increased student enrollment, attendance, academic achievement, and attainment. In the vast majority of MBS programs, "test scores and/or school grades determine "merit," although the program might rely on additional targeting mechanisms such as household income. MBS programs vary in length from one year to a student's entire schooling and are typically conditional on students' continued performance in school (whether test scores, grades, attendance, or a combination). (Alternative scholarship mechanisms such as cash transfers and "pay for performance" programs, which do not involve student "merit," are the topic of the transfers section of this chapter.)

Single-sex instruction (SSI) may refer to either single-sex schools or single-sex classes within coeducational schools. In both HICs and LMICs, private religious schools generally

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[134] Charter schools are unique to the United States. They are public schools that operate under contract to the private sector, with the assumption that the additional freedom of private sector operation catalyzes innovation and positive competition dynamics within the education sector (Hanushek et al. 2007). In the United States, lottery programs enabling students to transfer to charter schools have generally demonstrated slightly positive or null impacts on cognitive outcomes, including test scores and grades (Abdulkadiroğlu et al. 2011; Chabrier et al. 2016; Angrist et al. 2013) and a recent long-term study of 2,800 students in 31 charter schools across the United States concluded that students who won a lottery and were admitted to charter schools did not, on average, show improved academic achievement in the short term or college enrollment and attainment in the long term (Philip et al. 2019). A literature is emerging on the impact of charter schools on outcomes relevant to this review, but we do not focus on charter schools in this chapter because they do not appear in the developing country context and vary considerably in instructional focus and other characteristics. Four studies measure charter schools' impact on relevant outcomes: in a randomized experiment, Dobbie and Fryer (2014) found that, six years after entering a Harlem charter school, female students were less likely to be pregnant in their teens and male students were less likely to be incarcerated than students who were not admitted to the school. An evaluation of KIPP charter preschools by Mathematica concluded that, in a natural experiment, students who won admission to KIPP had improved executive functioning (Knechtel et al. 2017). In a survey with grade 8 students, West et al. (2016) found that charter school attendance had positive impacts on achievement and attendance but slightly negative impacts on social-emotional skills, including grit and self-control. And, in a natural experiment, Dudovitz et al. (2018) demonstrated that charter school students had lower marijuana use, fewer marijuana-using peers, and more orderly school environments than students who lost the charter lottery.

provide single-sex instruction. SSI as an intervention for higher quality schooling works to attain outcomes similar to those already mentioned but also typically includes a focus on socio-emotional outcomes such as academic self-concept and self-efficacy, particularly in traditionally "gendered" disciplines such as mathematics and science. Some SSI research also focuses on improved classroom environment as an outcome resulting primarily from reduced student disruptions (defined as changes in students' locus of control or students reporting the classroom being too loud to learn or fights taking place in the classroom).

Common theory of change. Vouchers, lotteries, and MBS programs all expand students' school options–usually to allow students to attend private schools[135] or public schools other than their assigned school(s). This expanded school access is expected to increase access to high quality instruction, an improved school environment, and peers who are less likely to engage in risky behaviors. Access to higher quality instruction, including lower teacher-to-pupil ratios and improved classroom management, can improve school engagement, leading to increased learning, educational attainment and employment outcomes. Increased competition among schools as a result of vouchers, lotteries, and MBS may also motivate schools to make improvements in quality and innovation, leading to improved student cognitive and social-emotional skill formation (Hsieh and Urquiola 2003). Higher quality instruction may also reduce students' anti-social behaviors and potentially reduce school-based bullying and violence (Allen 2010). At the same time, by attending higher quality schools, students' peer groups should improve to a group engaging in fewer risky behaviors which should decrease their engaging in risky behaviors. Students' peer groups represent a significant determinant of student achievement, particularly for low- and average-ability students (Zimmer and Toma 2000) and have been shown to have a significant impact on substance abuse, risky behaviors, gang membership, and criminal activity (Sacerdote 2011). These impacts on correlated outcomes can all improve violence and crime as discussed in Chapter II. The fourth intervention, SSI, operates through similar mechanisms. First, instruction is improved because teachers are able to use instruction methods most appropriate for a single-sex group and because classroom disruptions are reduced (Pahlke 2014; Lavy and Schlosser 2011). Improved instruction leads to improved social-emotional skills and greater school engagement, which lead to improved educational attainment and employment outcomes, both expected to reduce crime. Second, the classroom or school environment may improve because of the reduced disruptions and improved peer behavior, including reduced bullying and gender-based violence. This reduced bullying can also result in a reduction in other forms of violence and crime as discussed in Chapter II. Unique to

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[135] It is important to note that there is a debate regarding the first assumption that private schools are higher quality than public schools. In the United States, a longitudinal study of over 1,000 students showed that, by simply controlling for socioeconomic status, private school students' advantages in academic, social, psychological, and attainment outcomes at age 15 were eliminated (Pianta and Ansari 2018). Similarly, in a meta-analysis of the benefits of private schools in Latin America, Somers et al. (2004) found that, by controlling for socioeconomic characteristics and peer group effects, the gap between private and public school outcomes reduced to zero for most outcomes. In Latin America, Denmark, India, China, and elsewhere, studies have shown little evidence that private schools led to higher student achievement (Andersen 2008; Zhang 2012; Lucas and Mbiti 2014; Kingdon 2017; Urquiola 2016; and Sakellariou 2017), with the exceptions of Baum's (2018) comparison of the sizable academic benefits of private schools in Kenya, Pop-Eleches and Urquiola (2011) in Romania, and Singhal and Das (2019) in India.

SSI, female students are also expected to have improved self-esteem and academic self-concept, which can reduce risky behaviors, increase protective behaviors, and reduce violence and crime.

Common target beneficiary profiles. Vouchers, lotteries, and MBS seek to address barriers to low-income or otherwise disadvantaged children who are currently out of school or served by low quality and/or overburdened public schools at both the primary and secondary levels. Some programs target specific populations, such as school choice programs in the United States, and focus only on low-income public school students. Universal programs without a specific target population, such as Chile's voucher program, are a market-based mechanism intended to give parents more choice in their child's schooling and to spur competition among all schools. SSI typically is limited to religious or other private schools and targets various demographic audiences depending on the school.

B. Findings from the evidence review

1. Vouchers and lottery programs

Emerging evidence shows positive impacts of voucher and lottery programs on violence, crime, and correlated outcomes. However, the large share of the evidence on violence and crime is limited to HICs; the literature from LAC and LMICs is scant, constraining our ability to draw conclusions in those settings. In Table XVII.2, we summarize the evidence that we discovered in our literature searches. The systematic search process,[136] which looked for vouchers, lotteries, and SSI, revealed 1,457 documents, of which 17 were papers on voucher and lottery studies eligible for inclusion in this review. Appendix R provides additional information about those studies and discusses studies that looked at the effects of such programs on academic outcomes. We discuss the literature below.

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[136] Our bibliographic search included terms related to vouchers, lotteries, and single-sex instruction.

Table XVII.2. Strength of evidence on the impacts on outcomes of interest: vouchers and lotteries

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Vouchers	HICs	⊖	◖ (blue)	● (yellow)	⊖	◖ (blue)	⊖
	LMICs	● (yellow)	∅	∅	∅	∅	∅
	LAC	∅	◖ (dark red) [137]	○	∅	∅	∅
Lotteries	HICs	⊖	● (yellow)	○	◖ (blue)	◖ (blue)	○
	LMICs	∅	∅	∅	∅	∅	∅
	LAC	∅	∅	∅	∅	∅	∅

Note: Among the studies located through the global foundational literature search, through the bibliographic literature searches in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 17 were eligible for inclusion.

◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ● (yellow) = mixed findings in emerging or larger body of evidence; ◖ (dark red) = moderate body of evidence with negative findings; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **Emerging evidence from HICs shows that vouchers can reduce violence and crime.** A longitudinal quasi-experimental evaluation of a Milwaukee voucher program that covered tuition for private schools found that the program reduced high school participants' likelihood of being convicted of misdemeanors by 5 percentage points and their likelihood of being convicted of felonies by ages 22 through 25 years by 3 percentage points (DeAngelis and Wolf 2016). A longitudinal analysis of the same program found a 0.18 SD reduction in drug-related convictions among males who participated in the program in grades 8 and 9 ten years later (DeAngelis and Wolf 2019).

Other studies in the United States have found that voucher programs improved recipient students' outcomes correlated with violence and crime, including students' school environment and risky behaviors. In an evaluation of the New York City voucher program, Mayer et al. (2002) found that the program, which enabled students to transfer to private schools, achieved a reduction in student suspension rates, in student fighting at school, and in destruction of property at school. In another study tracking students three years after the provision of a Washington, D.C., voucher program, researchers found that students who received vouchers to attend private schools had lower absenteeism rates and higher perceptions of school safety than similar students who stayed in the public school system. The gains in absenteeism were strongest for older and initially lower-performing students (Webber et al. 2019). In a natural experiment in which students were awarded vouchers through a lottery to attend private school in Charlotte,

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[137] The three studies that comprise this evidence found increased school segregation or social stratification. We did not search on segregation or stratification as outcomes, but included this finding as a negative impact.

Virginia, Greene (2001) found a large, significant improvements in student-reported safety at school between student voucher winners and nonwinners.

Evidence on whether vouchers affect students' civic engagement attitudes and behaviors is mixed. A meta-analysis by DeAngelis (2016) of school choice and civic engagement outcomes found impacts that are "null to positive for tolerance, null to positive for civic engagement, and positive for social order [following laws and trusting others]"] and a review by Wolf (2007) found that school choice had small positive effects on political tolerance, knowledge, and volunteerism. Two specific studies found no impacts on low-income voucher recipients' likelihood of voting (DeAngelis and Wolf's 2019 study of the voucher program in Milwaukee and Carlson et al.'s 2017 study of the voucher program in New York City). Bettinger and Slonim (2006) used experimental methods to show that Ohio's voucher program, which targeted students in kindergarten through grade 8, increased students' altruism toward charitable organizations, but not toward peers (altruism is related to empathy, one of the social-emotional skills identified in Chapter II as linked to reducing violence and crime).

Similar to the evidence base for vouchers, evidence for lotteries demonstrates the positive impact of open-enrollment lotteries on violence, crime, and correlated outcomes. A Chicago lottery program for admission to public high schools found that, by grade 12, students who won the lottery reported significantly fewer incidents of disciplinary action, fewer arrests, and lower incarceration rates than students who had not won the lottery (Cullen et al. 2006). Deming (2011) found that seven years after random assignment in the Charlotte public school system's choice lottery, lottery winners accounted for fewer arrests for serious crimes[138] and had spent fewer days incarcerated; moreover, the impact was largely attributable to students categorized as "higher risk" at the program's outset. A study in Israel found impacts on outcomes correlated with violence and crime. Relative to students who did not win the lottery, students who did win a public high school lottery achieved significantly reduced school dropout rates, an improvement in the school climate they experienced (teacher-student relationships and students' social acclimation and satisfaction at school) and reduced school-based violence and classroom disruptions (Lavy 2010).

LMICs. **Two LMIC studies demonstrate mixed impacts of vouchers on students' social-emotional skills.** An experimental study of India's ENABLE voucher program for low-income children living in Delhi found no impact on students' social-emotional skills over a three-year period (Crawfurd et al. 2019). Overall, the study showed no impacts on student achievement, but did find some evidence of improved academic outcomes for students who otherwise would have attended a public school. Also in India, Damera (2017) used pair-wise matching in Karnataka state to demonstrate that, after transferring to private schools through a voucher program, students' self-efficacy scores improved by 0.11 SD.

LAC. **A voucher program in Colombia reduced students' risky behaviors, but several studies found that Chile's voucher program has led to increased social stratification.** An experimental evaluation of Colombia's PACES program found that students receiving a voucher

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[138] Deming measures the severity crime using estimates of victimization cost and the expected punishment based on a successful conviction.

based on a lottery had a reduced risk of being pregnant, having a child, or cohabitating with a partner three years after application compared to students who were not offered a voucher (Angrist et al. 2002). The authors noted that the voucher program increased costs to the government and participants, but that these costs were likely outweighed by increased future earnings due to increased educational attainment and learning. At the same time, studies of Chile's longstanding voucher program have found evidence of increased social stratification as the highest-income public school students move into private schools while selective private schools tend to admit higher socioeconomic status students in a process known as "cream skimming," increasing inequality of educational outcomes across the socioeconomic spectrum (Hsieh and Urquiola 2006, McEwan et al. 2008).

2. Merit-based scholarships

We found emerging evidence on the impacts of MBS programs on outcomes correlated with violence and crime, but the evidence is mixed and drawn only from LMICs outside LAC. In Table XVII.3, we summarize the literature we uncovered through our literature searches. The systematic search on MBS was part of the broader search on scholarships for the review of transfers (previous section of this chapter). We identified individual studies on merit-based scholarships for inclusion in the present chapter. Through this process, we uncovered three papers about MBS that were eligible for inclusion in this review. We found no eligible studies from HICs or LAC. All three eligible studies took place in LMICs outside LAC. Two were RCTs, and the other used quasi-experimental methods to estimate causal impacts. Appendix R presents additional details on the studies summarized in Table XVII.3. as well as studies on the effects of MBS on educational outcomes.

Table XVII.3.   Strength of evidence on the impacts on outcomes of interest: MBS

		Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
Intervention	Region	Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
MBS	HICs	⊖	⊖	⊖	⊖	⊖	⊖
	LMICs	🟡	◯	🟡	⊘	⊘	⊘
	LAC	⊘	⊘	⊘	⊘	⊘	⊘

Note: Among the studies located through the global foundational search, through grey literature searches, and through the bibliographic literature searches in LMICs and LAC, three were eligible for inclusion. ◯ = emerging body of evidence with positive findings; 🟡 = mixed findings in emerging or larger body of evidence; ⊘ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. We did not find evidence on the outcomes of interest in HICs.

LMICs. **Three RCTs on MBS find mixed impacts on a wide variety of outcomes.** The review identified relevant studies in Cambodia, Ghana, and Kenya for studies of MBS programs in primary and secondary school, evaluating diverse outcomes, including social-emotional skills, civic engagement, and engagement in risky behaviors. In Cambodia, Barrera-Osorio et al. (2018)

used an RCT to estimate impacts of providing scholarships based on merit or poverty. The authors found that the merit-based scholarship improved recipients' self-reported well-being, cognitive skills, and employment, but not for those who received the scholarship based on poverty[139]. Another experimental study, which estimated the impacts of an MBS program in Ghana, found that students who had been admitted to secondary school, but who lacked the funds to pay for school, had 0.2 fewer children than non-recipients by age 25 (Duflo et al. 2017). In a third RCT (Friedman et al. 2016), which took place in Kenya, schools participating in the girls' MBS program had significantly lower rates of teacher absenteeism, improving the school environment, and found mixed impacts on civic engagement. Scholarship recipients were less likely to accept domestic violence, but also more likely to perceive political violence as legitimate.

LAC. We did not find evidence on the outcomes of interest in LAC.

3. Single-sex instruction

The evidence on the effect of SSI on violence, crime, and related outcomes is weak because of the small number of rigorous studies and the challenges associated with rigorously estimating the causal impacts of SSI. Evidence of impacts for male students is more limited than for female students because some studies reported on impacts for female? students only. However, evidence is emerging on SSI's impact on risky behaviors, social-emotional skills, school environment factors, and school violence. In HICs, there is moderate evidence on the effect of SSI on social-emotional skills and school environment factors. These conclusions come from an extensive foundational literature review, a bibliographic search for research in LMICs and LAC, and a global search online for grey literature. The search process (which grouped vouchers, lotteries, and SSI) identified 1,457 documents, of which 7 were papers on SSI that were eligible for inclusion in this review (summarized in Table XVII.4). Appendix R presents additional information about the studies in this review and about studies that look at SSI effects on educational attainment.

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[139] Authors think the larger impact for the MBS scholarship recipients may be due to a labeling effect because the larger impact for MBS recipients persisted even among students who were similar at baseline.

Table XVII.4.   Strength of evidence on the impacts on outcomes of interest: single-sex instruction

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
SSI	HICs	🟡	◖	○	⊖	⊖	○
	LMICs	○	⊘	⊘	⊘	⊘	⊘
	LAC	○	◗	⊘	⊘	⊘	⊘

Note: Among the studies located through the global foundational search, through grey literature searches, and through the bibliographic literature searches in LMICs and LAC, seven were eligible for inclusion.

◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; 🟡 = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ⊘ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **Several studies from the United Kingdom, South Korea, and Switzerland provide moderate evidence that SSI may benefit students' social-emotional skills.** Many of these studies, however, did not generate high quality evidence because of weak designs and small sample sizes. A meta-analysis of over 400 studies from 21 countries noted that impacts on student victimization and self-concept were close to nil (although the authors noted that the number of studies in these categories was insufficient to perform a thorough analysis) (Pahlke et al. 2014). A global 2005 systematic review found that SSI had small, positive impacts on self-concept and locus of control but that impacts on self-esteem were mixed (Mael et al. 2005). In a natural experiment, Lee et al. (2014) analyzed South Korea's random assignment of students into single-sex or coeducational instruction in Seoul. Overall, the study found that SSI resulted in higher levels of "effort" (for male students) and higher percentages of "hard-working peers" (for female students). However, the study noted that schools with SSI in South Korea were more likely to attract and retain higher quality teachers, perhaps contributing to the observed impacts. In a longitudinal analysis of students born in 1958 in the United Kingdom, Sullivan (2009) demonstrated that single-sex schooling reduced the gender gap with respect to self-concept. In mixed-gender schooling, girls had a higher self-concept in English language studies, and boys had a higher self-concept in mathematics and science, but single-sex schooling reduced those gaps. The results should be interpreted with caution because of limitations to the study design. In Switzerland, a medium-term, randomized study of 800 students in one school found that single-sex classrooms strengthened female students' self-confidence four years after the intervention (Eisenkopf et al. 2015). Treatment estimates may include spillover effects given that the treatment and control group students attended the same school. In addition, the school was not typical in that it was designed for students who wished to enter the education profession, and 80 percent were female. The study did not evaluate impacts on male students.

In addition to focusing on social-emotional skills, studies document the positive impact of SSI on classroom environment and student behavior In a study of single-sex classrooms at an at-risk, urban high school, Hoffman et al. (2008) observed a positive impact on classroom

environment and student behavior for female students, noting that, unlike the comparison group, female students in SSI classrooms demonstrated greater participation and academic risk taking.

Other studies note benefits on classroom behavior and students' risky behaviors in schools with a higher proportion of female students. Using data from Israel, Lavy and Schlosser (2011) found that classrooms with higher proportions of female students had lower levels of classroom disruption and violence as well as improved student-teacher relationships and improved cognitive outcomes for boys and girls. Black et al. (2013) conducted an analysis of cohort composition within Norwegian schools to examine the influence of classroom gender composition in grade 9 on longer-run outcomes. The authors found that SSI led to a modest reduction in teenage pregnancies.

LMICs. **One study from Uganda demonstrates SSI's impact on student self-efficacy and academic performance**. Picho and Stephens (2012) used a randomized experiment to demonstrate that, in the short term, stereotype threat negatively affected the performance of female students at coeducational schools. In addition, the results showed that female students in single-sex schools reported higher levels of mathematics self-efficacy.

LAC. **One study on SSI in LAC finds mixed results on relevant outcomes.** In Chile, Villalobos et al. (2016) used propensity-score matching to compare outcomes for students in grades 4, 8, and 10 in SSI or coeducational schools and concluded that there was no difference in terms of school climate or academic performance. However, the author did find a moderate impact of SSI on students' self-esteem.

C. Recommendations

1. Recommendations for future research

Evidence shows that expanding access to high-quality schools can reduce risky behaviors, improve the school environment, and reduce violence and crime for the students who access higher quality schools; most of this evidence is from HICs. We recommend expanding the evidence base on the impacts of vouchers on violence, crime, and correlated outcomes in LMICs and LAC. Additionally, new research should evaluate the impacts of providing access to higher quality schooling on social-emotional skills. In addition, research should include the following:

- **Research should consider impacts on equity.** Authors have cautioned that Chile's longstanding voucher program has failed to improve learning outcomes overall and has increased social stratification in schools, as higher-income public school students are the ones to take advantage of vouchers and transfer to private schools (McEwan et al. 2008). In light of this finding, new research should include subgroup analysis to estimate how impacts vary by students' socioeconomic status, including for students who do and do not enroll in a higher quality school.

- **Research should assess the impact of classroom-based SSI.** In many cases, it is not feasible to randomize students to SSI schools, although the implementation of SSI within a coeducational school might be possible in more contexts and could be studied effectively. The literature on classroom-based SSI is small but promising (Hoffman et al. 2008; Eisenkopf et al. 2015).

- **Research should also compare the outcomes of SSI with an increase in the proportion of female students in a classroom in non-SSI schools.** Emerging research indicates that a higher proportion of female students in a classroom may lead to an improved school environment and a reduction in behavioral disruptions (Lavy and Schlosser 2011; Black et al. 2013). It is possible that an increase in the proportion of female students within classrooms could yield benefits similar to those associated with SSI, but additional research in diverse environments is needed. The value of the research would need to be weighed against its utility given challenges that may be associated with adjusting the sex ratio within a classroom.

2. Recommendations for investing in programs expanding access to high quality schools

Based on the global evidence, we recommend that policymakers and funders focus on the following:

- **Structure vouchers to enhance equity and promote access to high quality schools for disadvantaged students.** To enhance voucher programs' impact on equity, Morgan et al. (2015) recommend an increase in the value of vouchers for lower-income students in order to enhance their access to higher quality schools and to reduce incentives for private schools to give preference to higher-income students.
- **Consider using merit-based scholarship programs to improve teacher attendance and other forms of teacher engagement.** As noted, Kremer et al. (2009) found that teacher absenteeism in Kenya declined by half in one district in which an MBS program was implemented. The authors believe that the increase in teacher attendance was largely driven by parent demands for their children to qualify for the scholarship. By ensuring that teachers were present and engaged, parents perhaps not only encouraged teachers to attend school but also motivated them more broadly to be sure their students learn.
- **Consider promoting access to SSI schools.** We found evidence indicating that SSI has the potential to improve outcomes correlated with violence and crime, including school environment, social-emotional skills, risky behaviors, and, in one study, school violence. Although the large share of identified studies took place in HICs and some studies reported impacts for girls but not boys, we did find positive impacts in studies in Chile (male and female studies [Villalobos et al. 2016]) and Uganda (female students only [Picho and Stephens 2012]).

XVIII. TEACHER INCENTIVE PROGRAMS

Evidence summary and mechanisms through which intervention can affect violence and crime				
	Overall evidence			
Intervention	**Correlated outcomes**	**Violence and crime outcomes**	**Evidence from LAC**	**Mechanisms**
Pay for performance	🟡	⊘	⊘	Teacher incentive programs attract more motivated teachers to the profession or motivate existing teachers to engage in desired behaviors, such as improving teacher attendance or instruction, which would improve the school environment largely through improved instruction. These improvements in the school environment may improve student engagement in school, which may help them avoid engaging in risky behaviors, which may reduce criminal activity in the short and long run. Improved instruction may also improve social emotional skills if teachers teach social emotional learning.
Contract teachers	◯	⊘	⊘	
Legend: ● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ◯ = emerging body of evidence with positive findings; 🟡 = mixed findings in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ◯ = emerging body of evidence with negative findings; ◔ = weak body of evidence; ⊘ = no body of evidence.				

A. Program description

In this section, we review the evidence on how teacher incentives may be used to improve student outcomes. Many teachers—especially in LMICs—work with little oversight and under civil service contracts that renew automatically, creating little incentive for teachers to come to school regularly and to maximize their effectiveness while in the classroom. An alternative to the typical civil service contracts that renew automatically, some governments motivate teachers using annual employment contracts that are only renewed at the discretion of the school or school district on the basis of teachers' performance. We refer to teachers with such contracts as contract teachers. Another approach that governments may use to motivate civil service or contract teachers is performance pay—monetary incentives given in addition to teachers' base pay and offered in recognition of teachers' strong performance. Teacher performance may be evaluated based on teachers' attendance at school, students' academic performance, the use of specific teaching strategies, or other metrics. Performance pay may reward a group of teachers contingent on the work of all teachers in a school or grade (group incentives), or it may reward individual teachers for their work with their own students (individual incentives). In Table XVIII.1, we summarize the key program elements, typical target age group, characteristics of the targeted beneficiaries, and goals of teacher inventive programs.

Table XVIII.1. Summary of programs to provide incentives for teacher performance: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
Pay for performance	Primary school or secondary school students	Any primary or secondary school teachers	A ministry of education or school district provides monetary rewards beyond teachers' base salary contingent on individual teachers' performance.	1. Increase teacher motivation to perform well 2. Encourage effective teachers to remain in the profession 3. Attract effective teachers to the profession
Contract teachers (annual employment contingent on performance)	Primary school or secondary school students	Potential teachers not currently employed as tenured or tenure-track teachers	Teachers are offered employment for one year at a time, typically with low wages, with the possibility of renewing their contract based on some measure of teacher performance.	1. Increase teacher motivation to perform well 2. Reduce teacher salary costs 3. Reduce employment of low-performing teachers

    Teacher pay-for-performance arrangements reward teachers with incentive payments for (1) desirable behaviors, such as regular attendance, submission of regular lesson plans, or reliance on what are believed to be effective teaching methods, or (2) desirable outcomes, such as strong or improved student test scores. Incentive payments are typically made at the end of the academic year upon determination that teachers have met the requirements to receive the incentive payment. Teacher performance pay arrangements may reward teachers for student test scores in diverse ways. For example, some reward teachers for improvements in their students' scores relative to other students by estimating teachers' value-added, in an arrangement known as pay for percentile (Barlevy and Neal 2012). Arrangements may also reward teachers for meeting a predefined target, such as achieving a threshold of knowledge or a score on a standardized test (Mbiti et al. 2019b). Performance pay may also be rewarded on the basis of a combination of criteria, such as classroom observations and participation in professional development (Booker and Glazerman 20099). In addition, performance pay may be based on individual teachers' performance or the performance of a group of teachers, such as by grade. We discuss these approaches together in this chapter.

    Contract teaching arrangements create teacher incentives because annual contract renewal and teachers' continued employment may be contingent on teachers' performance. In general, the training requirements for contract teachers are lower than those for civil service teachers, and contract teachers are paid less than civil service teachers (Bourdon et al. 2010; Duthilleul 2005). Typically, whereas civil service teachers work under permanent contracts that are difficult to terminate, contract teachers' contracts expire at the end of each academic year such that schools and school districts have no obligation to continue a teacher's employment. The contract teacher arrangement then creates an opportunity for those with hiring authority to decide each year which teachers to retain.

Theory of change. Pay for performance and contract teacher programs are expected to motivate teachers to improve their attendance and the quality of their instruction, leading to improvements in the school environment, largely through improved instruction. This improvement in the school environment should improve students' engagement in school and learning outcomes; research from LMICs has shown teacher incentive programs to improve students' academic outcomes (Leaver et al. 2020; Mbiti et al. 2019a; Muralidharan and Sundararaman 2011). Students who are more engaged in school may be more likely to attend school regularly and stay enrolled in school, decreasing their likelihood of engaging in risky behaviors (Chetty et al. 2011; Lavy 2002; Lavy 2015), reducing their likelihood of participating in violence or crime. Furthermore, improvement in teachers' instruction may improve students' social-emotional learning if their teachers provide instruction on social-emotional learning. As we described in Chapter II, improvements in youth's social-emotional learning and reduction in risky behaviors are expected to lead to reductions in violence and crime. This theory of change applies in contexts in which teachers are not already highly motivated and in which teachers know how to improve their instruction and or are able to improve their attendance. In contexts in which teachers are already highly motivated or do not know how to improve their instruction, teacher incentive programs and contract teaching arrangements would not lead to the improvements described in this theory of change.

Target beneficiary profiles. The rationale for relying on teacher incentive programs to improve teaching applies broadly and includes primary and secondary school as well as tertiary education. Incentive programs are likely to affect the behavior not only of currently employed teachers but also of individuals who are deciding whether to enter the teaching profession. Incentive pay arrangements are appropriate in LMICs as well as in HICs; however, impacts are likely to vary from context to context.

B. Findings from the evidence review

1. Pay for performance

We found no literature on the impacts of teacher performance pay on violence or crime and only three studies of impacts on outcomes correlated with violence and crime. Our result derives from the literature we identified through our global foundational literature search, our bibliographic literature searches of studies in LMICs and LAC, and our searches of websites for grey literature (Chapter III) in LMICs and LAC. Our search identified 1,813 papers on teacher performance pay, including pay for contract teachers, of which 3 were eligible for inclusion in the study as summarized in Table XVIII.2. Appendix S presents more information about all studies of teacher performance pay programs included in this review, including information on the age group of interest and the type of included activities.

Table XVIII.2. Strength of evidence on the impacts on outcomes of interest: pay for performance

		Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
Intervention	**Region**	**Social-emotional skills**	**Environ-mental factors**	**Risky and protective behaviors**	**Violent crime**	**Nonviolent crime**	**School violence**
Pay for performance	HICs	⊖	◖	⊖	⊖	⊖	⊖
	LMICs	⦸	●	⦸	⦸	⦸	⦸
	LAC	⦸	⦸	⦸	⦸	⦸	⦸

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 3 were eligible for inclusion.

⬤ = mixed findings in emerging or larger body of evidence; ◖ = findings of no impacts in emerging or larger body of evidence; ⦸ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **One study from an HIC that evaluated outcomes correlated with violence and crime found that teacher performance pay for high school teachers in Israel led to improvements in the school environment and improved educational attainment 10 years later.** Using administrative data, Lavy (2009) took advantage of a natural experiment to estimate the impacts of a teacher performance pay arrangement and found significant positive impacts on test scores, which were mediated by changes in teaching methods, after-school teaching, and teachers' increased responsiveness to students' needs—an improvement in the school environment. A follow-up study by Lavy (2015)found significant positive impacts on post-secondary educational attainment, but negative impacts on employment and earnings, which the author described as consistent with increased enrollment in post-secondary education.

LMICs. **Two studies from LMICs that evaluated impacts on the school environment had mixed findings.** In a study in India, Duflo et al. (2012) evaluated the impacts of making teacher pay contingent on teachers' attendance, expected to influence the school environment. Using cameras with a time and date stamp, teachers demonstrated their attendance by taking pictures of themselves with students twice a day. In the 30-month experiment, this approach improved teacher attendance by approximately 20 percentage points (authors reported the impact for three time periods, with impacts varying from 17 to 23 percentage points). Impacts were greater for teachers with below-median scores on a teacher skills test than for teachers with above-median scores. Glewwe et al. (2010) studied teacher incentive payments in Kenya to determine their effect on student test scores. The intervention improved scores on the test scores used to reward teachers, but not on other tests, homework assignment, or teacher attendance.

LAC. We did not identify studies of the impact of teacher performance pay on the outcomes of interest in LAC.

2. Contract teachers

We found little literature on the impacts of contract teachers on violence, crime, or outcomes correlated with violence and crime. Our search process identified 1,813 papers on teacher

performance pay and contract teachers, of which one paper on contract teachers was eligible for inclusion in the study, as shown in Table XVIII.3. Appendix S presents more information about all studies of contract teachers included in this review, including information on the age group of interest and the type of included activities.

Table XVIII3.   Strength of evidence on the impacts on outcomes of interest: contract teachers

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Contract teachers	HICs	⊖	⊖	⊖	⊖	⊖	⊖
	LMICs	∅	◯	∅	∅	∅	∅
	LAC	∅	∅	∅	∅	∅	∅

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 1 was eligible for inclusion.

◯ = emerging body of evidence with positive findings; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. We did not identify studies in HICs on the impact of contract teachers on the outcomes of interest.

LMICs. Duflo et al. (2015) randomly assigned primary schools in Kenya to receive an additional teacher on a fixed-term contract at one-quarter normal compensation levels, renewable based on performance. The authors found that contract teachers had significantly lower absence rates than civil service teachers and that their students, who were randomly assigned a teacher, had improved test scores.

LAC. We did not identify studies in LAC on the impact of contract teachers on the outcomes of interest.

C. Recommendations

1. Recommendations for future research

Our search identified no studies on the impacts of teacher incentives on violence or crime and few studies on outcomes correlated with violence or crime. The little available evidence suggests that teacher incentives can potentially be effective in improving teacher attendance and teachers' responsiveness to student needs. Therefore, we believe research on the impacts of teacher incentive programs on violence, crime, and correlated outcomes would be valuable given that despite a large base of evidence on teacher incentives' impacts on academic outcomes (described in Appendix S), there is scant evidence on impacts on violence, crime, or correlated outcomes. Research could take advantage of existing rigorous studies to collect follow-up data on relevant outcomes. However, because violence and crime are relatively rare, studies may not have a sufficient sample size to detect significant impacts on those outcomes. A potential

strategy in this case could be to focus research on impacts on outcomes correlated with violence and crime, which are likely to be more common and more easily detected with smaller sample sizes. As with other programs, policymakers would benefit from knowing how best to structure teacher incentives. Any new research on teacher incentive or contract teacher programs should incorporate multiple treatment groups to estimate impacts of specific features of the incentive programs or contract teacher arrangements such as varying levels of required training for contract teachers in secondary school.

2. Recommendations for investing in teacher incentives programs

Based on the global body of evidence, we cannot provide recommendations on how best to use teacher incentive programs to address violence, crime, or correlated outcomes.

XIX.   SECONDARY CERTIFICATION

Evidence summary and mechanisms through which intervention can affect violence and crime				
	Overall evidence			
Intervention	**Correlated outcomes**	**Violence and crime outcomes**	**Evidence from LAC/LMICs**	**Mechanisms**
Secondary certification programs	🟡	◯	◖	Increased learning and opportunities to develop social-emotional skills and practice protective behaviors, and improve prospects for future employment
Legend: ● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ◯ = emerging body of evidence with positive findings; 🟡 = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ◯ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ∅ = no body of evidence.				
The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.				

A. Program description

In this chapter, we review evidence on the impact of secondary certification programs that seek to improve youth outcomes by providing training in and/or certification of knowledge and abilities equivalent to those gained through secondary-level education. We then identify programs that, according to the evidence, may improve violence, crime, and correlated outcomes and help identify important areas for future research. In Table XII.1, we summarize the key program elements, typical target age group, characteristics of the targeted beneficiaries, and goals of secondary certification programs.

Table XIX.1. Summary of secondary certification programs: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
Secondary certification	Ages 15 through 25 years	Students who have dropped out of secondary school, students at risk of dropping out of secondary school, adults who did not complete secondary education	Certification examinations (such as the General Education Development examination) and test preparation programs, or completion of alternative courses of study	1. Acquisition of certification that implies equivalency of secondary-level abilities 2. Increase in academic retention and advancement 3. Improved labor market outcomes

Secondary certification programs offer out-of-school youths and adults who did not complete secondary education a means to obtain the skills and knowledge of people who

completed secondary education as verified by certification attesting to equivalency.[140] Program participants acquire certification through testing (for example, through the General Educational Development [GED] examination in the US) or through completion of a course of study. By receiving certification of secondary equivalency, youths (or adults who did not complete secondary education) have access to additional opportunities, such as the return to an educational pathway or employment. Our review includes secondary certification programs offered through government education agencies, school districts, and community organizations as well as programs that prepare youths for gaining equivalency (excluding programs such as workforce development programs, which are reviewed in Chapter XX).[141,142] In Table XIX.2, we present four common types of secondary certification programs.

Table XIX.2. Common secondary certification programs

Type of certification program	Program activities and characteristics
Examination-based certification	Offers testing of secondary-level skills such as those tested in the GED examination and may offer tutoring and preparation services
Alternative schools	May offer: • Different curriculum from traditional secondary institutions to meet the needs of students experiencing academic failure • Flexible class schedules • Controlled, supportive environments through residential school structure
Career pathway model	May include GED testing, career exploration support, direct connections to higher education, and job training services[a]
Flexible modalities (common in LAC)	Alternative models of secondary education that offer flexible class options (such as accelerated, distance, virtual, and night courses)

Sources: Tyler and Lofstrom 2009; Treskon et al. 2019; Treskon 2016; MDRC 2016; Kazis 2016; Martin and Broadus 2013; IAIP 2017; USAID 2013b; Ministry of Education of Guatemala 2017; Ministry of Education of Chile 2019.

[a] Programs that include high school certification but focus heavily on job training, such as Job Corps (Schochet et al. 2008), in Chapter XX on Workforce Development.

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[140] Secondary certification programs are similar to complementary basic education programs, which support out-of-school children in achieving primary-level certification, but they focus instead on certification for secondary-level schooling.

[141] Given that USAID does not invest in programs for incarcerated individuals, we exclude prison-based certification programs. However, it is worth noting that GED program completion during incarceration is associated with lower violence and crime. Brewster and Sharp (2002) found evidence suggesting that GED programs for incarcerated offenders may lengthen their post-release survival time (that is, mean time before recidivism). The effects are stronger among women than among men. However, technical and vocational education and training (TVET) programs completed during incarceration did not appear to lengthen survival time; in fact, they appeared to shorten it. Pompoco et al. (2017) found that inmates who earned GEDs while in prison were much less likely than their non-earning peers to engage in violence during incarceration. Vocational education did not have such an effect. The completion of GEDs, college classes, and vocational training were all associated with lower rates of recidivism three years post-release.

[142] Given the overlap with other types of programming, we exclude the following interventions from this chapter but discuss them elsewhere in the report: we review evidence on alternative schools that focus on supporting students with behavioral challenges or disabilities (see, for example, Foley and Pang 2006) in Chapter XI on Dropout and Expulsion Prevention; and policies requiring the placement of students on tracks to match curricular content to their cognitive ability levels in Chapter IX on teaching at the right level).

Theory of change. Secondary certification should improve learning, provide opportunities to develop social-emotional skills and practice protective behaviors, and improve prospects for future employment. In turn, higher levels of human capital through improved education and employment opportunities (along with stronger social emotional skills and protective behaviors), may reduce the likelihood of violence and crime-related outcomes, such as criminal activity, incarceration, and recidivism (Cai et al. 2019).

Target beneficiary profiles. Secondary certification programs in HICs, LMICs, and LAC target similar populations: students who have dropped out of secondary school, students at risk of dropping out of secondary school, and adults who did not complete secondary education. In HICs, equivalency programs often target youth ages 15 to 25 years burdened with work and parenting obligations or those for whom adhering to normal school programming and schedules is difficult for other reasons.[143] As in HICs, education authorities in LMICs and LAC target youths who have dropped out as well as those who are at risk of doing so.

B. Findings from the evidence review

Evidence on the effects of secondary certification programs on violence, crime, and correlated outcomes is weak, and is summarized in Table XII.3. Our search process for secondary certification programs identified 971 papers, of which 4 were eligible for inclusion in this chapter, including 3 in HICs and one in LAC (none in LMICs). Appendix T provides more information about all studies of secondary certification programs in this review, including the age group of interest and type of activities. In addition, Appendix T provides a brief discussion on the relationship between secondary education programs and standard education outcomes.

Table XIX.3. Strength of evidence on the impacts on outcomes of interest: secondary certification

		Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
Intervention	Region	Social-emotional skills	Environmental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Secondary certification programs	HICs	🟡	◯	🟡	◖	◖	◯
	LMICs	∅	∅	∅	∅	∅	∅
	LAC	◖	◖	∅	∅	∅	∅

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 4 were eligible for inclusion.

🟡 = mixed findings in emerging or larger body of evidence; ◯ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ∅ = no body of evidence.

HICs. **An experimental study of a secondary certification program in the US provides emerging evidence on such a program's impact on school violence, social-emotional skills,**

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[143] In the United States, most states require a youth to be age 18 years or older to take the GED examination, unless the individual has parent permission.

environmental factors, and risky and protective behaviors, but the estimated impacts are largely negative. Unterman et al. (2014) examined the academic and behavioral outcomes of students attending SEED DC, an alternative residential middle and high school designed to help students acquire their diploma and gain access to higher education. The study suggests that the system did not produce consistent benefits on the outcomes of interest. For example, the findings for risky and protective behaviors were mixed. Students who attended SEED used significantly less tobacco than their non-SEED peers, but there were no significant effects of school type on having a baby or fathering a baby in adolescence, alcohol use, or marijuana use. SEED students also reported higher rates of arguing with parents and fighting with students other than non-SEED students. Finally, according to data from surveys of 766 students, those who attended SEED also demonstrated lower grit and perseverance than their non-SEED peers.

The authors did not provide cost-effectiveness estimates but pointed out that SEED is nearly twice as expensive as traditional schooling and did not produce substantially better outcomes among students. To explain the disappointing behavioral results of SEED attendance, Unterman and co-authors suggested that the families applying to SEED and rejected through the lottery system probably continued to advocate for their children by seeking other challenging and supportive academic environments, causing the effects of SEED on student outcomes to appear nonsignificant or even negative next to those of non-SEED peers.

Weak evidence from two correlational studies of GED certification in HICs found similarly mixed results for risky and protective behaviors and no significant associations between program exposure and violent and nonviolent crime. Gonzalez et al. (2016) compared the association between GED receipt and future risky substance use behaviors with the same association among high school diploma earners. The odds among GED earners of experiencing a marijuana use disorder (defined as abuse of or dependence on marijuana) were 1.53 times as great as the odds of graduates experiencing such a disorder. Unlike in the case of high school graduation, the receipt of a GED did not appear to protect against substance use disorders in future years, and the outcomes of GED recipients in that area were more similar to those of permanent dropouts. In a similar study, Ou (2019) showed that GED recipients exhibited significantly higher rates of risky behavior than their high school–graduating peers. For example, even though dropouts reported significantly more substance use than GED recipients (by 13.1 percentage points), high school graduates reported significantly less than high school dropouts (by 11.8 percentage points). GED recipients also did not have significantly different severe substance abuse patterns than dropouts, but high school graduates had significantly lower rates of such abuse (by 10.4 percentage points). Graduates also had significantly lower arrest conviction rates (by 23.1 percentage points) and lower incarceration rates (by 13.3 percentage points) than GED recipients, while permanent dropouts had conviction and incarceration rates that were similar to those of GED recipients. Regarding incomes, GED recipients again had worse outcomes than high school graduates, but they earned more than dropouts. The evidence suggests that receipt of a GED does not imply equivalency to high school graduation with respect to risky behaviors or incomes. However, GED certification was associated with significantly better incomes and significantly lower severe drug abuse rates than permanently dropping out of high school.

LMICs. Our search process did not identify studies from LMICs outside of LAC that examined the effects of secondary certification programs on violence, crime, and correlated outcomes.

LAC. **We identified a single qualitative study in LAC that provides weak evidence of improvements in social-emotional outcomes and community environmental factors.** In a review of the evidence on the Sistema de Aprendizaje Tutorial (SAT), Kwauk and Perlman Robinson (2016) compared the SAT alternative secondary school system—which operates in Guatemala, Honduras, Nicaragua, Colombia, Ecuador, and Brazil—to traditional schools. These alternative schools use flexible teacher contracts, in-service teacher training, alternative curricula, and updated materials to allow students in rural and remote communities to gain secondary certification. Drawing on qualitative evidence of the program in Honduras, the authors argued that SAT helped young women empower themselves by developing self-confidence and awareness of their rights. Additional evidence from Honduras suggested that SAT helped students develop a greater sense of civic responsibility (an important protective behavior) than their peers in traditional schools. Program costs in Honduras were 10 percent lower than those of rural government secondary schools; efficiencies in the productive "learning by doing" components of the program and the flexible teacher contracts generated the savings.

C. Recommendations

1. Recommendations for future research

In this section, we found that the body of evidence of the impact of secondary certification programs on violence, crime, and correlated outcomes consists of a single experimental study in an HIC whose authors reported largely negative or mixed impacts, as well as a few less rigorous studies, across which findings are also mixed. We recommend supporting rigorous evaluations of certification programs and alternative secondary schools in LMICs and LAC that include cost-effectiveness analysis.

2. Recommendations for investing in secondary certification

Given the limited body of evidence, we cannot provide recommendations on how best to use secondary certification programs to improve violence, crime, or correlated outcomes.

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XX. WORKFORCE DEVELOPMENT PROGRAMS

Evidence summary and mechanisms through which intervention can affect violence and crime				
	Overall evidence			
Intervention	**Correlated outcomes**	**Violence and crime outcomes**	**Evidence from LAC**	**Mechanisms**
Workforce development programs	🟡	🟡	🟡	Improved learning and social-emotional skills can improve employment opportunities. Employment can affect violence and crime through an incapacitation effect, by increasing the opportunity cost of engaging in criminal behavior and through peer effects. Improved social-emotional skills can directly reduce risky, violent, and criminal behaviors.

Legend: ● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; 🟡 = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◐ = weak body of evidence; ∅ = no body of evidence.

The evidence summary in this box highlights the strongest and most promising evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.

A.　Program description

Youth unemployment is a critical global challenge. A literature review reveals broad consensus that joblessness early in a career has lasting consequences, not only for young people and their families, but also for society as a whole. Research indicates that prolonged or repeated periods of early joblessness can impose a lifetime earnings penalty of up to 20 percent and lead to more joblessness later in life (Gregg and Tominey 2005). The global scale and lasting consequences of youth unemployment have prompted the rollout of many workforce development (WFD) programs for youth around the world.

WFD programs are typically offered (1) through vocational schools as part of the formal education system, (2) by service providers or centers as technical or vocational training outside the formal education system, or (3) by potential employers through on-the-job training opportunities. WFD programs are designed to improve the skills and workplace preparedness of youth to make them more desirable to employers. They accomplish this both by working directly with youth and with businesses and training centers to ensure the youth WFD programs align with their labor force needs. WFD programs also often offer labor market bridging to help youth find new or better employment (Fox and Kaul 2017), but they do not create jobs themselves.

Technical vocational training, also referred to as technical vocational education and training (TVET), is a core component of most WFD programs. The trainings typically incorporate programming to facilitate cognitive skills development and build the skills necessary for specific fields or occupations of interest. Technical vocational training programs can be short-term programs lasting less than six months, or they can last longer. The training can be conducted within the formal schooling system, as an alternative path at the secondary level, or in the non-formal sector. Training completion often results in a formal technical qualification or an industry-recognized certification (World Development Report 2018).

In Table XX.1, we summarize the key program elements, typical target age group, characteristics of the targeted beneficiaries, and goals of workforce development programs.

Table XX.1. Summary of workforce development programs: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
Workforce development programs	Youth ages 15 to 30	Programs often target unemployed youth; school dropouts; youth from marginalized, disadvantaged, or high-crime communities; and youth at risk of getting involved with gangs or violent extremist networks	Training to develop social-emotional skills (often called "soft" or "life" skills in the WFD literature); cognitive behavioral therapy; workforce readiness / on-the-job training; other complementary components	To improve technical vocational skills and social-emotional skills to help youth improve their chances for obtaining either new or better employment

Most WFD programs have multiple components that offer additional training and support beyond technical vocational training. Typically, WFD programs include one or more of the following extra components:

- **Training to develop social-emotional skills (often called "soft" or "life" skills in the WFD literature).** A key best practice of WFD programs is to complement technical vocational training with training that develops social-emotional skills WFD programs tend to focus on specific social-emotional skills that labor market studies and surveys of employers have revealed to be important for success in the labor market. Employer surveys in different countries, including the United States and LAC region, consistently found that employers value a work ethic, communication skills, problem-solving ability, honesty and integrity, dependability, responsibility, motivation, self-concept, and the ability to work well with others (Kautz et al. 2014; Bassi et al. 2012; Blom and Hobbs 2007; González-Velosa et al. 2012). However, there is no clear consensus on which social-emotional skills are the most critical for success in the workforce. Recently, a multifaceted study relied on an extensive review of research and input from a variety of stakeholders—including researchers, WFD implementers, employers, and youth—to identify the following five critical skills: social skills, communication skills, higher-order thinking (including problem solving, critical thinking, and decision-making), self-control, and positive self-concept (Lippman et al. 2015).

  Programs designed to help youth start their own businesses also focus on developing the social-emotional skills important for entrepreneurial success, including self-regulation that promotes good planning; decision making and savings behavior; internal locus of control as a measure of a person's belief that the future is determined by the decisions they make; and risk-taking willingness or tolerance, specifically as it pertains to financial and business decisions (De Mel et al. 2010).

- **Cognitive behavioral therapy (CBT).** WFD programs in the United States, Liberia, and Honduras for youth who have been involved in crime and violence or are at high risk of becoming involved are implementing CBT components because of their proven

effectiveness with these youth.[144] A growing body of evidence indicates that CBT focused on specific social-emotional abilities, including self-regulation and self-concept, can be an effective way to decrease participation in crime and violence for at-risk youth (Blattman and Ralston 2015).

- **Workforce readiness/on-the-job training.** The most promising technical vocational training programs are combined with on-the-job training components, including apprenticeships and internships. These components directly connect youth with potential employers and give them relevant job experience (Bertrand et al. 2017a).

- **Other complementary components.** Often, WFD programs offer basic educational support, promote entrepreneurship and civic engagement, and include peace-building activities. Basic educational components can include financial or in-kind support for completing formal basic education, and referrals to basic education service providers or programs (see Chapter XXI for the evidence on complementary basic education, accelerated education programs, and adult basic education; and Chapter XVI for evidence on financial support that helps students go to school). Programs that promote entrepreneurship are intended to help youth become self-employed, either in the formal or informal sector. Cash or credit programs combined with training have been shown to be effective, although usually only in the short term. Self-employment programs are important in Central America given the prevalence of small businesses (*microempresas*) and the high rates of employment in the informal sector. These programs can offer training in the principles of entrepreneurship and in business skills and provide initial capital to start a business. Youth civic engagement and peace-building activities are intended to help youth take on roles of responsibility and leadership within their communities. Those activities also are designed to foster positive ties between youth and communities that can outlast the program. Peace-building activities are specifically implemented as part of WFD programming in conflict-affected countries and often include activities such as engaging youth in local decision-making, encouraging their participation in community debates on extremism, promoting interfaith dialogue, and registering voters (De Azevedo et al. 2018).

Theory of change. WFD programs should improve technical vocational skills and social-emotional skills that youth need improve their chances for obtaining either new or better employment. Each of these can affect violence and crime through different mechanisms we discuss in Chapter II. Employment can have an *incapacitation effect* on crime by crowding out time that youth might have otherwise spent engaging in criminal activities. Better employment opportunities with a higher income also discourage youth from participating in crime by increasing the *opportunity cost* of engaging in criminal behavior instead of earning a formal income. Better jobs can give youth an opportunity to interact with peers who positively influence their behavior, thus potentially affecting violent and criminal behavior through a *peer effect*.

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[144] As described in earlier chapters, CBT is a therapeutic approach used to treat a variety of harmful beliefs and behaviors such as impulsivity, anger, and depression. The first part of this approach involves making people aware of their harmful automatic patterns of thinking or behaving and challenging them. The approach then involves work to disrupt these patterns of thinking and foster better ones by having people practice new skills and behaviors (Blattman and Ralston 2015).

Furthermore, the social-emotional skills covered by WFD programming, such as self-regulation and positive self-concept, may help keep youth away from risky, violent, and criminal behaviors.

Target beneficiary profiles. WFD programs typically are designed for disadvantaged youth ages 15 to 30. This may include unemployed youth; school dropouts; youth from marginalized, disadvantaged, or high-crime communities; and youth at risk of getting involved with gangs or violent extremist networks. In Chapter II, we discussed how youth can be classified into different risk levels based on their likelihood of engaging in or becoming victims of criminal or violent behavior. Some WFD programs specifically offer post-release technical vocational training to youth who have been incarcerated in connection with a criminal charge. Most of these programs typically last between a few weeks and a few months, and are often paired with employment coaching or counseling to help youth transition from being incarcerated to being employed (Newton et al. 2018). Some WFD programs conduct risk assessments to determine a prospective participant's eligibility and or to help decide which programs each beneficiary should receive (Hare et al. 2018; see Appendix C for information on measures of risky behavior outcomes). Typically, youth who are at higher risk require extra support, including longer programming or more individualized WFD components.

B. Findings from the evidence review

There is a growing body of evidence on the impacts WFD programs have on violence and crime outcomes and correlated factors. In Table XX.2, we summarize the body of evidence on these outcomes for HICs, LMICs, and the LAC region. This evidence reflects findings from our foundational literature review and our bibliographic search of studies in LMICs and in LAC countries (as described in Chapter III). Appendix U has more information on all studies included in our review. The body of evidence largely consists of individual studies, because most systematic reviews on WFD programs only examine standard education, employment, and earnings outcomes. Our search process identified 2,674 studies, of which 26 were eligible for inclusion in this report. Six were in HICs, and 20 were in LMICs. The studies used quantitative causal research designs to examine the effectiveness of WFD on outcomes of interest. Next, we discuss findings from the literature.

Table XX.2. Strength of evidence for impacts on outcomes of interest: workforce development programs

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environmental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Workforce development (WFD)	HICs	🟡	🟡	🟡	🟡	🟡	🟡
	LMICs	🟡	∅	🟡	🟡	◖	∅
	LAC	🟡	∅	🟡	🟡	🟡	∅

Note: Among the studies located through the global foundational literature search, bibliographic literature search in LMICs and LAC, and global grey literature searches, 26 were eligible for inclusion.

◖ = moderate body of evidence with positive findings; 🟡 = mixed findings in emerging or larger body of evidence; ∅ = no body of evidence.

HICs. **There are three large experimental evaluations from the United States that provide moderate evidence with mixed findings, but mostly insignificant impacts of WFD programs on violence and crime outcomes, correlated behaviors, and social-emotional skills.** Schochet et al. (2001) conducted a randomized evaluation of the Job Corps program, the United States' largest residential training program for disadvantaged youth ages 16 to 24. The program offers technical vocational and social-emotional skills training, academic education, residential living, health care and health education, and counseling. The evaluation found that Job Corps did not affect measures of risky behavior, but it did reduce arrests, conviction rates, and incarceration time. During the 48-month follow-up period, 29 percent of youth in the treatment group were arrested, compared to 33 percent of youth in the control group. The benefit-cost analysis of the Job Corps program focused on a variety of benefits, including the benefit of fewer crimes committed by or against participants, and concluded that societal benefits exceed program costs by almost $17,000 USD per participants (McConnell and Glazerman 2001). Nevertheless, programs like Job Corps would be hard to implement in LMICs given their relatively high cost, which for the research sample of Job Corps participants was estimated to be $14,898 per participant.

The evaluation of the National Guard Youth ChalleNGe program is another rigorous evaluation of a U.S. residential WFD program (Millenky et al. 2011). The 17-month program is for school dropouts ages 16 to 18 and consists of a "quasi-military" two-week orientation and assessment period followed by a 20-week residential phase and a post-residential phase.[145] Three years after participants entered the study, Millenky et al. (2011) did not find any statistically significant impacts of the program on self-reported delinquency and arrests or convictions. Miller et al. (2018) conducted a nationwide experimental evaluation of the YouthBuild program, which is for school dropouts ages 16 to 24 and offers 6 to 12 months of educational services (focusing on reaching high-school equivalency), technical vocational training, youth development services,[146] and supportive or transitional services.[147] The evaluation of YouthBuild found that the arrest and conviction rates of program participants and the control group were not significantly different four years after participants completed the program, and self-esteem measures were not significantly different either. However, YouthBuild did increase civic engagement, mostly in the form of volunteer work done through the program (Millenky et al. 2011). Of these three WFD programs, Job Corps appears the most promising for impacting violence and crime outcomes. However, because it was designed for populations similar to those in the ChalleNGe and YouthBuild programs, and included a comparable package of components (except that YouthBuild did not have a residential component), it is difficult to isolate which specific components might have made it more effective.

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[145] The residential phase focuses on the following eight core components: leadership, responsible citizenship, service to the community, life-coping skills, physical fitness, health and hygiene, job skills, and academic excellence. This phase was followed by a post-residential phase that included a mentoring program.

[146] Including leadership training in the classroom and through formal and informal leadership roles within the program, and service to the community.

[147] Including life skills training, counseling, case management, workforce preparation, stipends, and up to one year of follow-up support services.

A few rigorous studies in the United States that examine the impact of post-release technical vocational training and employment programming on re-offending found mixed results, with mostly insignificant effects. The programs covered by these studies focus on youth (age 15 to 30) and older adults (over age 30) who have been arrested, convicted, or incarcerated in connection with a criminal charge (Visher et al. 2005; Newton et al. 2018; Schaeffer et al. 2014). Visher et al. (2005) conducted a quantitative meta-analysis of eight random assignment studies on employment programs for ex-offenders, and found that participating in these programs does not reduce the incidence of recidivism. Schaeffer et al. (2014) used an RCT design to evaluate the impact of Community Restitution Apprenticeship-Focused Training (CRAFT), a vocational and employment training program in the building sector for high-risk juvenile offenders ages 15 to 18. They found that participating in CRAFT had no impact on measures of substance use and self-reported measures of participation in criminal activity. Most recently, Newton et al. (2018) conducted a systematic review of seven different rigorous studies in the United States and found mixed results for the impacts of these programs on recidivism. Some reviewed studies found positive reductions on recidivism, but others found no statistically significant effects on this outcome. The review did find that high-risk offenders and prisoners who enrolled soon after release were less likely to recidivate after participating in these programs. It also identifies (1) pre-release services that prepare inmates for productive lives after release, and (2) cognitive skills training designed to change behavior attitudes, and dynamic risk factors as key program features associated with the best outcomes. Because there are differences in outcomes for beneficiaries with different characteristics, the review also suggests using selection criteria such as risk of recidivating, employment prospects, and age to identify those most likely to benefit from education and training.

There is limited evidence on WFD programming's potential for impact on school violence and environmental outcomes. Most recently, an external review (Berk et al. 2018) of the Job Corps program identified restorative practices and school-wide positive behavioral interventions and supports (SWPBIS) as evidence-based practices that the program might consider adopting to create a safer, more supportive WFD training environment. Restorative practices use a non-punitive approach to conflict resolution and preventing violence (Berk et al. 2018). Fronius et al. (2016) review several descriptive studies on restorative practices in U.S. school settings with documented decreases in student violence. While school-wide positive behavioral interventions have only been proven effective through rigorous evaluations in elementary school settings (Horner et al. 2009; Bradshaw et al. 2010), descriptive studies offer insights on its applicability in high schools and juvenile justice facilities (Flannery et al. 2014; Johnson et al. 2013). Chapter X has more evidence on SWPBIS and restorative practices.

LMICs. **There is a moderate amount of mixed evidence, with mostly positive or insignificant effects, in LMICs on the impact of WFD programs on social-emotional abilities**. Two rigorous evaluations found statistically significant positive effects on youth's social-emotional abilities within a few months of their completing WFD training (Chakravarty et al. 2015; Bertrand et al. 2017b). In Nepal, Chakravarty et al. (2015) examined the impact of the Employment Fund, which gave women technical vocational training, job placement services,[148]

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[148] A subset of Employment Fund trainees receive a short course in basic business skills.

and life skills training.[149] The evaluation found statistically significant positive effects on participants' self-regulation and self-confidence scores. Two rigorous evaluations in West Africa and one in the Philippines found that a few months of WFD training had significant effects on a subset of the social-emotional abilities that were measured (Rosas et al. 2017; Adoho et al. 2014; EDC 2017). For example, in Sierra Leone, Rosas et al. (2017) evaluated the impact of the Youth Employment Support Project (YESP), which offered youth technical vocational training, on-the-job training, and training on entrepreneurship and business development targeting both cognitive and social-emotional skills .[150] Less than a year after the end of the YESP, the evaluation found significant positive impacts on impulse control, internal locus of control, and multitasking ability, but no effect on risk tolerance. Two other rigorous evaluations found no medium-term impacts of WFD training on social-emotional abilities (Bertrand et al. 2017b; Bausch et al. 2017). In Côte d'Ivoire, Bertrand et al. (2017b) evaluated the impact of a seven-month public works program (in public infrastructure improvement) for low-skilled youth ages 18 to 30 who were unemployed or underemployed. Four to five months after the start of the program, the evaluation found statistically significant positive effects on well-being and behavior indices, but 12 to 15 months after the end of the program, only the effects on well-being persisted. In Morocco, the experimental evaluation of a month-long to three-month–long technical vocational training program, 100 Hours to Success, did not find any statistically significant effects on self-reported perspectives pertaining to life skills, self-efficacy, and willingness to take risks three years after training completion (Bausch et al. 2017).

There is also moderate evidence from two rigorous impact evaluations and one less rigorous study in LMICs on the positive impact of WFD programs on violence and crime outcomes and or risky and protective behaviors (Blattman and Annan 2016; Ivaschenk et al. 2017; Swedberg and Reisman 2013). In Liberia, Blattman and Annan (2016) looked at the effects of a program that combined agricultural training, capital inputs, and counseling (in some form of CBT) for Liberian ex-fighters.[151] Fourteen months after they completed the program, the study found that participants shifted their time use from illicit activities to work. Participants who did not receive any capital inputs but expected a future cash transfer instead had the greatest reductions in illicit and mercenary activities, which suggests that WFD programs providing a future cash incentive could be more effective.[152]

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[149] All women also received 40 hours of life skills training covering communication, leadership, and reproductive health.

[150] The program's entrepreneurship and business development training included a focus on four aspects of social-emotional skills: impulse control, captured by planning and decision making speed; polychronicity, or the ability to juggle multiple tasks; internal locus of control, measuring people's beliefs in their ability to influence events or outcomes; and tolerance for risk-taking, both in financial decisions and other general decision making.

[151] Counseling took the form of "life skills" classes held three times a week in groups of 20. A facilitator held lectures and group discussions and focused on reframing what had happened during wartime and how to peacefully deal with symptoms of stress and anger. It must also be noted that there is no consensus on whether the type of therapy provided to the ex-fighters can be properly called CBT, because it is not clear whether participants also practiced new skills and behaviors—learning by doing.

[152] This subset of participants were awaiting a cash transfer from the implementer to compensate them for a supply disruption in animals that were supposed to be part of the capital inputs provided to participants.

In Papua New Guinea, Ivaschenk et al. (2017) presented difference-in-differences impact estimates of the implemented Urban Youth Employment Project. The project offered out-of-school and unemployed youth classroom and on-the-job training. The study found that 12 to 18 months after completion, the project lowered levels of aggressive behavior among participants. Participants also became less likely to hang out with friends at night, have a best friend involved in crime, and have friends involved in fights or robberies. Swedberg and Reisman (2013) conducted a non-rigorous evaluation of three livelihood training programs for ethnic Somali youth, with messaging on the role of youth in the community: The Kenya Transition Initiative (KTI-E), the Garissa Youth project (G-Youth), and the Somali Youth Livelihood Program (SYLP). The evaluation found positive effects on community engagement measures for participants of KTI-E and G-Youth, but mixed effects on these measures for SYLP participants.

However, four rigorous LMIC studies that focus on WFD programs designed to change the sexual behavior and victimization of at-risk females found almost no effects on these outcomes (in the risky behavior domain). Of the four studies, only Bandiera et al. (2014), found significant positive effects on a subset of sexual behaviors: evaluating the impact in Uganda of the Empowerment and Livelihood for Adolescents (ELA) program for females ages 14 to 20. The ELA program offered female participants technical vocational training (courses on income-generating activities) and life skills training.[153] Two years after the start of the program, the evaluation found the program had a statistically positive effect on participants' always using a condom if they were sexually active. The program had no effect on participants' using other contraceptives if they were sexually active or on the likelihood of having sex unwillingly in the past year, however both of these outcomes are likely to be influenced by partners. The other three studies also examined the effects of technical vocational and life skills training, but did not find any effects on being victims of violence (physical or sexual) and or any sexual behavior, including use of any type of contraception by those who said they were sexually active (Adoho et al. 2014; Chakravarty et al. 2015; Dunbar et al. 2014).

There is a moderate amount of mixed evidence from three LMIC studies on WFD impacts related to protective behaviors. In the Philippines, a quasi-experimental evaluation of the MyDev project, which offered technical vocational and social-emotional skills (life and leadership skills) training[154] to conflict-affected youth, found statistically significant positive effects on participants' perceptions of, satisfaction with, and frequency of involvement with the community. Although the project also had a positive impact on participants' satisfaction with the government, it did not improve their perceptions of the government (EDC 2017). In Morocco, the evaluation of the 100 Hours to Success program (detailed above) also examined but did not find any statistically significant program effects on participants' community engagement outcomes, including whether they had ever volunteered, their satisfaction with their role in the community, and their performance on a community problem-solving scale. In Kenya, Hicks et al. (2016) rigorously evaluated the impact of a voucher program for vocational training that focused on out-of-school youth ages 17 to 28. The evaluation found mixed evidence on the following

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[153] Key topics covered during the life skills training included sexual and reproductive health, menstruation and menstrual disorders, pregnancy, and sexually transmitted infections. Technical vocational and life skills trainings were provided in adolescent development clubs in each community.

[154] MyDev also helped youth access basic education and high school equivalency courses.

protective behaviors: participants' support for the Kenyan government, political engagement, and trust of others.

LAC. **In the LAC region, there is emerging evidence showing mixed impacts of the effect of WFD programming on social emotional skills and risk behaviors.** In the Dominican Republic, Ibarraran et al. (2014) conducted an impact evaluation of the *Juventud y Empleo* program, which offered job training courses and basic or social-emotional skills training, followed by an internship in a private-sector firm. The program had a statistically significant positive effect on the total Social and Personal Competencies Scale (CPS for is Spanish name: *Escala de Competencias Personales y Sociales*) score and total Grit Scale, but no statistically significant effect on the Rosenberg Scale, a standard method for measuring personality traits and social-emotional competence (see Appendix B for details). The study's benefit-cost analysis also found that *Juventud y Empleo* had an impact of preventing one pregnancy that would otherwise occur per 22 teenage female beneficiaries, and the cost of preventing a single teenage pregnancy would range between $10,000 and $66,000 USD. In Peru, a rigorous evaluation of a similar program (*Projoven*) without a social-emotional skills component found no statistically significant effects three years after program completion on self-esteem, perseverance, and ambition scales (Diaz and Rosas 2016). In Brazil, Calero and Rozo (2016) examined the impact of the *Galpao Aplauso* program, which included six months of technical vocational and social-emotional skills training. Findings from both 5 and 13 months after training was finished indicated no statistically significant effect on social-emotional ability measures (CPS and Grit Scale), risky behaviors including substance use and participation in fights, or on a risky behavior summary index. The evaluation did find that program participants with higher social-emotional skills reduced their alcohol consumption and had lower rates of crime victimization. In Guatemala and Honduras, Social Impact (2018) used an RCT design to evaluate the impact of *A Ganar*, an integrated technical vocational training program for at-risk youth with in-classroom and sports-based field activities, internships, entrepreneurship workshops, and post-training employment search assistance. Findings 18 months after program completion showed mostly positive effects on the social-emotional skills of completers and mixed effects on participation in risk behaviors.

Four less rigorous studies in the LAC region found mixed effects of WFD programming on violent crime, risky behaviors, and social-emotional skills. One study compared the outcomes of trainees and completers of *A Ganar* in Saint Vincent and the Caribbean Youth Empowerment Program (CYEP) in Saint Lucia to similar technical vocational training programs in each country (Dexis Consulting Group and MSI 2013). The majority of participants from both A Ganar and CYEP reported that they were less likely to engage in risky behavior—56 percent and 78 percent, respectively. In Honduras, the Dexis Consulting Group (2018) conducted a pilot RCT of the *Empleando Futuros* for youth at primary, secondary and tertiary risk. The pilot evaluated the first phase of training, which included training on social-emotional skills and basic labor competencies plus CBT. Because not many youth finished the program, the study could only present descriptive findings, which showed that the average risk of being involved in violence doubled for the comparison group (n = 73), decreased slightly among training dropouts (n = 47), and increased by slightly more than a half among training completers (n = 15). In the Dominican Republic, Social Impact (2017) implemented a pre-post evaluation of the *Alerta Joven* project, which offers youth 15 different types of programs, including training in technical vocational skills, social-emotional abilities, entrepreneurship, and sexual health. The

study found mixed effects on participating in risky behavior (not using contraceptives, fights, and alcohol consumption) and committing violent crime. In Guyana, a post evaluation of Skills and Knowledge for Youth Employment, a technical vocational training program with social-emotional skills training and a mentorship component, revealed that training participants strongly agreed that the program improved their ability to stay out of trouble (De García et al. 2014).

C. Recommendations

1. Recommendations for future research

The current global body of evidence primarily focuses on the effectiveness of packages of WFD programs and does not look at the outcomes of interest in this report. Going forward, researchers and funders might consider focusing research on identifying opportunities to support research that disentangles the effects of specific WFD components or different combinations of components and evaluating the effectiveness of WFD programs focusing on violence and crime and correlated factors in LAC countries with high violence and crime.

2. Recommendations for investing in workforce development programs

Based on the global evidence, we recommend that policymakers and funders focus on the following:

- **Support the implementation of WFD programming with components focused on developing key social-emotional skills valued by the local labor market.** Most of the WFD programs with some positive effects on socio-emotional skills included components focused on the development of social-emotional skills (Rosas et al. 2017; EDC 2017; and Ibarraran et al. 2014). Evidence from labor market studies and employer surveys also reveals that employers value both learning and social-emotional skills. Therefore, in addition to providing relevant technical vocational training, WFD programs must also work to develop the social-emotional skills most valued by employers. As noted, those include work ethic, communication skills, problem-solving ability, honesty and integrity, dependability, responsibility, motivation, self-concept, and the ability to work well with others. An increasing number of WFD programs are engaging with local labor market actors at different stages of program implementation to make sure the training they provide is responsive to labor market needs. WFD programs that best adapt their programming to develop the specific skills valued by employers are more likely to be successful at helping youth find jobs—and potentially also at reducing their participation in crime and violence.
- **Fund programs that are designed to develop specific behaviors and character skills in order to decrease participation in crime and violence and increase protective behaviors.** Programs in both HICs and LMICs have been successful in decreasing the incidence of risky behaviors by focusing on specific behavior or skills (Schochet et al. 2001; Blattman and Annan 2016; and Swedberg and Resiman 2013). CBT is one key technique that has led to reductions in antisocial behaviors. Techniques such as CBT can be delivered to WFD program participants in individual or group therapy sessions led by therapists or trained program staff, or by volunteers. WFD programs can also integrate CBT elements within existing training and mentoring components.

XXI.   PROGRAMS FOR OUT-OF-SCHOOL CHILDREN AND YOUTH

Evidence summary and mechanisms through which intervention can affect violence and crime				
	Overall evidence			
Intervention	**Correlated outcomes**	**Violence and crime outcomes**	**Evidence from LAC/LMICs**	**Mechanisms**
Complementary basic education (CBE)	◖	∅	◖	Improved learning and social-emotional skills can increase educational attainment, which can improve employment and earnings as well as violence and crime in the long run. Improved learning and social-emotional skills can also improve protective and reduce risky behaviors which can reduce violent and criminal behaviors in the shorter and longer term.
Accelerated education programs (AEP)	🟡	◖	🟡	
Adult basic education (ABE)	◖	○	○	

Legend: ● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; 🟡 = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ∅ = no body of evidence.

The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.

A. Program descriptions

In this chapter, we review the evidence on how education programs for out-of-school children and youth[155] (OOSCY) affect participants' outcomes. According to UNESCO, 258.4 million children and youths of primary and secondary school age were out of school in 2018, with 59 million of primary school age (UNESCO 2019). In this review, we focus on three types of programs[156] that target these populations: complementary basic education (CBE), accelerated education programs (AEP), and adult basic education (ABE)[157]. These programs share common characteristics and goals, including acquisition and certification of basic skills and reintegration of target youths into the formal school system, technical or vocational training, or the labor market.[158] CBE, AEP, and ABE programs OOSCY by mitigating barriers to education and offering basic education with alternative approaches. In Table XIV.1, we summarize the key

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[155] This chapter focuses on those youth (including young adults up to age 29) who have not completed primary schooling. Those youth who have completed primary schooling are covered in the previous chapter on workforce development.

[156] We acknowledge that the labels for each of these interventions are flexible, evolving, and in some cases, disputed. For example, complementary basic education (CBE) may also be called alternative basic education (ABE), and the term CBE is also claimed by certain community-based education programs. Similarly, accelerated education programs (AEPs) may be described as accelerated basic education (ABE) or accelerated learning programs (ALPs). Adult basic education (ABE) programs also describe adult literacy programs (ALPs) and adult literacy and numeracy (ALN) programs. Here, we have chosen the terms that were most ubiquitous in the research we reviewed.

[157] USAID defines youth as ages 10-29. According to that definition, ABE programs serve both youth and adults.

[158] Workforce development programs (WFD) may also target out-of-school youths and offer basic education support. See Chapter XX for a review of the evidence on WFD. Secondary certification programs may also use accelerated education to advance learners. Such programs are reviewed in Chapter XIX, Secondary Certification.

program elements, typical target age group, characteristics of the targeted beneficiaries, and goals of dropout and expulsion prevention programs.

Table XXI.1. Summary of programs for out-of-school children and youths: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
CBE	Ages 6 through 17 years	Children who are out of primary school—or youths who have dropped out of primary school and are overage	Primary-level course series (sometimes compressed) based on or directly using the national curriculum	1. Primary-level skills acquisition and certification of formal education equivalency 2. Reintegration into schools (secondary) or technical training
AEP	Ages 10 through 18 years	Children and adolescents whose primary school career has been interrupted or never began	Accelerated, flexible, and typically primary-level schooling, adapted to learners' maturity and environment	1. Primary-level skills acquisition 2. Reintegration into either school, technical training, or stable livelihoods
ABE[1]	Ages 15 through 60 years	Illiterate or low-literacy adolescents and adults or those without other basic skills in numeracy and communication	Age-appropriate reading, writing, and arithmetic instruction, sometimes with vocational, family, or life skills elements	1. Functional (partial) or full literacy and numeracy and increased basic skills [a] 2. Improved livelihoods

[1] ABE includes adult literacy and numeracy programs.

[a] Defined below in the ABE section.

CBE programs are designed to help OOSCY overcome barriers to education access and gain basic skills equivalent to those developed in primary school.[159] Focusing on literacy and numeracy, these programs aim to improve the confidence and communication skills of beneficiaries (DeStefano et al. 2007).[160] CBE programs often use government curricula and vary in duration from nine months to three years (with the three-year program covering the basic skills typically gained in the full six years of primary education). In LMICs, CBE class size ratios are often smaller than the typical primary school ratios of 50 or more students per teacher and instead range between 25 and 35 students per teacher. In place of formally trained teachers, CBE implementers may recruit local high school graduates as facilitators—a staffing practice that can increase community buy-in and the amount of contact between instructors and participants. CBE programs can also increase the amount of contact between instructors and students because they provide flexible hours (including evening hours during labor-intensive

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[159] CBE programs tend to target basic skills development and do not typically emphasize comprehensive youth development. In this report, programs for OOSCY with social and behavioral supports are not considered in this chapter. The YMCA Youth Development Programme in Kingston, Jamaica, evaluated by Guerra et al. 2010) are e

[160] Literacy and numeracy programs for non–out-of-school children are considered a separate intervention category in this report (see Chapter V).

agricultural seasons) and involve fewer school holidays than traditional education (Longden 2013). Most CBE programs are designed for OOSCY ages 6 to 18 years, but several programs extend the age range. In Honduras, for example, the EDUCATODOS program offers CBE to participants as old as 78 years (EQUIP2 2006).

AEPs seek to help children and youths who are out of school or have missed years of schooling achieve primary education certification, gain literacy, numeracy, and life skills, and transition into further education, training, or livelihoods. AEPs are often, but not only, used in conflict and crisis environments (Myers et al. 2017, Nicholson 2006; Baxter et al. 2016).[161] To accommodate the unique needs of these OOSCY, AEPs typically use compressed curricula in longer learning sessions, with flexible evening hours and curricula customized to meet the abilities of older learners, though each program is constrained by policy and infrastructural factors. AEPs deploy standard government primary curricula or curricula developed by nongovernmental organizations (NGOs) or program implementers. Although AEPs are principally concerned with providing basic education in a compressed period, their curricula may include other elements as well. For example, the Accelerated Learning Program PLUS in Liberia included a life skills curriculum focused on entrepreneurship, family planning, HIV awareness, nutrition, violence prevention, and civic rights and responsibilities (Coyne et al. 2008). In areas where OOSCY have likely been exposed to conflict, AEP instructors often undergo sensitivity training in order to work more effectively with youth who have experienced conflict (for example, in northern Mali; Shah et al. 2017). Accelerated learning programs may also include teacher training in collaborative learning, which encourages children and youths to engage creatively and jointly with educational material (Baxter and Bethke 2009). Further, AEP principles emphasize the importance of learner-centered pedagogy, which acknowledges and seeks to address the varied needs of children and youths and can include paired learning, age-appropriate cognitive tasks, and active, motivating facilitation (rather than lecture) (Myers et al. 2017).

ABE programs seek to improve basic skills, such as literacy, numeracy, and fundamental communication, among adults who did not gain a full mastery of such skills during their primary school years. ABE programs provide age-appropriate learning environments and curricula that may vary across programs. For example, adult literacy programs focus on reading and writing, but other ABE programs might combine reading and writing with other topics such as functional arithmetic instruction (often referred to as adult literacy and numeracy programs or ALN programs) or nutrition, health, livelihoods, child-rearing, or agricultural best practices (Lauglo

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[161] Accelerated education/accelerated learning programs can also refer to initiatives in higher education or self-development tools. Here, we use the term to refer to the programs that serve children and youths who have been excluded from education as a result of conflict or crisis. Specifically, we use the definition from the Accelerated Education Working Group (AEWG): An "AEP is a "flexible, age-appropriate program, run in an accelerated timeframe, which aims to provide access to education for disadvantaged, over-age, out-of-school children and youth. This may include those who missed out on, or had their education interrupted by, poverty, marginalization, conflict and crisis. The goal of Accelerated Education Programs is to provide learners with equivalent, certified competencies for basic education using effective teaching and learning approaches that match their level of cognitive maturity" (AEWG Key Program Definitions). Further, we emphasize that an AEP is a "legitimate, credible education option that results in learner certification in primary education" (AEWG 10 Principles). See also Interagency Network for Education in Emergencies (INEE) for more background information on AEPs.

2001; Vorhaus et al. 2011).[162] For purposes of this review, we combine all of these variations of adult education programs under ABE.

Common theory of change. CBE programs, AEPs, and ABE programs can affect violence and crime through a variety of mechanisms. They seek to improve foundational skills and knowledge, which can improve OOSCY's cognitive skills in areas such as reading, writing, arithmetic, and communication, as well as their social-emotional skills such as self-awareness and self-management. In addition, CBE and AEPs can help OOSC complete primary education as a step toward reintegration into the formal education system, allowing OOSC to pursue more advanced levels of education or training and reduce the risk of engaging in criminal activities (through the incapacitation effect described in Chapter II). Continued educational engagement can be an important mechanism to reduce poverty and criminal behaviors, particularly for OOSC in Central America who are at risk of falling into the *nini* trap (from the Spanish *ni estudiando ni trabajando,* or neither studying nor working) described in Chapter I (Bangser 2013). Burde and co-authors (2015) argue that education systems in areas with high rates of violence can deploy CBEs to offer routines, safe spaces, and a sense of progress to OOSCY. These social-emotional, behavioral and environmental protective factors can support learners' continued development of social-emotional skills, particularly resilience, self-awareness and self-management, and prosocial behaviors. Developing basic academic (learning) and social-emotional skills can also improve a learner's confidence and help them develop protective behaviors that insulate the individual from criminal behaviors. These protective behaviors may include getting involved with community organizations, developing trust in community leaders, and creating stronger social networks. Finally, improvements in basic academic skills, along with associated certification and increased knowledge in topics such as family health and nutrition, can prepare program participants for more prosperous livelihoods and more stable futures (Baxter et al. 2016; NRC 2015), further reducing the likelihood of involvement in violent or criminal behavior.

Target populations. CBE programs, AEPs, and ABE programs seek to address educational and employment barriers experienced by OOSCY, beginning with barriers to formal schooling (UNICEF 2018c). Children in LMICs may experience intersecting barriers to formal schooling, including poverty; challenging geographies; conflict, insecurity, and instability; refugee status; gender discrimination; and poor infrastructure, limited educational resources (human, material, and financial), and low quality of curriculum and pedagogy (Educate a Child 2018). These barriers both in exclude children and youth from school and impede their reintegration.

B. Findings from the evidence review

1. CBE programs

The evidence of the effects of CBE programs on violence, crime, and associated outcomes is weak. CBE programs rarely undergo evaluation directly for impacts on violence or crime, but some emerging evidence indicates that they have positive effects on social-emotional abilities and protective behaviors. We summarize the evidence on the effects of CBE programs on

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[162] Unlike WFD programs (Chapter XIII), which explicitly prioritize the placement of participants in the labor market, ABE programs tend to prioritize cognitive gains (especially literacy, numeracy, and communication), with vocational skills as optional, secondary targets.

violence, crime, and correlated outcomes in Table XXI.2. Our search process for CBE (and ABE[163]) programs identified 359 papers, of which 4 were eligible for inclusion in this section, including 2 studies in LAC and 2 in LMICs.[164] Appendix V presents additional information about all studies of CBE programs included in this review, including information on the age group of interest and type of activities.

Table XXI.2. Strength of evidence on the impacts on outcomes of interest: CBE programs

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
CBE programs	HICs	⊖	⊖	⊖	⊖	⊖	⊖
	LMICs	◖	◖	◖	⊘	⊘	⊘
	LAC	◖	◖	◖	⊘	⊘	⊘

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 4 were eligible for inclusion.

◖ = weak body of evidence; ⊘ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. Our global foundational and grey literature searches did not identify studies that examined the impacts of CBE programs on violence, crime, and correlated outcomes in HICs.

LMICs. **We found only two qualitative studies that assessed the impacts of CBE programs in LMICs on violence, crime, and associated domains, both with positive findings.** For example, informal interviews with community leaders and local program chairpersons in Uganda provided qualitative evidence on the impacts of five CBE programs on risky and protective behaviors, social-emotional skills, and environmental factors (Ilon 2002). These CBE programs were similar in both duration (three years) and target population (OOSCY ages 6 through 17 years who were excluded from school because of poverty or distance) but varied in curricula. For example, programs in consolidated rural communities and Kampala used the government's universal primary education (UPE) curriculum, but the Alternative Basic Education for Karamoja (ABEK) did not rely on the UPE curriculum. Across the five CBE programs, community leaders suggested that the programs produced a strong sense of solidarity among participants and their families, community cohesion, and community pride in the work of facilitators and in student learning. Leaders reported that children in the Karamoja and Kampala CBE programs appeared to have become cleaner, neater, and more respectful of their elders (Ilon 2002). Munthali and co-authors (2015) conducted a qualitative evaluation of a nine-month CBE

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[163] Our original search strategy combined CBE and ABE terms into one search. We later separated the results by intervention type.

[164] Given our foundational literature search, which established that CBE programs as defined above are not offered in HICs, we did not search for documents relating to interventions in HICs.

program in Malawi that focused on literacy. United Nations Children's Fund (UNICEF), United Nations Population Fund (UNPFA), United Nations Educational, Scientific, and Cultural Organization (UNESCO), and World Food Programme (WFP) funded the program as part of a broader Joint Program for Adolescent Girls. The study found improvements in self-reported confidence in social situations and general self-esteem among OOSC girls ages 10 to 19 years four years after program outset.

LAC. **We found two qualitative evaluations in LAC of the EDUCATODOS CBE program in Honduras, which described positive associations with outcomes in domains correlated with violence and crime.** The program, established in 1996 with substantial support from USAID, targeted out-of-school children, youths, and adults who had not completed grade 6. The program delivered a compressed, three-year, complete primary curriculum. In 2000, the program expanded to offer a curriculum for grades 7 through 9 for young people who had completed primary school. A 1997 evaluation of EDUCATODOS indicated that adolescents and young adults completing the EDUCATODOS program became more active in community issues and reported higher self-confidence and a positive self-image; in addition, they noted that they had acquired the skills needed to "work more effectively with their families and children." The details of the study design were not available (Spaulding 2002). A later qualitative evaluation found that female participants and facilitators gained self-esteem as a consequence of the program, along with greater control over their social and economic lives (EQUIP2 2006). However, EDUCATODOS evaluations show high program dropout among indigenous children and youth, suggesting that CBE curricula developed at a national level may be insufficient to meet the needs of communities most marginalized from traditional education systems (Spaulding 2002).[165]

2. AEPs

The evidence for the impact of AEPs on social-emotional skills, risky and protective behaviors, violent crime, and nonviolent crime suggest that positive effects of the programming on those outcomes may be possible, but the strength of the evidence is weak. We also found no evidence on school violence or environmental factors. We summarize the evidence on the effects of AEPs on violence, crime, and correlated outcomes in Table XIV.3. Our search process for AEPs identified 33 papers, of which 7 were eligible for inclusion in this section, including one synthesis of qualitative studies, 3 studies in LAC, and 4 in LMICs. Appendix V presents more information about all studies of AEPs included in this review, including information on the age group of interest and type of program activities.

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[165] The YMCA Youth Development Programme in Kingston, Jamaica, targeted OOSCY with comprehensive youth development, including remedial education (Guerra et al. 2010). The intervention significantly reduced participants' aggressive behavior. Because this program went beyond basic education and was designed to "promote the values and behaviors associated with YMCA principles", the intervention is not considered CBE and is instead included in Chapter VI, Teaching at the Right Level.

Table XXI.3. Strength of evidence on the impacts on outcomes of interest: AEP

		Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
Intervention	Region	Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
AEP	HICs	⊖	⊖	⊖	⊖	⊖	⊖
	LMICs	◖	∅	◖	◖	◖	∅
	LAC	◖	∅	🟡	∅	◖	∅

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 7 were eligible for inclusion.

🟡 = mixed findings in emerging or larger body of evidence; ◖ = weak body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. Our global foundational and grey literature searches did not identify studies that examined the impacts of AEPs on violence, crime, and correlated outcomes in HICs.[166]

LMICs. **Qualitative evidence from LMICs suggests that AEPs may have positive impacts on violent and nonviolent crime, social-emotional skills, and risky and protective behaviors, but the strength of the evidence is weak.** Petersen (2013) and Nkutu et al. (2010) cite qualitative evidence to argue that AEPs are positively associated with improvements in participant behaviors and community health, thus reducing the risk of violence and crime. The authors note that, in Liberia, participants in the Ministry of Education/UNICEF AEP felt a greater sense of normalcy, safety, and social cohesion in communities affected by the civil war. Conflict resolution and decision-making skills improved among students in the program (many of whom were ex-combatants), and the implementing agency (Norwegian Refugee Council) registered increases in prosocial behaviors. Coyne et al. (2008) conducted focus groups with accelerated-learning program participants in Liberia, many of whom were children associated with fighting forces, returnees, displaced children, and young mothers who were victims of sex crimes during the war. The focus groups revealed that, after the program, participants reported a reduction in domestic and public violence, criminal activity, and drunkenness as well as an increased sense of purpose. Limited correlational analyses showed that ALP completers achieved outcomes similar to those of conventional school learners in primary-level academic assessments. Focus group discussions also indicated that participants felt a greater sense of responsibility than before the program, motivating them to participate in conflict resolution, which, in their opinion, led to reduced public and domestic violence (Manda 2011). Nicholson (2006) cites qualitative evidence to make similar observations of AEP effects on participants and communities in post-conflict environments.

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[166] As defined by the AEWG, AEPs are designed to serve children and youths excluded from formal learning systems as a consequence of crisis, conflict, or another severe condition, such as extreme poverty. Therefore, HICs offer little evidence on these interventions.

LAC. **Evaluations of AEPs in LAC likewise suggest that AEPs may have positive effects on nonviolent crime and social-emotional skills, but the evidence is weak.** In Colombia, children who have experienced displacement as a result of civil conflict, drug violence, and natural disasters are eligible to participate in a government-sponsored AEP, the *Aceleración de Aprendizaje* (Accelerated Learning) program.[167] Independent studies of the program provide evidence from AEP teachers and students indicating that the program enables participants to develop emotional self-regulation, increase self-esteem, and improve communication skills (Ramos Cuesta 2016; Acevedo and Hernandez-Wolfe 2014). These studies, however, are purely qualitative and prevent us from drawing conclusions about the impact of AEPs. They also do not provide evidence on the associations between social-emotional outcomes and specific program mechanisms (such as the curriculum, safe environment, and peer relationships).

The evidence of the impact of AEPs in LAC on risky and protective behaviors is more mixed, with the strongest evidence showing no impacts. In Panama, researchers used a quasi-experimental design to evaluate the impact of an AEP on child labor and engagement in extracurricular programs among working, indigenous out-of-school children (Andisha et al. 2014). This five-day-per-week, year-round program was designed to help OOSC in extreme poverty overcome barriers to primary education completion and to reduce rates of child labor in indigenous communities. Researchers found that, even though the AEP significantly reduced children's time spent on economic activities, it had no effect on time spent in extracurricular programs. Extracurricular involvement, as noted in Chapter II, is an indicator of protective behaviors linked to a lower likelihood of exposure to violence and crime. Comparing the outcomes in economic activity and extracurricular engagement, the authors attributed the significant reduction in child labor hours to the fact that children simply had fewer hours in the day to work because of their commitment to the AEP.

3. ABE programs

Despite the lack of ABE evaluations that explored violence and crime outcomes, emerging evidence suggests that these programs have positive effects on social-emotional abilities, environmental factors, and the protective behaviors of participants. We summarize the evidence on the effects of ABE programs on violence, crime, and correlated outcomes in Table XIV.4. Our search process for ABE (and CBE[168]) programs identified 359 papers, of which 11 were eligible for inclusion in this section, including one study in LAC, 8 in LMICs, and 2 in HICs. Appendix V includes more information about all studies of ABE programs included in this review, including information on the age group of interest and type of program activities.

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[167] Program partners and funders purport that the program not only improves cognitive outcomes to support subsequent educational reintegration but also "strengthens children's self-esteem and capacity to overcome challenges and psychosocial problems (resilience)" (Gutierrez y Puentes 2009). However, an explicit methodology for identifying those outcomes was not specified, and we could not identify further large-scale evaluations of the Colombian program.

[168] Our original search strategy combined CBE and ABE terms into one search. We later separated the results by intervention type.

Table XXI.4. Strength of evidence on the impacts on outcomes of interest: ABE programs

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environmental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
ABE programs	HICs	moderate (half blue)	moderate (half blue)	emerging (open)	mixed (yellow)	mixed (yellow)	no evidence identified (⊖)
	LMICs	emerging (open)	emerging (open)	emerging (open)	no body (∅)	no body (∅)	no body (∅)
	LAC	weak (half gray)	weak (half gray)	no body (∅)	no body (∅)	no body (∅)	no body (∅)

Note:　Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 11 were eligible for inclusion.

◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ◯(yellow) = mixed findings in emerging or larger body of evidence; ◖(gray) = weak body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **We found moderate evidence on the impact of ABE programs on violence and crime outcomes in HICs, but the findings are mixed.** Vorhaus and co-authors (2011) reviewed rigorous evidence on ABE programs across Organisation for Economic Cooperation and Development (OECD) countries and found mixed evidence of the impact of participation in ABE programs on recidivism rates across programs targeting ex-offenders. Programs across Britain showed limited evidence of efficacy in reducing recidivism, but completion of an adult basic education program in Canada reduced recidivism rates by 11.6 percentage points.

The evidence from HICs of the impact of ABE programs on social-emotional skills and family and community environmental factors is also moderate, but the findings show consistently positive impacts. Vorhaus and co-authors (2011) found that ABE programs demonstrated strong positive effects on social-emotional skills, including interest in learning, self-efficacy, self-esteem, and confidence. Using a QED, Meadows and Metcalf (2008) likewise showed that learners in the Skills for Life ABE program in England—as compared to matched nonlearners—reported significantly greater self-esteem, confidence in their literacy and numeracy skills, and a commitment to further education and training after completion of the intervention. Vorhaus and co-authors (2011) also found evidence of improvements in family and community environmental factors. Across several studies, program participants reported more confidence in supporting their children's education and in managing family affairs. In addition, they demonstrated stronger social capital through their participation in new networks and social activities and through their level of involvement in community affairs.

For risky and protective behaviors, emerging evidence from HICs demonstrates the potential for positive impacts of ABE programs. Vorhaus and co-authors (2011) identified one study, in which men aged 21 through 34 years, who significantly improved their literacy and numeracy abilities, were twice as likely to report an interest in politics (a protective behavior inversely associated with exposure to violence and crime) as compared to their non-improver peers. At the same time, women who improved their literacy and numeracy abilities were almost twice as likely to demonstrate community engagement (as measured by recently participating in

a rally or demonstration or signing a petition) and 14 percentage points more likely to have been involved in a community organization (55 percent of women who improved compared to 41 percent of women who did not). The results suggest that a participant's responsiveness to an ABE program may also indicate a greater potential for positive behavior change.

LMICs. **Emerging evidence of ABE programs in LMICs demonstrate largely positive impacts on social-emotional, environmental, and risky and protective behaviors.**[169] Recent quasi-experimental evidence from India suggests that adult literacy programs such as the TARA Ashkar Plus can produce strong, positive impacts on social-emotional skills, the family environment, and risky and protective behaviors (Chadha and Wadhwa 2018). The authors used a propensity-score matching design and found that program participants (women aged 15 years and older) were significantly more likely than similar women not in the program to be engaged in community groups and significantly more likely to report that victims of domestic abuse should seek help outside the family from local leaders and police. The same analysis showed, however, that treated women were no more or less likely than their untreated peers to trust people of different castes and religions.

Qualitative data collected in the same evaluation indicated that treated women felt that the program developed their confidence in advocating for their children at school, engaging with the police and village leaders, and joining public debate through community groups. Evidence from focus groups with participating newly literate women indicated that the program helped them both support their children and learn from their children through the children's schoolwork. The authors suggest that adult basic education may provide multigenerational effects through improved advocacy on the part of young mothers and improved parent-child bonding.[170] Four qualitative studies of ABE programs across several LMICs (Awgichew and Seyoum 2017; Lauglo 2001; Raupp and Ramos-Mattoussi 2012; Thomson 2002) further support these findings.

Using a quasi-experimental design, Kagitcibasi and co-authors (2005) showed that women exposed to the Functional Adult Literacy Program in Turkey exhibited significantly higher levels of social participation than individually matched, untreated peers. (Treated women also demonstrated significantly higher self-efficacy and family cohesion indicators than they did in their pre-treatment data.) We need to approach these results with caution, however, because the untreated comparison group had slightly higher education and income levels than did members of the treatment group and therefore may not provide a valid counterfactual to the treatment group.

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[169] The evidence included here on adult basic education and literacy programs does not disaggregate results by age group, meaning that treatment effects may represent the mean gains made by participants aged 15 through 60 years, for example, rather than participants only up to age 29 years (the upper limit of our population of interest). Therefore, adult program findings should be interpreted with caution. It is important to note that evidence before 2000 suggested that ABE programs may be positively associated with improvements in self-confidence, community engagement, voting, health, and aspirations for one's children (Kumari 1999; Subasi and Kehrberg 1998). These papers are useful for framing the field of adult literacy, but our review focuses on studies published after 2000.

[170] Programs that provide literacy and numeracy skills through information and communication technology are increasingly popular (Deshpande et al. 2017). However, evaluations of these programs appear to be limited to measuring impacts on cognitive outcomes.

We found two correlational studies that present mixed findings. A study of adult literacy programs in Nigeria supports the findings that learning to read and write positively affected social-emotional outcomes, including political involvement, views on whether women could occupy leadership positions, and measures of psychological empowerment (Olomukoro and Adelore 2015). Focus group discussions confirmed that women in the program had higher self-esteem as a result of their literacy training. A study of an ABE program in Senegal conducted by Kuenzi (2018), however, found significantly lower trust in community religious leaders among youth who completed the program than peers who did not, although ethnicity appeared to mediate the program's effect on that distrust.

LAC. **We found only one qualitative study of ABE programs in LAC, which noted that program participants reported the ABE improved their social-emotional skills and community environmental factors.** Evidence of an adult literacy program called Alfalit for individuals aged 13 to 66 years in El Salvador suggests that the program reduced the shame of illiteracy experienced by participants, increased their confidence, and enhanced their social cohesion (Prins 2005). The effects were particularly strong among women.[171]

C. Recommendations

1. Recommendations for future research

In this chapter, we examined evidence of the impacts of CBE programs, AEPs, and ABE programs on violence, crime, and correlated outcomes and found that the overall evidence base is relatively weak. To build the knowledge base on the potential of these programs, policymakers and funders should support rigorous high quality research that incorporates measures of violence, crime, and associated outcomes as well as cost-effectiveness analysis for CBE programs, AEPs, and ABE programs.[172] In addition, we recommend:

- **Funder support will be particularly important for rigorous evaluations of AEPs.** AEPs pose several challenges to evaluation efforts, including variation in program structure, insecurity and political instability in program areas, and variation in the underlying problem that prompted initiation of the program (for example, variation in factors driving constraints to education access).[173]
- **Design and implement evaluations that can rigorously identify the impact of adult literacy and numeracy programs alone or as part of larger programs.** Such an approach

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[171] The Alfalit model was later used Liberia, Mozambique, and Angola in USAID-funded programs. Newly literate women again reported stronger protective behaviors; they voted more than they did before their participation in the program and demonstrated greater cognizance of their rights (Raupp and Ramos-Mattoussi 2012).

[172] Although USAID recommended the integration of cost-effectiveness analysis into AEP evaluations (as part of the AEP Research Agenda Matrix, Baxter et al. 2016), we found no evidence of cost analyses in our search. Burde et al. (2015) and Shah and Choo (2020), writing on behalf of INEE, echoed this recommendation, noting that careful cost-effectiveness analysis would permit comparisons of intervention models.

[173] To facilitate impact analysis, USAID has recommended the standardization of program guidance, outcomes, and reporting; improvements in documentation; the use of mobile technology to collect data; and the implementation of longitudinal tracking and evaluation studies (USAID 2016). USAID's recommendations might also involve data management support for government schools in areas where AEPs are implemented to permit reintegrating students to be tracked over time (Baxter et al. 2016).

will help policymakers compare the effects of literacy and numeracy initiatives on key outcomes to other program components or programs, such as vocational elements, workforce development programs, or parenting supports.

- **Support longitudinal research designs that can explore the long-term impacts of OOSCY-targeting programs.** The increased availability of literacy data sets and government policy data, especially in HICs, should allow researchers and practitioners to draw clearer conclusions about the long-term impacts of adult literacy programs (Post 2016). Longitudinal research could be conducted through the collection of long-term data from earlier program participants.

2. Recommendations for investing in programs for OOSCY

Given the weak body of evidence we identified for CBE programs and AEPs, we cannot provide recommendations on how best to use CBE programs to improve violence, crime, or correlated outcomes. However, evidence from HICs, LMICs, and LAC shows that ABE programs can produce positive outcomes in social-emotional and protective behavior domains, particularly among young women and mothers. As our conceptual framework suggests, changes in self-esteem, confidence, and community engagement may reduce the risk of exposure to and engagement in crime and violence.

XXII. EXTRACURRICULAR PROGRAMS

Evidence summary and mechanisms through which intervention can affect violence and crime				
	Overall evidence			
Intervention	**Correlated outcomes**	**Violence and crime outcomes**	**Evidence from LAC/LMICs**	**Mechanisms**
Mentoring	🔵	◐	◖	Improved community environment can reduce risky, violent and criminal behaviors. In addition, improved learning and social-emotional skills development can also reduce risky behaviors and improve educational outcomes, which can reduce the risk of violence and crime.
Organized sports	◐	🟡	🟡	
After-school programs (ASPs)	◯	◯	◯	

Legend: 🔵 = strong body of evidence with positive findings; ◐ = moderate body of evidence with positive findings; ◯ = emerging body of evidence with positive findings; 🟡 = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ⚫ = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◔ = weak body of evidence; ∅ = no body of evidence.

The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.

A. Program descriptions

In this chapter, we review evidence on the impact of extracurricular programs, identify promising examples, and propose areas for future research. Extracurricular programs typically are a set of structured activities, supervised by adults, which are provided to students outside of school hours. This chapter focuses on three common types of extracurricular programs: mentoring, organized sports, and after-school programs (ASPs). In Table XXII.1, we summarize the key program elements, typical target age group, characteristics of the targeted beneficiaries, and goals of extracurricular programs. In our discussion, we will also briefly bring in the findings for tutoring (discussed in detail in Chapter VI), which is often included in or implemented as an extracurricular intervention.

Table XXII.1.   Summary of extracurricular programs: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
Mentoring	Ages 5–19	Children and adolescents who otherwise lack stable, strong relationships with adults who provide them with guidance and support	Non-relative adult mentor provides guidance and support by forming a one-on-one relationship with participant	1. Improved social-emotional skills 2. Time outside of school spent in structured, supervised activities 3. Academic engagement
Organized sports	Ages 9–22	All children and adolescents, particularly those at risk of becoming involved in delinquent or other criminal behavior	Individual or team sports supervised by at least one adult outside school hours	1. Improved social-emotional skills 2. Time outside of school spent in structured, supervised activities
After-school programs (ASPs)	Ages 5–19	Children and adolescents who lack structured, supervised activities outside of school, particularly those at risk of becoming involved in delinquent or other criminal behavior	Bundle of extracurricular programs, typically including both academic (tutoring, homework time) and recreational/social activities (sports, arts, social events)	1. Time outside of school spent in structured, supervised activities 2. Improved mastery of class materials, better academic performance 3. Improved social-emotional skills

Mentoring activities give children an opportunity to form a relationship with an older mentor (not a relative) who provides the child with "ongoing guidance, instruction, and encouragement aimed at developing the competence and character of the protégée," in which the mentor and youth "develop a special bond of mutual commitment, respect, and loyalty which facilitates the youth's transition into adulthood" (Rhodes 1994). Mentors often encourage students to stay in school, support their academic achievement, and help students constructively work through social, family, and other problems.

Sports are one of the most popular organized activities for youth (Holt 2008). Following Bailey (2005), we adopt the definition of sports from the Council of Europe's European Sports Charter (2001): "Sports means all forms of physical activity which, through casual or organized participation, aim at expressing or improving physical fitness and mental well-being, forming relationships or obtaining results in competitions at all levels." Sports includes both individual or team sports, typically managed by one adult or a small group of adults or older youth, and they can be either be based in a school or run by an independent organization (for students or all children).

ASPs are usually bundles of extracurricular programs, including academic support, mentoring, and sports; community service; arts and crafts, music, performance art; and social events and activities. The academic support provided by ASPs can range from one-on-one tutoring to dedicated time to study or do schoolwork (Kremer et al. 2015). Although ASPs often vary in size, composition of activities, and program goals, they typically share a strong focus on providing structure and adult supervision to youths' out-of-school-time and promoting positive interactions between participants (Taheri and Welsh 2016).

Common theory of change. Extracurricular programs can reduce the incidence of crime and violence through a variety of mechanisms, including through the provision of structure and a safe positive space outside of school, and by supporting academic, physical, and/or social-emotional development. As discussed in Chapter II, studies have found evidence that youth are most likely to participate in delinquent behavior after school and by evidence of an association between unstructured or unsupervised time outside school and delinquent behavior, substance abuse, other risky behaviors, and the risk of victimization (Weiss et al. 2006; Kremer al. 2015; Taheri and Welsh 2016). Extracurricular programs can reduce the likelihood of youth participating in or being victims of delinquency by reducing opportunities for delinquency, reducing the amount of time youth spend participating in unstructured or unsupervised socializing, encouraging socially acceptable behavior, and replacing negative role models with positive ones (Taheri and Welsh 2016). Activities such as organized sports can give students opportunities to improve pro-social skills by engaging in collaborative team efforts to take on challenging tasks, socializing in structured environments with their peers, and developing and expressing their physical fitness and talents (Barber et al. 2001). Mentoring activities are designed to promote social-emotional development by giving youth positive mentor relationships through which they can learn to trust and effectively communicate with adults; learn how to understand, express, and regulate their emotions; transmit values related to achievement; and build resilience to negative life experiences (DuBois et al. 2002; Wood and Mayo-Wilson 2012). Extracurricular programs can also give students a safe environment to express themselves and interact with other students, and offer opportunities to practice their social-emotional skills and self-expression (Barack 2019). Additional academic support designed to improve learning can plausibly improve students' confidence and thereby increase the likelihood that they spend more time in school instead of participating in riskier activities outside school during school hours.

Varied beneficiary profiles. Extracurricular programs are generally available to all students in schools, particularly because the goal is for them to all be in safe spaces outside of the school day. However, some, especially ASPs, can place particular emphasis on "at-risk" youth populations, who will likely benefit most from the structured, supervised time and could be in the most need of the direct benefits of activities like mentoring. At-risk children typically come from disadvantaged backgrounds (and have less access to academic and social-emotional support inside and outside of school) and could already be engaged in antisocial or risky behaviors (Lauer et al. 2006; Kremer et al. 2015). In addition, some extracurricular programs are for at-risk children with specific problems or in specific circumstances that would make them likely to get the most benefit from the program. For example, activities that provide academic support (like many ASPs) are generally designed for children with poor schooling outcomes, whereas mentoring activities are designed for children who lack strong adult support and/or role models outside of the program. The safe environment provided by some extracurricular programs could be especially beneficial to youths from socially marginalized groups, who can have even greater needs for a safe opportunity for self-expression and social interactions (for example, females, LGBTQ, ethnic/religious minorities) (Barack 2019).

B. Findings from the evidence review

The evidence of the effects of extracurricular programs on violence and crime is generally weak, but policymakers can take note of the strong evidence for some outcomes. For example, there is moderate evidence of ASPs in LAC that reduce the rates of violent and nonviolent crime

committed by the most violent youth, and strong evidence of mentoring leading to reductions in school violence in HICs. We also found moderate to strong evidence of the impact of ASPs and mentoring in HICs on risky and protective behaviors and on social-emotional skills, although the findings are somewhat mixed. The evidence for the impact of organized sports consisted primarily of correlational studies and showed generally mixed results. We identified one cost-effectiveness analysis of an ASP in Nicaragua, which found the program to have average to low cost-effectiveness, and one cost-benefit analysis of an organized sports program targeting at-risk urban youth in the United States, which provided conservative evidence that the program generated more benefits than it cost to implement.

We summarize the body of evidence on these effects in this chapter (including in Tables XXII.2, XXII.3, and XXII.4), which reflects what we found through our global foundational literature review and our bibliographic search of studies in LMICs and LAC, as well as our search of websites for grey literature (as described in Chapter III).[174] Our search process for extracurricular programs (including academic tutoring) identified 4915 papers, of which 66 were eligible for inclusion in this chapter. The eligible studies include individual studies using quantitative causal, quantitative correlational, and qualitative research designs, as well as systematic reviews and meta-analyses.

1. Mentoring

The evidence for the impact of mentoring activities on risky and protective behaviors is strong, and suggests that mentoring could improve those outcomes. We found moderate evidence of improvements in school-related violence, social-emotional skills, and environmental factors, and also found some emerging evidence of improvements in criminal behavior among previous offenders. We found only two qualitative studies from LMICs and no studies from LAC, so the evidence base for mentoring relies almost entirely on evaluations of projects in HICs.

We summarize the evidence on the effects of mentoring activities on violence, crime, and correlated outcomes in Table XXII.2. Of the 66 studies eligible for inclusion in this chapter, 12 evaluated mentoring activities, including 4 meta-analyses, 2 studies in LMICs, and 10 in HICs (none evaluated activities in LAC). See Appendix W for more information about all studies of mentoring activities included in this review, including information on the age group they focus on and the type of activities they include.

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[174] All of the bibliographic and grey literature searches for this chapters included search terms for all four types of extracurricular activities. As a result, although the evidence for academic tutoring is presented in Chapter VI (because its theory of change fits within Teaching at the Right Level), the search counts presented here include studies focused on academic tutoring.

Table XXII.2. Strength of evidence on the impacts on outcomes of interest: mentoring

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environmental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Mentoring	HICs	◖	◖	●	○	○	◖
	LMICs	◖(grey)	∅	∅	∅	∅	∅
	LAC	∅	∅	∅	∅	∅	∅

Note: Among the studies identified through the global foundational and grey literature search and the bibliographic literature search in LMICs and LAC, 12 were eligible for inclusion (of which 4 were meta-analyses covering multiple studies).

● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ◖ = weak body of evidence; ∅ = no body of evidence.

HICs. **Research from HICs gives emerging evidence that mentoring leads to reductions in criminal behavior among previous offenders, but there is no corresponding evidence for its positive effects on other youth.** The evidence on violent and nonviolent crime comes from a meta-analysis conducted by Jolliffe and Farrington (2008) on behalf of the Swedish Council for Crime Prevention. They examined the impact of mentoring on recidivism among criminal offenders, using experimental and quasi-experimental studies between 1979 and 2008 that matched on baseline controls. Across the studies, researchers found evidence of small reductions in the likelihood of repeat offenses by offenders; however, they did not examine the impact on the criminal behavior of youth who were not already offenders, so these results might not be generalizable to other populations.

Research also suggests that mentoring could reduce school violence, but the evidence cannot be disentangled from the impacts on other correlated outcomes. The meta-analysis conducted by DuBois et al. (2011) found positive short-term impacts of mentoring across 39 studies from 1999 to 2010 (and positive longer-term impacts across 7 or fewer studies) on youth "conduct problems." DuBois et al. (2002) found similar reductions in "conduct problems" using studies from 1970 to 1998. However, because the "conduct problems" measure analyzed in both studies combined measures of school violence (for example, bullying) with measures of risky and protective behaviors (for example, drug use), we cannot isolate the estimated impact of mentoring from these other behaviors. In addition, Grossman and Rhodes (2002) found no differences in the use of physical violence by youth who received longer-term mentoring through Big Brothers Big Sisters compared to youth who received mentoring over a shorter period of time.

We found strong, consistent evidence of mentoring programs in HICs leading to improvements in risky and protective behaviors. Tolan et al. (2014) found positive impacts on three measures of risky behaviors: delinquency, aggression, and drug use. They also found a high degree of heterogeneity in all three measures across the studies included in their meta-analysis, which suggests that the impact of mentoring is likely context-specific. Two studies we identified in our bibliographic search also revealed that receiving at least 12 months of mentoring through

Big Brothers Big Sisters was associated with reductions in the frequency of drug use and alcohol use (Grossman and Rhodes 2002) and reductions in behavioral problems among girls (DeWit et al. 2016). As we noted, DuBois et al. (2011) and DuBois et al. (2002) also found that mentoring led to improvements in a measure of "conduct problems" constructed by the authors, which included risky behaviors like drug use, and on measures of school violence like bullying.

We also found moderate evidence of mentoring leading to improvements in social-emotional skills and school environmental factors, and emerging evidence of improvements in family environmental factors. Meta-analyses conducted by DuBois et al. (2011) found short-term improvements in "attitudinal/motivational" outcomes (for example, achievement motivation, pro-social skills), "psychological/emotional" outcomes (for example, depressive symptoms, self-esteem), and "social/interpersonal" outcomes, which include both social-emotional skills (for example, social skills) and school environmental factors (for example, peer relationships). The authors also found longer-term improvements in "psychological/emotional" outcomes, although these meta-analyses only included seven or fewer studies. A meta-analysis conducted by DuBois (2002) found similar improvements in earlier mentoring studies for "emotional/psychological" and "social competence" outcomes. These results are further supported by two correlational studies that found positive associations between mentoring and social-emotional skills (Kogan and Brody 2010; DeWit et al. 2016) and school and family environmental factors (DeWit et al. 2016). However, our bibliographic search identified three relevant experimental studies, which found mixed results for both social-emotional skills (one positive impact, one mixed impact, and one non-significant result), school environmental factors (one positive impact and one non-significant result), and family environmental factors (one positive impact and one non-significant result) (Ng et al. 2014; Ho et al. 2017; LoSciuto et al. 1996).

LMICs/LAC. **We found scant evidence on the relationship between mentoring programs and outcomes related to violence and crime in LMICs and LAC.** We found no studies of programs implemented in LAC, and in LMICs, we found only two relevant qualitative studies investigating mentoring programs provided to first-year university students in South Africa (Chweu and Schultz 2010) and nursing students in Turkey (Bulut et al. 2010). Both studies found that students who participated in mentoring programs perceived improvements in their social-emotional skills, which is consistent with the bulk of the evidence from HICs.

2. Organized sports

Although there is a large evidence base from HICs and LMICs revealing a relationship between organized sports activities and violence, crime, and correlated outcomes, it consists almost entirely of correlational studies. The bulk of this suggestive evidence is focused on risky and protective behaviors and indicates that the relationship between sports activities and this outcome area is fairly heterogeneous, varying across different types of sports, across different types of risky and protective behaviors, and across different demographic groups. We also found some evidence of positive impacts of sports activities on social-emotional skills, but the findings are mixed. The findings are likewise mixed in a smaller body of research examining the association of sports with preventing violence and nonviolent crimes. The evidence base for school violence and environmental factors is weak, and for environmental factors, the evidence is also somewhat inconsistent between studies in HICs and LMICs/LAC, which suggests that

there could be important contextual differences with sports activities and how they relate to environmental factors in different regions.

We summarize the body of evidence of the effects of organized sports activities on violence, crime, and correlated outcomes in Table XXII.3. Of the 66 studies eligible for inclusion in this chapter, 37 evaluated organized sports activities (including 3 systematic reviews) of which 4 were in LAC, 19 in LMICs, and 14 in HICs. See Appendix W for additional information about the studies of organized sports activities included in this review.

Table XXII.3.   Strength of evidence on the impacts on outcomes of interest: organized sports

| Intervention | Region | Impacts on outcomes correlated with violence and crime | | | Impacts on violence and crime | | |
		Social-emotional skills	Environmental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Organized sports	HICs	◐ (blue)	○	◯ (yellow)	◯ (yellow)	◯ (yellow)	◖ (gray)
	LMICs	◯ (yellow)	◖ (gray)	◯ (yellow)	◖ (gray)	∅	◖ (gray)
	LAC	◖ (gray)	∅	◖ (gray)	∅	∅	∅

Note: Among the studies identified through the global foundational and grey literature search and the bibliographic literature search in LMICs and LAC, 37 were eligible for inclusion (of which 3 were literature reviews covering multiple studies).

◐ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ◯ = mixed findings in emerging or larger body of evidence; ◖ = weak body of evidence; ∅ = no body of evidence.

HICs. **We found emerging mixed evidence of a relationship between participating in sports and engagement in violent and nonviolent crime.** An experimental study conducted by Heller et al. (2013) found that assignment to a program including non-traditional sports led to a reduction in violent crime arrests among at-risk male students in Chicago public schools in the first year after the program was implemented but had no effect in the second year. The studies identified in a systematic review conducted by Taylor et al. (2015) were likewise mixed in their results, with roughly equal numbers of studies finding better or worse outcomes for youths who participate in sports compared to other youths.

Research further suggests that the relationship between violence and sports participation could vary depending on the sport. In one of the studies—Moesch et al. (2010) identified by Taylor et al. (2015)— aesthetic sports were not associated with violence, but contact sports were associated with more violent behaviors. Similarly, a correlational study conducted by Kreager (2007) found that getting into "serious" fights was positively associated with participation in contact sports, such as wrestling and American football, whereas other sports (tennis) were either not associated with fighting or were associated with less fighting.

For risky and protective behaviors, a body of correlational research suggests that the relationship with sports programming varies depending on the behavior in question. For example, a majority of the studies identified in systematic reviews conducted by Lisha and Sussman (2010) and Taylor et al. (2015) found that participating in sports was associated with

improvements in some risky and protective behaviors, like the use of cigarettes and illicit drugs or showing respect to teachers and neighbors, but was also associated with an increase in alcohol consumption. These findings were supported by some of the individual correlational studies that we identified, which likewise found evidence of increased alcohol consumption and use of smokeless tobacco and steroids, but a decreased use of cigarettes and marijuana. Findings were not consistent across all of the studies. Some of the correlational studies we identified found no association between sports participation and alcohol consumption, and a few found that sports participation was associated with decreased alcohol consumption. These inconsistencies suggest that the relationship between sports participation and risky and protective behaviors in a given context may be influenced by social and other contextual factors (for example, a culture of alcohol consumption in society and among youth), or the findings could vary depending on study design.

Participating in sports was consistently associated with better outcomes in a large number of correlational studies examining social-emotional skills and in a smaller number examining environmental factors. Among the 18 correlational studies examining social-emotional skills identified in our searches and in a systematic review conducted by Taylor et al. (2015), 16 found that participating in sports was associated with better social-emotional outcomes, compared to only 2 that found no association. All three of the correlational studies evaluating environmental factors found that participating in sports was associated with better school environmental factors such as students feeling safer, less socially isolated, and that friends, teachers, and other adults care about them (Barber et al. 2001; Harrison and Narayan 2003; Taliaferro et al. 2010). Harrison and Narayan (2003) also found better outcomes for family and community environment among sports participants, and Taliaferro et al. (2010) found that female sports participants were less likely to have been victims of domestic violence than nonparticipants were.

We also found limited evidence of heterogeneity by gender in the association between sports participation and outcomes related to school violence and family environmental factors. For both school violence and family environmental factors, the correlational evidence suggested differences between the outcomes of male and female youth. For example, one study found that for male students, participating in sports was associated with a greater likelihood of being in a physical fight, but this was not the case for female students (Taliaferro et al. 2010). The same study found that sports were associated with improvements in the family environment of females (reducing the rate of their domestic abuse) but not of males. In both cases, these heterogeneous improvements could simply be related to differences in the baseline risk of these behaviors, but we do not have the data to assess this.

The experimental study conducted by Heller et al. (2013) also included a cost-benefit analysis which revealed large benefits from a non-traditional sports program relative to its cost. The estimated benefits of the program that derived from reduced homicides were at least 2.5 times larger than the cost of the program in the first year after implementation (and at least 4.3 times larger than the cost of the program in the second year after implementation, although the estimated impacts in the second year were not statistically significant). This suggests that the program was a positive investment, and in fact, the estimate could underestimate the overall benefits of the program because (1) the costs provided by the authors only apply to the full

intervention, which included other components, and (2) the estimated benefits exclude other potential benefits of the programs, including improvements in academic outcomes.

LMICs/LAC. **The evidence of the impact of sports on violence and crime is limited and is not rigorous for LMICs and LAC, but it suggests that sports participants might be more violent in some contexts.** We identified two correlational studies that explored the relationship between violent crime and sports participation. The first study, Coetzee and Spamer (2003), found that high school students who participated in organized sports in South Africa were more likely to have carried a weapon in the past month or to have been in a fight in the last year than nonparticipants. However, the second study, Trifescu et al. (2017), which was done in Romania, found no association for male high school students between participating in competitive soccer activities or sports clubs and being in a physical fight in the last year. We identified another study, of senior secondary students in Turkey, that found that participating in at least two hours of sports or physical activity courses was associated with more bullying, but because the study focused on school courses, the applicability of these results to sports outside of school time is unclear (Savucu et al. 2017).

We found mixed evidence of an association between sports participation and risky and protective behaviors from a large number of correlational studies in LMICs and LAC countries, but unlike in HICs, in these countries the pattern for different types of behavior is less clear. Our bibliographic search identified 14 correlational studies (3 from Brazil and 11 from LMICs), which examined the relationship between sports participation and risky and protective behaviors. The results included a mix of positive, negative, and non-significant associations.[175] Unlike the evidence base in HICs, however, the results are also mixed for similar outcomes, types of participants, or types of sports. In addition, a systematic review of experimental and quasi-experimental studies in LAC countries conducted by Cid (2017) identified an evaluation of a sports program in Uruguay using a difference-in-difference strategy (Cabrera et al. 2016). This study found evidence of improvements in risky and protective behavior, but as discussed by Cid (2017), attrition rates in the study are high, so there is reason to be concerned about the risk of bias in the study's results.

Among the correlational studies we identified that focused on social-emotional skills, most found that sports participants had better outcomes, but a few found non-significant or negative outcomes. We identified seven correlational studies that examined the association between sports programs and social-emotional skills in LMICs (six studies) and LAC (one study). Of these, four in LMICs found better outcomes among sports participants, two in LMICs found no significant differences, and the study in LAC found worse outcomes for a measure of physical self-worth (Malete et al. 2008). In addition, qualitative studies suggested that sports participation in Brazil and LMICs was associated with better social-emotional skills such as self-

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[175] Of the 11 correlational studies that examined the association between sports participation and risky and protective behaviors in LMICs, 6 studies found better outcomes among sports participants, 3 found worse outcomes (including two of the studies in Brazil), 3 found no associations, and 1 found mixed results (specifically, worse outcomes for marijuana use but no association for the use of alcohol, other drugs, or risky sexual behavior). The third study in Brazil found no association with alcohol use with less than six months of sports participation but found a positive association with six months of sports participation or more. It also found no association with cigarette use for either time frame.

respect, confidence, self-esteem, self-control, goal setting, communication and expression skills, and an ability to work in teams (Muller Mariano and da Silva Filho 2015; Burnett 2015; Gaible 2015; Khan and Jamil 2017; Maebuta 2011).

An experimental study examining the impact of *A Ganar*, a youth workforce development program in Guatemala that included organized sports, vocational training, internships/apprenticeships, and other support, found positive impacts of A Ganar on hourly wages, work quality, and social-emotional skills (Social Impact 2018). However, the design of the evaluation did not allow the authors to identify the specific impact of the sports component of the program, so this study is of limited value to this review.

There is only a small amount of mixed correlational and qualitative evidence from research into environmental factors, but it does suggest that more competitive sports activities could put youth at greater risk of exposure to negative environmental factors than less competitive activities do. We identified one correlational study by Chan et al. (2011) that found no association between participating in after-school sports and family and school factors for junior secondary students in China. The qualitative study by Muller Mariano and da Silva Filho (2015) found positive associations between sports participation in Brazil and family environmental factors. However, a second correlational study suggested that participating in competitive sports may come with greater risk of exposure to negative environmental factors. Trifescu et al. (2017) examined the relationship between sports participation and being exposed to verbal aggression among male high school students in Romania. They found that those who participated in intense soccer training and competitions were over 30 percentage points more likely to be exposed to verbal aggression than other male high school students, but they found no difference in exposure between male high students who participated in less competitive sports clubs at least once a week and male high students who participated less often in sports or did not participate at all.

3. ASPs

Our search for studies evaluating ASPs identified an emerging evidence base for most outcomes related to violent and nonviolent crime, particularly risky and protective behaviors and social-emotional skills. The evidence on violent and nonviolent crime is small and consists of a single experimental evaluation in LAC, which found improvements in outcomes, particularly among violent youth. We found no evidence for the impacts of ASP on school violence. The evidence for risky and protective behaviors relies on a number of meta-analyses from HICs, but the findings suggest that the impacts of ASPs on risky and protective behaviors, if they exist at all, are likely to be small. There is less research on social-emotional outcomes, and it reveals mixed results. The evidence for environmental factors is weak, but demonstrates positive relationships with ASPs.

We summarize the body of evidence on the effects of ASPs on violence, crime, and correlated outcomes in Table XXII.4. Of the 66 studies eligible for inclusion in this chapter, 22 evaluated ASPs, including 3 systematic reviews, 3 in LAC, 6 in LMICs, and 13 in HICs. (See Appendix W for a list of all studies of ASPs included in this review.)

Table XXII.4.   Strength of evidence on the impacts on outcomes of interest: ASPs

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environmental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
ASPs	HICs	🟡	◖	🟡	◖	◖	⊖
	LMICs	◖	∅	◖	∅	∅	∅
	LAC	○	◗	○	○	○	∅

Note: Among the studies identified through the global foundational and grey literature searches and the bibliographic literature search in LMICs and LAC, 22 were eligible for inclusion (of which 3 were literature reviews or meta-analyses covering multiple studies).

○ = emerging body of evidence with positive findings; 🟡 = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ◖ = weak body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **We found a little suggestive evidence from correlational studies that ASPs might be associated with better outcomes related to violence and crime and to environmental factors.** We found two studies examining violent and nonviolent crimes, but no studies examining school violence. One of these studies found no association with violent crime, and the other found better outcomes for participants. The evidence for environmental factors is likewise mixed, with studies that found positive associations (for family and school factors) and others that found no associations (for family and community factors).

We found a large body of evidence examining the impact of ASPs on risky and protective behaviors, and it revealed mixed findings with some suggestion of positive impacts. This was similar to the body of evidence on academic outcomes. Two meta-analyses found evidence of improvements in some risky and protective behaviors (Durlak et al. 2010; Zief et al. 2006), whereas other meta-analyses found only small impacts, or none. For example, Durlak et al. (2010) found that, on average, ASP participation led to improvements in positive social behaviors and reductions in problem behaviors, as well as nonsignificant reductions in drug use; Zief et al. (2006) found moderate impacts of three ASPs in Maryland on hours of self-care. However, Kremer et al. (2015) found no impacts on substance abuse, and Taheri and Welsh (2016) found no impact on delinquency. As noted by Kremer et al. (2015), some of the differences between these sets of findings could be explained by inconsistencies in the quality of the studies included in Durlak et al. (2010), which suggests that the impacts of ASPs are likely positive, yet small at best. In addition, we found nine correlational studies examining the association between ASPs and risky and protective behaviors that showed both positive associations and no associations, which is largely consistent with the results from the meta-analyses. We also found evidence that greater intensity or duration of exposure to ASPs, or providing more intensive academic support in an ASP, have no impacts on attentive or disruptive behavior in class compared to an ASP with less intensive homework support (Roth et al. 2010; Black et al. 2009).

A small evidence base from HICs focused on social-emotional skills. It suggests positive impacts for elementary school-aged youth but found more mixed results among older youth. A systematic review conducted by Neild et al. (2019) identified one set of experimental studies and one quasi-experimental study of the impact of ASPs on social-emotional skills in HICs. The experimental studies evaluated the Afterschool Program with All Stars Prevention Curriculum in Baltimore, which included "traditional after-school activities (snacks, sports, crafts), academic assistance, and the All Stars curriculum" and found no impact of the program on social competence on students in grades 6–8, even though the All Stars Curriculum was in part designed to improve skills related to social competence. However, a quasi-experimental study of another ASP, which provided a mix of "homework help, enrichment activities (for example, computers, visitors, musical instruments), recreational activities (for example, sports, board games), and art" to students in grades 1–3 in an unspecified urban area in the Northeast United States, found improvements in interpersonal competence. We identified five other correlational studies in our bibliographic search, four of which also found positive associations between ASPs and social-emotional skills among teenagers and college students (Hardaway et al. 2012; Shiah et al. 2013; Harrison and Narayan 2003; Marsh and Kleitman 2002), but one found that participating in community-based clubs was associated with increased anxiety and depression among middle and senior high school students (Fauth et al. 2007).

LMICs/LAC. **Research into outcomes related to violence and crime in LMICs and LAC consists of a single experimental study in El Salvador, which found decreases in criminal and violent behavior, particularly among youth prone to violence.** Dinarte (2017) conducted an experimental evaluation of the impact of an ASP in El Salvador among children ages 10 to 16 on a standardized index of violent actions like fighting at school, damaging municipal property, and fighting with siblings. The improvements they observed in this index were largely driven by children who were more prone to violence before the start of the program, and the study found that the impacts were larger when children were put together in program activities and not separated according to their violent tendencies.

We could not identify evidence on the impact of ASPs on school violence and found only a single non-significant finding relating to environmental factors. The experimental study of the *Espacios para Crecer* program in Nicaragua by Bagby et al. (2019) found no significant impacts of an ASP on a measure of bullying or peer victimization.

The evidence base for risky and protective behaviors and social-emotional skills includes a number of experimental studies, which largely demonstrate positive impacts. The core of the evidence for these outcomes comes from a systematic review of evaluations of ASPs in LAC conducted by Cid (2017), who identified five experimental or quasi-experimental studies published between 2010 and 2015.[176] These studies consisted of three evaluations of after-school orchestra programs in Venezuela, Peru, and Haiti and Jamaica, and one- and two-year evaluations of a multicomponent ASP in Uruguay. All three studies of orchestra programs found improvements in measures of risky and protective behaviors (aggressive behaviors and other behavioral problems) and measures of social-emotional skills (self-control, self-

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[176] Cid also identified an additional sixth study of a sports program in Uruguay, which we discussed in the previous section on sports programming.

perceptions, and anger), but one of the studies found no impact on pro-social skills. In addition, the study in Venezuela (Aleman et al. 2016) found larger impacts for children of mothers with fewer years of education, male children, and children with greater exposure to violence. Both the one- and two-year follow-up evaluations of the Apoyo Escolar program in Uruguay found improved behavior among youth with "committed" parents, but not among those with "neglectful" parents (Cid 2017).

In contrast, the experimental evaluation of an ASP in El Salvador conducted by Dinarte (2017) found similar improvements in delinquency and attitudes toward antisocial behavior, but also found increased reports of problematic behavior. In addition, a randomized evaluation of the *Espacios para Crecer* program in Nicaragua found no impacts on either risky and protective behaviors (impulsive risk taking, attitudes toward delinquency) or social-emotional skills (social competence, self-esteem, intercultural competence) (Bagby et al. 2019).

We also identified five correlational studies, with mixed findings, of ASPs in LMICs that examined correlations between ASPs and risky and protective behaviors. For example, Betts et al. (2003) found correlations between participating in ASPs and increases in condom use for boys in Zimbabwe. Other studies, however, found a higher likelihood of risky sexual behaviors and illicit drug use (De Wet et al. 2018 in South Africa; Ngware et al. 2016 in Kenya) but also no significant correlation between participation and adherence to antiretroviral therapy use, levels of aggression, and condom use among girls in Zimbabwe (Cluver et al. 2016 in South Africa; Lv and Takami 2015; Betts et al. 2003). However, despite these examples of negative or non-significant findings, the bulk of the most rigorous evidence suggests that exposure to ASPs can result in improved outcomes for risky and protective behaviors and social-emotional skills.

We also identified two correlational studies that examined the associations between ASPs and social-emotional skills, and both found positive associations of those skills with ASPs (Ngware et al. 2016 in Kenya; Lv and Takami 2015 in China), which is consistent with the experimental studies identified by Cid (2014). There was also evidence of positive impacts on risky and protective behaviors in an experimental study of the USAID School Dropout Prevention Pilot in Tajikistan and Timor-Leste, which paired ASPs with an early warning system for youth at risk of dropping out of school (Creative Associates International 2015). However, as discussed in the Tracking section of Chapter VI, it is difficult to draw conclusions about the impact of the ASPs from this result, because the evaluation cannot differentiate the specific impacts of the ASP and early warning system components of each of the programs.[177]

C. Recommendations

1. Recommendations for future research

In this chapter, we examined the evidence on the impact of three types of extracurricular programs—mentoring, sports activities, and ASPs—on violence, crime, and correlated outcomes. All three types of activities provide youth with structured, supervised activities after school hours, but the evidence does not demonstrate consistent impacts across all of the activities or

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[177] The evaluation found positive impacts of the program on academic outcomes, as well, but these results have the same limitations described here.

across all types of outcomes. We found a strong body of evidence from HICs on the impacts of mentoring and ASPs on risky and protective behaviors and social-emotional skills. We also found a growing body of evidence of the impact of ASPs from programs in LAC countries, and evidence on the impact of mentoring programs from programs in HICs on violent and nonviolent crime. However, important evidence gaps remain. We found no evidence from LAC on any of the outcomes of interest for mentoring programs, and weak evidence, at best, from LAC on any outcomes measuring violence and crime or environmental factors for sports activities. Aside from a couple of exceptions, the evidence of impacts on violence and crime was largely nonexistent, and the evidence on sports consisted almost entirely of correlational studies, which are not rigorous enough to allow us to estimate impacts or the direction of the effect. We recommend investing in high quality rigorous research on the impacts of these programs in LAC countries and LMICs, as well as their cost-effectiveness. In addition, we recommend:

- **Support research that identifies effective ASPs and the contexts they are most effective in.** Because of the wide variety of extracurricular programs that can be incorporated into an ASP, there is uncertainty about which combinations of extracurricular programs are most effective when combined into an ASP, and on the populations and contexts they are effective in. Clearing up this uncertainty would enable policymakers to design ASP programs that are best suited for their local context and to achieve their policy goals.
- **Support research that further explores the heterogeneity in impacts of sports programs.** Evidence on sports programs in HICs highlighted the heterogeneity in impacts across different types of sports, across different outcomes within the same outcome area, and across different demographic subgroups. For example, the body of evidence suggests that implementing a sports program may have opposite impacts on the consumption of alcohol than it does on the use of cigarettes, or that such programs may have different impacts on male and female participants. These results suggest that the impacts of sports programs are likely context-specific, so additional research is needed to help policymakers better understand the specific sports that are most appropriate for their context and how the programs will impact the outcomes or subgroups that policymakers are interested in affecting.

2. Recommendations for investing in extracurricular programs

Based on the existing global evidence, we recommend investing in:

- **Extracurricular programs that integrate youth who are at the highest risk of committing violence or crime with youth who are at less risk.** Such programs could be more effective at reducing violence and crime among those high-risk youth than programs segregating them from other youth. A recent evaluation of an ASP in El Salvador found larger reductions in violence and crime for programs that integrated youth versus programs that kept them separated (Dinarte 2017). However, caution should be taken in implementing such programs since it is not entirely clear whether there are secondary benefits or costs for the lower-risk youth who are included in the programs.

XXIII. SCHOOL COUNSELING SERVICES

Evidence summary and mechanisms through which intervention can affect violence and crime				
	Overall evidence			
Intervention	**Correlated outcomes**	**Violence and crime outcomes**	**Evidence from LAC/LMICs**	**Mechanisms**
School counselors	🟡	◖	⊘	Improved social-emotional skills and behaviors can directly reinforce improvements in those outcomes as well as improve learning, school environments and home environments, which can reinforce improvements in social-emotional skills and behaviors, as well as improve violence and crime through various pathways.
Responsive services	◖	◗	○	
Substance abuse prevention program	◖	⊘	◖	
Multicomponent programs	🟡	○	🟡	

Legend: ● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; 🟡 = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ⊘ = no body of evidence.

The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.

A. Program descriptions

School counseling refers to a broad class of programs that provide youth with access to a person or persons trained to provide guidance on life challenges and, ultimately, improve youths' behavior; enhance their psychological and socio-emotional well-being; and advance their personal, academic, and professional goals (Gysbers 2004; Brown and Trusty 2005). Though an important subset of the school counseling literature measures the effects of delivering these supports through a school counselor, a broader class of studies examine the effectiveness of distinct counseling activities delivered by counselors, teachers, peers, school nurses, and others members of the school community. In this chapter, we take a broad view of school counseling and examine the effect of school counselors *and* three counseling programs that are well-defined within the counseling literature (Reback 2010; Whiston and Sexton 1998).[178] We take this focus because studies on the effects of school counselors are largely unavailable outside of HICs. Also, activities of school counselors are not standard and, as we discuss below, there is debate on *what*

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[178] We searched for a total of three school counseling interventions featured broadly in the school counseling literature: responsive services, guidance curricula, individual planning (Whiston and Sexton's (1998) contains an influential overview of school counseling interventions). We exclude individual planning from this chapter because the available literature only reported on educational outcomes, which are not an outcome of interest for review. Individual planning consists of activities designed to advance students' personal goals and plans for their future (ASCA 2005). Individual planning interventions often focus on educational, career, and vocational planning (Gysbers and Henderson 2006).

school counselors should do to optimize their benefits to students. Examining the individual effectiveness of common school counseling activities can shed light on which counseling activities are effective, particularly in improving violence, social-emotional skills, the school environment, and risky and protective behaviors.

The school counseling programs covered by this chapter are:

School counselors refers to all programs that make a counselor available at school. Counselors do not offer a standard set of services, and several factors influence the particular services provided by a given counselor. United States–based literature on school counselors suggests that national standards, such as those set forth by the American School Counselor Association (ASCA), may affect a counselor's selection of available services, and those standards are essential to ensuring that counselors offer supports poised to help students. For instance, ASCA standards recommend that counselors focus on providing responsive relationships and career planning and limit the time they spend performing administrative duties (Lapan 2014; Wilkerson et al. 2013; Sink and Stroh 2003).

Responsive services are programs or activities designed to assist youths in addressing specific issues, concerns, and needs, whether related to students themselves, their family, or their neighborhood and community. Responsive services are delivered in several modes, including individual counseling, skill building for strengthening students' management skills, group counseling, referrals, consultation, and peer assistance programs (ASCA 2005, Whiston et al. 2009).Case management programs, in which high-risk students receive wraparound services combining in-school support (from school nurses, social workers, counselors) with out-of-school programs and programming, aim to improve the behavioral health outcomes that are relevant to this chapter (Browne et al. 2012). However, given the scarcity of research evaluating the impact of such types of responsive services on the outcomes of interest, we exclude case management programs from the discussion.[179]

Responsive services cover a broad set of programs and may share the intention, content, and implementation approach of programs featured in other chapters, including SEL (Chapter IV), school-based bullying (Chapter VII), and dropout and expulsion prevention (Chapter XI). Important features of responsive services, that we considered when determining what content was suited for this chapter, include: 1) programs' level of specialization – many responsive services target specific problems, students, or prioritize individualized delivery 2) remedial focus -- responsive services are generally designed to help youth cope with an existing problem rather prepare them for challenges that may affect them in the future, and 3) implementor – counselors are not the only implementors of the programs featured in this chapter, but we opted to include programming that could have been covered in other chapters if the programming was counselor-led (e.g. counselor-led cognitive behavioral therapy).

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[179] We make an exception for School-Based Health Centers (SBHC), which also offer interdisciplinary teams of nurses, social workers, school counselors, and physicians who support students in school and refer them to services off school grounds. We included SBHCs in this chapter because, unlike case management programs, they are primarily school-based. In addition, there is extensive research on their efficacy in diverse contexts.

Substance abuse prevention programs deliver structured lessons designed to prevent the use and/or abuse of alcohol, marihuana, tobacco, and other drugs. These lessons are integrated into school curricula, taught by school counselors in collaboration with teachers and other school staff, and may take place in the space of just one classroom session or throughout the academic year. Substance abuse prevention programs are part of a broader class of counseling programs that deliver guidance curricula aimed at improving students' behaviors, attitudes by building academic, social, and self-management skill (Whiston et al. 2009). Guidance curricula programs that do not deal with substance abuse prevention are largely covered by Chapter IV on classroom-based social-emotional learning.

Multicomponent programs rely on one or more types of counseling programs to support students' social-emotional and behavioral needs, as well as academic needs. Depending on the program component, multicomponent programs may use different targeting strategies, such as individual planning services for all students and responsive services for students who have been disciplined for behavioral disruptions, but maintain a focus on providing individualized services or targeting specific needs and challenges. Multicomponent programs may engage youths' peers, parents, or other members of the school and external community in an effort to target specific needs and challenges. We omit any multicomponent programs focused on classroom-based SEL or bullying prevention from this chapter, which are discussed in Chapters VI and VIII.

In Table XXIII.1 we summarize the key program elements, typical target age group, characteristics of the targeted beneficiaries, and goals of school counseling programs.

Table XXIII.1. Summary of school counseling programs: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
School counselors	Children and adolescents in pre-primary, primary, and secondary school	School counselors may deliver universal, group, or individual services to the general student population.	Responsive services, individual planning, guidance curricula, or administrative supports.	Provide broad-based support to student populations in the form of a school counselor
Responsive services	Children and adolescents in pre-primary, primary, and secondary school	Responsive services may be universal, group, or individual but are designed to target students in need of specific supports or to provide supports aimed at resolving a specific challenge affecting the student population (such as exposure to violence, disruptive behavior, psychological distress).	Responsive services implement diverse consultative supports, including mental health services, cognitive behavioral therapy, conflict resolution education, psychosocial programs, play therapy, group and peer counseling, school-based health centers, among others. Additional programmatic components include teacher training in implementation of responsive services and other topics and similar activities for parents.	Provide students with supports for addressing immediate personal, family, and community challenges
Substance abuse	Older children and adolescents in	Substance abuse prevention programs typically focus on	Knowledge or skill- building curricula focused on substance abuse prevention	Prevent substance abuse

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
prevention programs	upper primary and secondary school	students abusing substances or at risk of doing so. Hence, programs are skewed toward older students but also focus on upper primary grades.	and cessation. Building social skills that address the relational aspects of substance abuse are important for some programs.	
Multicompo-nent programs	Children and adolescents in pre-primary, primary, and secondary school	Multicomponent programs focus on students on all levels and often involve teachers, parents, and other members of the school community.	Responsive services, individualized planning, guidance curricula, and other forms of counseling services. Additional programmatic components include teacher training in implementation of multicomponent programs and other topics and similar activities for parents.	Meet students' academic, social, or mental health needs by using one or more counseling programs

Theory of change. Counseling programs enable students to cope with life challenges, improve their mental health and well-being, and pursue their goals, which result in improvements in social-emotional skills and in behaviors. These, in turn, link to violence, crime, and correlated outcomes through several causal pathways. School counseling may secure these benefits through diverse pathways. First, school counseling may directly improve social-emotional skills, which are critical for students' success (Heckman, Stixrud, and Urzua 2006) and correlated with a reduction in violence and crime. Second, school counseling may improve students' behavior which can affect students' future rates of juvenile delinquency and reduce their involvement in risky behaviors (Nagin and Trembley 1999). In addition, through peer effects, school counseling can reduce disruptive impacts on classmates' behavior, social-emotional skill development, and learning (Carrell and Hoekstra 2010; Neidell and Waldfogel 2010). Third, school counseling may enhance students' protective factors, directly affecting crime, violence, and related outcomes. Fourth, it may improve school environments by improving students' behaviors (e.g., reducing school violence or disruptive behaviors), which in turn may improve other students' behaviors through the reduction of negative peer effects (Carrell and Hoekstra 2014). Fifth, school counseling can improve the school environment by increasing school connectedness, which can increase students' permanence in school and, in turn, lead to improvements in rates of violence and crime and other outcomes of interest (Springer et al. 2006; Lapan et al. 2001). Finally, in reducing students' aggressive and anti-social behavior and enhancing protective factors, school counseling may influence the home environment. Some counseling programs explicitly involve parents in program components, further enhancing protective factors. Improving the home environment yields many benefits in reducing violence, crime, and related outcomes (Hawkins et al. 1999).

Target beneficiary profiles. The school counseling programs covered here target in-school children and youth at all grade levels. Which youths programs engage is often related to the issues they are designed to address – programs focus on the populations most affected by specific problems. For this reason, substance abuse prevention programs are largely focused on older youth. Counseling programs may also engage diverse groups of students while maintaining some level of customization. For instance, some programs are universal but focus on addressing

specific issues, like conflict resolution, while others offer individual or group level services to students who at risk for certain behaviors, including aggression resulting from psychological distress. Group-based counseling programs may share the same characteristics as universal programs, but some, such as peer counseling, are designed for small-group settings. In addition, counseling programs may engage teachers, parents, and other members of the school community. The goals of such engagement may vary and might require various types of support for the success of specific programs. For example, teachers and counselors may co-implement substance abuse prevention curricula and recommend that parents follow up with referrals for additional services, or they might engage in activities targeting specific segments of the school population, such as providing consultative services to students exposed to trauma. Activities involving teachers and parents are common to multicomponent programs.

B. Findings from the evidence review

1. School counselors

Studies on school counselors evaluate efforts increase access to counselors, trained to deliver supports, ranging from curricular guidance to responsive services, within the school setting. In Table XXIII.2, we summarize the evidence of school counseling programs on the outcomes of interest. Our literature searches identified 3,106 papers on school counseling services, of which 13 eligible papers measured the effects of school counselors. Our review disclosed evidence on the effectiveness of school counselors only in HICs; we found no studies on school counselors in LMICs or LAC. Evidence of school counselors' effects on violence and crime is largely non-existent; we identified only one study discussed in this chapter reported on these outcomes. Most studies focused on risky and protective behaviors, including school disciplinary incidents such as suspensions or weapons and drug related incidents. However, evidence on the effect of school counseling on behavior is emergent; because the, these studied are of varied quality, for instance large studies on school counselors are correlational and very few high-quality studies are available and the overall findings are mixed, reporting mixed or positive effects. Evidence related to social-emotional skills and school environment is weak, comprising a few studies with mixed outcomes. Appendix X presents more information about all studies of school counselors in this review, including the age group of interest and type of activities.

Table XXIII.2. Strength of evidence on the impacts on outcomes of interest: school counselors

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
School counselors	HICs	🟡	◖	🟡	⊖	⊖	◖
	LMICs	∅	∅	∅	∅	∅	∅
	LAC	∅	∅	∅	∅	∅	∅

Note: Among the studies identified through the global foundational literature search, through the bibliographic literature searches in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 13 were eligible for inclusion.

🟡 = mixed findings in emerging or larger body of evidence; ◖ = weak body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. Research on the effectiveness of school counselors is limited and of variable quality, yet the available evidence draws a positive link between the presence of school counselors and reductions risk behaviors.[180] In a meta-analysis of school counseling programs, Whiston et al. (2011) concluded that the overall effect of these programs on a range of social emotional and behavioral outcomes (for instance, social skills and self-esteem, fighting at school, disciplinary referrals, and attendance) was generally positive. They also found that school counseling programs' have a large effect on reducing discipline problems. In 2008, the government of the United Kingdom commissioned a large-scale evaluation of the Targeted Mental Health in Schools (TaMHS) program. TaMHS worked with schools to integrate evidence-based mental health programs to at-risk children by providing materials, guidance, and other resources to schools and their counselors. Based on a one-year randomized control trial involving 8,480 grade 4 students, researchers found a significant decrease in behavioral difficulties among students who initially had behavioral problems, but they found no effect on students initially experiencing emotional difficulties (Wolpert et al. 2015). In a review of six large-scale studies on the benefits of a school counselor, Carey and Dimmitt (2012) concluded that there was strong evidence for ASCA-compliant school counseling's impact on improving school attendance and a mainly positive impact on school discipline, with a decrease in rates of discipline. Even in studies that found no overall impact on school discipline, a more specific analysis of schools with higher reported fidelity to the ASCA comprehensive counseling model demonstrated decreased suspension and discipline rates.

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[180] It is important to note that many correlational studies of school counselors affecting student outcomes may suffer from external bias. Schools that add a counselor or increase the ratio of school counselors to students may be implementing other measures to improve student outcomes and may experience changes in policy, school leadership, or other factors that generate an effect on student outcomes. For example, Reback (2010a) warned that reductions in discipline-related risk behaviors associated with school counselors may not be clearly attributable to counselors; such reductions might instead reflect shifts in disciplinary policies that accompany the addition of counselors. In other words, schools may choose to send infracting students to a counselor instead of reporting them or imposing other forms of punishment.

Several correlational studies with large sample sizes in the United States have found correlations between school counselors and decreased school violence and risk behaviors. In a study of Connecticut high schools, Lapan et al. (2012a) linked the college and career counseling components of a comprehensive school counseling program and lower student-to-school-counselor ratios to a reduction in suspension rates and disciplinary incidents, which we consider to represent manifestations of risk behaviors.[181] The authors found that student-to-school counselor ratios and college and career counseling services explained an additional 9 percent of the variance in suspension rates (after controlling for the effects of free or reduced-price lunch, per pupil expenditure, and enrollment size). In a regression discontinuity study comparing the amount of counselor subsidies at elementary schools in Alabama, Reback (2010a) found that larger counselor subsidies strongly decreased school's likelihood of experiencing delinquency incidents such as school suspensions and weapons-related incidents. Reback (2010b) conducted descriptive analyses comparing teacher-reported school violence outcomes in states that allocated additional funding for counselors or mandated higher counselor-to-student ratios. The study showed that the addition of counselors led to reductions in teacher reports that their instruction suffered due to student drug use, stealing, and violent behavior as well as to reductions in teacher reports of students' externalizing behavioral issues. Two higher quality studies that leveraged   (1) within-school variation in the availability of counselors and (2) discontinuities in state assignment of counselor funding found that the increased availability   of primary school counselors was significantly associated with reductions in behavioral problems and disciplinary infractions as well as with gains in test scores (Carrell and Carrell 2006; Carrell and Hoekstra 2006; 2014; Reback 2010a).[182] In a large-scale survey of nearly 5,600 students in grades 7 through 12, Lapan et al. (2014) found a strong correlation between students' interactions with their school counselor and improved student perceptions of school safety and school connectedness (indicators of the school environment).[183] Lapan et al. (2001) reported that students in middle schools with more fully implemented counselor programs achieved improvements in reported relationships with teachers and perceptions of safety at school. In Missouri schools, Lapan et al. (2012b) showed a correlation between student-to-counselor ratios and a reduction in disciplinary problems in schools.

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[181] Suspension and disciplinary incidences do not necessarily reflect school violence or risk behaviors, but due to a lack of more information we treat them as risk behaviors here.

[182] Specifically, Carrell and Hoekstra's studies observed changes associated with a graduate counseling program run by the University of Florida that "randomly" increased the number of graduate-level counseling interns (full-time equivalent counselors) assigned to schools in Alachua County, Florida. The authors ran several tests to show that increased counselor availability was not associated with time-varying determinants of achievement within schools; however, the researchers cannot certify that their findings were completely unbiased. Reback (2010a) explained that Alabama directly subsidized elementary school counselors and used discrete enrollment cutoffs to assign subsidies, allowing the author to use a regression discontinuity design to measure results associated with increased counselor availability. Nonetheless, such an approach is not problem-free as the author founds that estimates were sensitive to bandwidth and other issues.

[183] Lapan et al. (2014) measured school connectedness by determining whether students reported that at least one adult was present in their school to discuss a problem or concern; that their school was making an effort to engage their parents; that their school was providing them with effective educational and career planning services; and that they were satisfied with and challenged by their academic programs. We treat school connectedness as an indicator of school environment.

School counseling studies offer mixed conclusions on whether the benefits of school counselors extend to all demographic groups, though some suggest that counselors disproportionally benefit high-risk students. Correlational studies have shown that the availability and outcomes of school counseling vary with student characteristics, particularly family structure and income levels, as well as with state policies (Lapan 2012b; Reback 2010b). Carrell and Hoekstra's studies (2006 and 2014) also found that improvements in risk behaviors (disciplinary infractions[184]) were greater for male students and "marginally misbehaved" students. Carrell and Carrell (2006) found some evidence that counseling's positive relationship to disciplinary reoccurrences may be more important for black students (black males, in particularly) and economically disadvantaged students. More research is needed to validate these findings and identify features of counselors' activities, such as the prioritization of services for at-risk students, and school contexts that may explain differential results.

Related literature suggests that counselors' effectiveness in changing student outcomes depends on counselor quality or what school counselors do in schools. Correlational studies that compared the educational outcomes of students in primary and secondary schools that implemented specific school counseling guidelines with the outcomes of students in schools that did not implement such guidelines or did so with less intensity support this finding (Wilkerson et al. 2013; Sink and Stroh 2003).[185] However, such research generally did not discuss violence, crime, and correlated outcomes, and the educational results were mixed. A final correlational study that examined counselor quality explored how particular counselor activities related to student outcomes. It showed that counseling activities focused on academic outcomes and personal and social needs correlated with reduced bullying victimization and reduced disruptive behaviors (Dimmitt and Wilkerson 2012).

Similarly, evidence suggests that the effectiveness of school counseling may depend on the intervention provider as well as on participants' grade levels. A 2011 meta-analysis performed by Whiston et al. found that teacher- and "other provider"-led programs had greater effects on student outcomes than programs led by counselors. Moreover, counselors-in-training had a greater effect than experienced counselors. The analysis also found that students' grade level may play a large role in the effectiveness of programs. Effect sizes were largest for middle school, followed by high school and then elementary school. The authors concluded that counseling programs may be most effective in middle school.

2. Responsive services

Responsive services are programs or activities designed to assist youths in addressing specific issues, concerns, and needs, whether related to students themselves, their family, or their neighborhood and community. These programs include a diverse body of programs ranging from

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[184] The authors define disciplinary infractions as "incidents that are very serious or require intervention from the principal or other designated administrator."

[185] One example of such guidelines involves is school counseling guidelines set by the American School Counselor Association (ASCA). The ASCA establishes the national model for the ethics, competencies, activities, and other characteristics of school counselors and school counseling programs in the United States. Schools in several states use these guidelines, but their adoption is not yet universal. For more information see: https://www.schoolcounselor.org/.

therapy based on positive psychology to conflict resolution training delivered by peer mentors. We present our findings on responsive services by grouping and presenting evidence available for different types of responsive services and then presenting learnings the design of effective responsive services. Key types of responsive services covered in this chapter are: school-based mental health services, cognitive behavioral therapy, conflict resolution education, psychosocial programs, play therapy, group and peer counseling, and school-based health centers.

Table XXIII.3 summarizes our findings for responsive services and reports on the strength of this body of literature as a whole. We identified 3,106 papers on school counseling services, of which 62 eligible papers addressed responsive services. About two-thirds of the studies in this chapter took place in HICs; only one of the remaining studies took place in LAC. The evidence base on its effects on violence and crime is weak, as few studies measure these outcomes and reporting mixed effects. We report similar results for school environment, which includes outcomes such as school connectedness, climate, and belonging. Risk and protective behaviors and social-emotional skills are the main outcomes of evaluations of responsive services. Within HICs and LMICs, we find that responsive services generally yield positive effects on these outcomes but differ in the strength of their individual literatures. That is, while evidence for some types of responsive services is consistent and readily available, it is lacking for others. Because of this disparity, we consider evidence base to be moderate overall. The evidence base from LAC is very limited. Appendix X presents more information about all studies of responsive services in this review, including the age group of interest and type of activities.

Table XXIII.3. Strength of evidence on the impacts on outcomes of interest: responsive services

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environmental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Responsive services	HICs	◯	◯ (yellow)	◖ (blue)	⊖	◖ (gray)	◖ (gray)
	LMICs	◯ (yellow)	◖ (gray)	◯	⊘	⊘	◖ (yellow)
	LAC	◗ (yellow)	⊘	⊘	⊘	⊘	⊘

Note: Among the studies identified through the global foundational literature search, through the bibliographic literature searches in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 62 were eligible for inclusion.

◖ = moderate body of evidence with positive findings; ◯ = emerging body of evidence with positive findings; ◯ (yellow) = mixed findings in emerging or larger body of evidence; ◗ (yellow) = findings of no impacts in emerging or larger body of evidence; ◖ (gray) = weak body of evidence; ⊘ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **Studies on responsive services that deliver school-based mental health services show these programs can impact several outcomes.** Mental health programs are designed to address specific behavioral problems (such as substance abuse) and improve the school environment in order to support students with mental health needs (Stein et al. 2012). Mental health programs are often categorized into three tiers: Tier 1 universal school-wide prevention programs, Tier 2 programs targeting at-risk populations, and Tier 3 programs for the most at-risk

students who need more intensive support (Fox et al. 2003; Fox and Butler. 2009).[186] A review of school-based mental health programs found mixed results on relevant outcomes, including mental health, substance abuse, and disruptive behavior (Stein et al. 2012). The review reported that most of the studied programs had significant and long-lasting effects on drug use, risk behaviors, and positive connections with teachers and families, although several studies found null or even negative impacts of responsive services on substance abuse and delinquency. Similarly, in a systematic review of 52 reviews of mental health programs, Weare and Nind (2011) found a positive impact in school-based mental health programs on mental health, well-being, and SEL skills and on aggression, disruptive behavior, and similar outcomes. The authors noted that the effect size on higher-risk children is much larger. Evidence of the effectiveness of these programs is also found in individual evaluations. For instance, a three-year evaluation of MindMatters, a teacher training program on mental health in Australia, found in pre- and post-surveys a pattern of improvement in students' reported sense of school attachment, reductions in alcohol and drug use, and improvement in student help-seeking behavior (Hazell 2005). However, the study did not report on any impacts on students' self-esteem.

Strong evidence links responsive services based on cognitive behavioral therapy (CBT) to reductions in disruptive classroom behavior through improved emotional regulation, more positive peer interactions, and prosocial behavior. CBT is a common form of psychotherapy used to treat depression and anxiety. CBT programs focus on changing patterns of thought that lead to both positive emotions and positive behaviors. A meta-analysis of cognitive behavioral programs targeting student aggression by Barnes et al. (2014) found an mid-sized reductions in aggression overall for universal programs. The authors also found that the effects for minority student populations were less than those for nonminority student populations. Weare and Nind's (2011) systematic review of 52 reviews of mental health programming found that CBT had a significant, large effect. An earlier meta-analysis of school-based CBT found large, positive effects, on anger and aggression (Sukhodolsky et al. 2004). Wilson et al. (2001) performed a meta-analysis of programs to reduce school-based violence and concluded that CBT programs (encompassing cognitive behavioral, behavioral modeling, or behavior modification programs) had positive effects on substance abuse, delinquency, and other problem behaviors.

Conflict resolution education, which trains all students in nonviolent strategies, has also been studied extensively and has demonstrated positive impacts on reducing disruptive behavior and school-based conflict. A meta-analysis of 36 studies spanning kindergarten through grade 12 concluded that conflict resolution education has a positive effect on antisocial behaviors and is particularly effective during middle adolescence (Garrard and Lipsey 2007). A large-scale, observational study of over 11,000 public elementary school children participating in the Resolving Conflict Creatively Program found a significant impact on teacher-reported antisocial behavior and students' social-emotional skills as well as some evidence of a positive effect on mathematics test scores (Brown et al. 2004). A conflict resolution training component of a kindergarten curriculum demonstrated students' use of significantly more constructive strategies to resolve conflicts (Stevahn et al. 2000). However, a quasi-experimental study of

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[186] Some interventions that are categorized within this framework are positive behavioral intervention support and are therefore covered in Chapter VII.

almost 200 elementary school students found null impacts of a year-long conflict resolution curriculum on students' violence-related attitudes and behavior (Shuval et al. 2010).

A few high-quality studies examine the effects of psychosocial programs and find inconclusive linkages to risky and protective behaviors. Psychosocial programs are not united by a shared intervention focus, but by the goal of assisting students experiencing psychosocial distress involving symptoms such as depression feelings of hopelessness, PTSD symptoms, aggression and prosocial behaviors, and other issues related to psychology and behavior (Jordan's et al., 2010). In a randomized experiment with female high school students, trained teachers delivered life coaching sessions over the academic year, resulting in increased levels of hope as well as in reduced depressive symptoms (Green et al. 2007). A strengths-based coaching intervention for grade 5 male students also found increased levels of hope as well as increased engagement with tasks at hand (Madden et al. 2011). However, another randomized classroom-based psycho-educational intervention with kindergarten students displaying behavioral problems found no long-term program impacts on any outcomes after two years (Shelton et al. 2000). In a review of school-based programs to reduce anger and aggression, Gansle (2005) found a positive mean effective size for several outcomes, including anger and externalizing behaviors, internalizing, and social skills. A behavioral intervention for elementary students with externalized behavioral disorders found that the intervention significantly reduced teacher reports of problem behaviors and increased students' on-task behaviors (Benner et al. 2012). The authors noted that treatment effects were smaller in higher-poverty schools.

Play therapy's capacity to reduce risky behaviors and build social emotional skills in young children is documented in at least one metanalysis and one large study demonstrates that play-therapy can be successfully delivered by trained volunteers. Play therapy treats emotional and behavioral problems by using play as a communication vehicle. Children are expected to act out feelings, thoughts and experiences that they cannot express through verbal communication (Bratton et al., 2005). In a meta-analysis of play therapy programs in elementary schools, Ray et al. (2015) found moderate to large effect sizes for several outcomes, including externalizing behavior and self-efficacy. An earlier meta-analyses of play therapy for students of all ages found similar resulting, estimating that school-based play therapy has a large, positive effect on externalizing behaviors, self-concept, among others (Bratton et al. 2005). In England and Scotland, the nonprofit program Place2Be recruits volunteer counselors to conduct individual and group play-based therapy sessions for primary school children who have been referred for emotional and behavioral problems. Place2Be's use of volunteer implementors provides an innovative path to delivering services in low-resource schools. An evaluation of over 1,800 participants in the year-long program found that students in Place2Be exhibited a significant reduction in emotional symptoms, conduct disorders, hyperactivity-inattention, and peer problems as compared to a normative sample of the population; the students also registered improvements in prosocial behavior (Lee et al. 2009). Another study of Place2Be, with over 3,200 student participants, confirmed that the program significantly reduced psychological distress (Daniunaite et al. 2015).

Studies of responsive services that center on group counseling report on programs' effects on social emotional skills and generally find mixed outcomes. Steen et al. (2017) randomized a small sample of English language learner students into treatment (group counseling) and control groups and found no significant effect of the intervention on students'

self-esteem. In another small randomized study, Morrison et al. (2001) reported that 24 grade 3 students randomized into a group counseling intervention exhibited overall improvement in self-esteem, improved perceptions of their behavior, and reduced anxiety levels. In a pre- and-post test of a group counseling intervention for students ages 12 through 17 years students in Israel and Palestine, researchers found that Christian students had increased empathy for Israelis and reduced anxiety and attitudes endorsing aggression; Muslim students had reduced anxiety; and Druze students had no changes in any outcomes (Shechtman and Tanus 2006).. In a very small randomized study in Malaysia, Lin and Nasir (2013) found that psycho-educational group counseling was effective in increasing both self-concept and career awareness among secondary students, including students with special needs.

Peer counseling yields positive effects on behavior and social emotional skills, but more research is needed to establish their effectiveness. Peer counseling is a process in which trained students support their peers in dealing with personal and academic issues (Aladağ and Tezer 2009). A systematic review of whole-school behavioral programs found mixed evidence on whether peer mediation programs are effective in promoting long-term prosocial and behavioral skills (Blank et al. 2010). The authors explained that, even though some high quality papers point to a strong impact of peer mediation on reducing bullying and other problem behaviors, others show mixed or null impacts; therefore, Blank et al. (2010) were unable to draw conclusions based on the existing evidence. Wilson, Lipsey, and Derzon (2003) found that peer mediation programs, or programs in which trained peers provide consultation or other support to their peers, had a small impact on aggressive behavior. A review of peer support programs (in which trained peers provide active listening and guidance) revealed that, in several studies, most student users rated peer support as useful in improving the school environment and providing personal guidance. Teachers and students in two studies also rated the school climate as safer as a result of peer support programs (Cowie and Smith 2009). Two studies of peer mediation programs with elementary school students reported significant decreases in suspension rates during the intervention (as compared to the previous three years), along with decreases in both physical and verbal conflict (Schellenberg et al. 2007; Bell et al. 2000).

School-based health centers (SBHC) show promise in reducing risky behaviors, such as early pregnancy and school discipline rates, and the school environment. SBHC offer counseling and primary care services on school grounds and make available, for example, immunizations, reproductive health services, and other services (Lovenheim et al. 2016; Lofink et al. 2013).[187] A systematic review found that SBHCs reduced school suspension rates, decreased alcohol use, increased contraceptive use among females, decreased birth rates, and improved prenatal care (Knopf et al. 2016). The review concluded that SBHCs are likely to be most effective for the most disadvantaged students, who may not have access to counseling or

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[187] SBHCs are not uniform interventions but possess several common characteristics, including location inside or on school grounds, provision of comprehensive services by a multidisciplinary team, and integration with the school community (Keeton et al. 2012). For example, some SBHCs operate under the direction of licensed mental health professionals employed by a local county or district; they lead a team of professionals who provide physical and mental health services (Jennings et al. 2000). In addition, most SBHCs provide primary prevention services such as immunizations; counseling for healthful eating/active living/weight management (90.1 percent); pregnancy testing (81.2 percent); substance abuse prevention (53.2 percent); violence prevention (92.5 percent); dropout prevention (59.1 percent); oral health education (77 percent); and dental screenings (64.8 percent) (Lofink et al. 2013).

health services outside school. Lovenheim et al. (2016) found that the expansion of SBHCs in the United States since the 1990s has led to a 5 percent decrease in the birth rate among students ages 15 through 18 years. The effects have been greatest among younger teens and among African American and Hispanic students. Studies looking at individual SBHC programs suffer from weak designs and other limitations but have drawn positive conclusions on SBHCs' effects on risky sexual behaviors and mixed conclusions on other risky behaviors (Ricketts and Guernsey 2006; Soleimanpour et al. 2010; Gall et al. 2000).[188] For instance, Walker et al.'s (2010) quasi-experimental evaluation followed SBHC users over 3.5 years and found positive effects on attendance but no effect on discipline rates and mixed effects on other risk behaviors. An older, descriptive study of Youth and Family Centers found that students receiving mental health services in the centers reported fewer discipline problems, course failures, school absences, and discipline problems (Jennings et al. 2000). Finally, one longitudinal study conducted in 503 California schools linked the presence of SBHCs to social-emotional skill development, particularly to higher perceived levels of school connectedness (Bersamin et al. (2016).

Other responsive services, including meditation and mindfulness, humanistic therapy, and solutions-focused brief therapy (SFBT), also show promise in reducing risk behaviors and improving social emotional skills, but the evidence backing these programs is more dispersed. Drawing on the analysis of 93 studies, the authors concluded that humanistic (nondirective) programs and individual therapy by trained parents yielded the largest effect sizes.[189] A systematic review of SFBT programs with children and families (including school-based and out-of-school programs) found evidence that such therapy can improve children's social-emotional skills and externalizing behavioral problems (Woods et al. 2011). Similarly, a systematic review of meditation and mindfulness programs in schools found that 33 percent of results had medium to strong significant effects on emotional regulation (Waters et al. 2015).

Research is mixed on whether universal or targeted programs have a greater impact. The meta-analysis conducted by Werner-Seidler et al. (2017) determined that programs targeted at small groups or individuals were more effective than universal programs in improving mental health. A meta-analysis of a small sample of cognitive behavioral programs that intended to reduce student aggression showed that universal programs had an mid-sized effect on these outcomes but that group-based programs had no effects (Barnes et al. 2014). The authors concluded that universal programs may not be effective for several reasons, including the level of treatment intensity and students' high partial completion rates. Moreover, the authors speculated that universal programs may be insufficient to change mental health outcomes in populations with high social deprivation.

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[188] Limitations in studies on the quality of school-based health centers include lack of randomized control designs, consent issues, lack of diversity, small sample sizes, and high attrition rates (Keeton et al. 2012). Results from individual studies often may not be generalized to the broad group of interventions that are considered SBHCs and do not account for how school resources and characteristics affect study results (Keeton et al. 2012).

[189] Humanistic counseling focused on helping participants make better sense of their emotions, behaviors and relationships. This form of therapy focuses on listening and allowing to participants reflect on and understand their experience their experiences rather than on providing directive advice or providing structured approaches to problem-solving. (Cooper et al., 2010 and McArthur et al., 2012).

Similarly, research is mixed on whether responsive services are best delivered in a group or individual format. Whiston (2009) concluded from the available research that group counseling appeared to be effective with elementary school students but noted that additional research is needed to confirm these findings. Several studies suggested that, especially in the case of older participants and risky behaviors such as substance abuse, group counseling runs the risk of reinforcing rather than reducing these behaviors through iatrogenic effects, which are those caused by the treatment itself (Hennessy and Tanner-Smith 2015; Dodge et al. 2006; Eron et al. 2002; Cho et al. 2005). For instance, Cho et al. (2005) found negative impacts of a group counseling program for at-risk youth and speculated that iatrogenic effects may be the cause. However, some evidence suggests that the skill level of the counselor may mediate any potential iatrogenic effects. In an evaluation of peer effects in the Coping Power group counseling intervention, Lochman et al. (2017) concluded that the counselor's skill level during the intervention was a more important predictor of future problem behavior than were peer effects. The authors noted that "group programs create an opportunity for new learning, which may be either positive or negative" and that negative peer influences during a group intervention can have a positive or negative effect on the other participants depending on the counselor's response, including setting clear rules while fostering a warm and nonjudgmental environment.

LAC. Our search found one study of the effectiveness of responsive services in LAC. Araya et al. (2013) used a large, randomized controlled trial to measure the effectiveness of a universal, CBT intervention offered to Chilean students in grade 9. The study finds the program had no impact on social-emotional skills.

LMICs. Rigorous research on school-based responsive services in LMICs is scarce; however, systematic reviews of mental health programs with adolescents in LMICs point to significant and positive effects on social-emotional skills and aggression. A systematic review and meta-analysis of life skills programs aiming to improve mental health outcomes in LMICs (encompassing school- and community-based psychosocial and social-emotional programs) found 50 eligible studies for inclusion in the review (Singla et al. 2019). The meta-analysis concluded that life skills programs yielded a positive impact on aggression, self-esteem, and self-efficacy. An earlier systematic review by Barry et al. (2013) of school-based mental health programs in LMICs found that universal life skills and resilience school-based programs had significant and positive impacts on self-efficacy, motivation, and self-esteem. Though, the large share of studies in the review focused on programs with children in areas of armed conflict, not all are school-based and, therefore, are not strictly relevant to this chapter.

Research in LMICs shows that responsive services can improve social-emotional skills and the school environment. A randomized controlled study of a series of participatory learning workshops with secondary school students in India concluded that the sessions led to improved self-esteem and student-reported connectedness to school and teachers, but not to improvements in student-reported relationships with peers or parents (Srikala and Kishore 2010). A randomized study of a conflict resolution training program for grade 4 students in Turkey conflict resolution skills and maintained those skills six months after the intervention (Güneri and Çoban 2004). An eight-session psycho-educational group training program for grade 10 students in Turkey succeeded in improving self-regulation skills but produced no difference in test scores (Onemli

and Yondem 2012).[190] A randomized controlled trial of a classroom-based psychosocial intervention for trauma-exposed children ages 8 through 12 years in Indonesia found increased hope and positive coping skills as a result of the program (Tol et al. 2010). A cluster randomized controlled trial of a classroom-based psychosocial intervention for children in Nepal found a positive effect on prosocial behavior as well as improvements in anxiety and function impairment (Jordans et al. 2010). In that study, girls experienced a larger treatment effect on prosocial behavior, and boys experienced a greater impact on psychological difficulties and aggression. Emerging evidence suggests that solutions-focused group counseling may be effective in increasing students' social-emotional skills (Joker and Ghaderi 2015). Cognitive behavioral therapy has also proven effective in reducing student aggression (Karatas and Gokcakan 2009).

There is emerging evidence that responsive services can reduce behavioral issues in the classroom. A quasi-experimental study of a program in Jordan that trained teachers to provide psychosocial support to refugee students found a reduction in teacher-reported student behavioral and emotional issues; student surveys reported an improvement in the school environment, teacher support, and relationships with peers (USAID 2015).

Research on peer counseling programs demonstrates improvements in rates of school violence and in social-emotional skills. A randomized controlled trial of high school students in Indonesia who were trained in peer conflict resolution-focused counseling (PCRC) found that the intervention led to improved peaceful behavior, nonviolence, and conflict resolution shortly after the intervention concluded (Latipun et al. 2012). Two evaluations of peer helping and peer mediation programs in Turkey demonstrated that the peer mediators themselves experienced gains in empathy (Sahin et al. 2011) and reflective skills, but the evaluations showed no effect on communications skills or self-esteem (Aladağ and Tezer 2009). In a survey of secondary schools with peer counseling programs, Kenyan students reported that peer counselors in their schools improved school security and reduced behavioral disruptions (Osodo et al. 2016). In Nigeria, secondary school students who received reciprocal peer counseling from trained peers registered an improved self-concept (Egbochuku and Obiunu 2006). In Turkey, a survey of over 800 high school peer mediators over two years found that 95 percent of incidents reported to peer mediators were resolved (Turnuklu et al. 2009). A quasi-experimental trial of a conflict resolution and peer mediation intervention with Turkish primary school students found positive significant reductions in aggression, particularly among male students (Turnuklu et al. 2010).

Peace education may reduce school violence and risky/aggressive behavior. An evaluation of a peace education program in Turkey found significant reductions in students' aggressive behavior (Sagkal et al. 2016). A peace education program for Palestinian and Israeli high school students significantly contributed to positive attitudes toward peace and attitudes against violence as a strategy for achieving peace (Biton and Salomon 2006). However, a Ugandan peace education curriculum implemented by teachers in grade 5 classrooms yielded

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[190] Onemli and Yondem's program (2012) program provided students with group training and structured activities (like keeping a diary) for developing skills related to self-regulation, planning, goal-setting and other relevant skills.

some positive impacts on student attitudes and opinions about conflict resolution, but no impacts on behavioral incidents (Mutto et al. 2009).

3. Substance abuse prevention programs

In Table XXIII.4, we summarize our findings on the impacts of substance abuse prevention curricula on violence, crime, and correlated outcomes. Our literature searches identified 3,106 papers on school counseling services, of which 13 eligible papers dealt with substance abuse prevention programs focused almost exclusively on risky and protective behaviors. We find no studies of effects on violence, crime, or environmental factors. Evidence of substance abuse prevention programs' effects on behaviors derives almost entirely from HICs and includes several systematic reviews and a few studies with strong designs. Two studies in HICs provide a weak base for effects on social-emotional effects. Appendix X presents more information about all studies of substance abuse prevention programs in this review, including the age group of interest and type of activities.

Table XXIII.4. Strength of evidence on the impacts on outcomes of interest: substance abuse prevention programs

| Intervention | Region | Impacts on outcomes correlated with violence and crime | | | Impacts on violence and crime | | |
		Social-emotional skills	Environ-mental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Substance abuse prevention programs	HICs	◗	⊖	◖	⊖	⊖	⊖
	LMICs	⊘	⊘	⊘	⊘	⊘	⊘
	LAC	⊘	⊘	◖	⊘	⊘	⊘

Note: Among the studies identified through the global foundational literature search, through the bibliographic literature searches in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 13 were eligible for inclusion.

◖= moderate body of evidence with positive findings; ◖ = weak body of evidence; ⊘ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **School-based substance abuse prevention programs have a moderate evidence base showing positive effects on behaviors, with better results for interactive, skill-based programs and delivery during early adolescence.** Several systematic reviews found that interactive delivery methods were superior to lectures (Faggiano et al. 2005; Foxcroft and Tsertsvadze 2011; Norberg et al. 2013; Cuijpers 2002) and that skill-based programs were more effective than programs focused on knowledge and attitudes (Faggiano et al. 2005; Foxcroft and Tsertsvadze 2011; Norberg et al. 2013). A systematic review focused on developmental stages showed that, even though universal programs had a small but significant effect on reducing drug and alcohol use and smoking in elementary school through grade 6, programs for students in grades 8 and 9 showed only a small effect on smoking while programs for students in grades 10, 11, and 12 showed no impacts (Onrust et al. 2016). Evidence suggests that multicomponent programs involving parents and families may be most effective in reducing and preventing substance use (Public Health England 2015). Peer-led substance abuse programs may be effective in reducing drug, alcohol, and tobacco use, although the pool of programs was limited

and of generally low quality (MacArthur et al. 2015). Some evidence indicated that the efficacy of substance abuse prevention programs may vary by gender and age. For example, Project ALERT was effective with girls in grade 9, reducing weekly alcohol and marijuana use and at-risk drinking, but the project had no impact on male students.

Reviews of programs by substance being targeted are limited, but those that exist suggest significant variations in efficacy related to the targeted substance abuse, program design, the timeline of the evaluation, and other factors. In a review of school-based drug prevention programs that employed a skill-based approach, Faggiano et al. (2008) found no studies that met all of the review's quality criteria and report pooled estimates showing a 20 percent reduction in the use of marijuana and a 55 percent reduction in the use of hard drugs. The authors also find that programs using a knowledge-based approach were far less effective. A systematic review of 50 RCTs of smoking prevention programs found that studies evaluating effects at one year or less had no significant impact but that studies evaluating results more than one year post-intervention had a mean risk reduction of 12 percent (Thomas et al. 2015). A systematic review of alcohol prevention programs concluded that only 3 of the 40 programs included in the review showed positive effects, 4 showed some positive effects, and 29 were inconclusive (Lee et al. 2016). Similar to Faggiano et al. (2008), Lee et al. noted that the 3 evidence-backed programs "are based on social learning principles that are embedded in real-life social situations, with social interactive components and out-of-classroom tasks." A separate review of preventive programs for underage drinking by developmental stage found just 12 programs out of 127 with the "most promising" evidence (Spoth et al. 2008). However, a meta-analysis focusing on brief alcohol prevention programs concluded that individually delivered programs had a significant and positive effect on reducing alcohol use (group programs had no effect) (Hennessy and Tanner-Smith 2015).[191] The authors hypothesized that group programs may not be as effective because of iatrogenic effects, particularly when students in the group have already reported alcohol or other substance use.

Substance abuse–specific programs are more beneficial when delivered in an individual rather than group format. Evaluations of various multicomponent programs targeting substance abuse revealed a similar result, indicating that substance abuse programs should take place before most students are exposed to alcohol, cigarettes, and drugs. Evaluations of the Resilient Families program, which aims to build positive relationships between students and families during secondary school, found beneficial impacts on educational outcomes but null impacts for alcohol use (Shortt et al. 2007). The authors speculated that grade 7 may be too late to introduce a program on substance abuse prevention. In a meta-analysis of school-based alcohol use prevention programs, Hennessy and Tanner-Smith (2015) concluded that group-based programs have null impact while individual programs have a beneficial effect. The authors cited previous research on iatrogenic effects to posit that programs delivered to groups may reinforce negative and risky behaviors.

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[191] Brief alcohol interventions are preventive alcohol interventions usually lasting less than 5 hours (Hennessy and Tanner-Smith, 2015).

LMICs. Our search found no studies of the effectiveness of substance abuse prevention programs in LMICs.

LAC. **Substance abuse prevention programs have shown mixed results in LAC by age and gender.** An oft-cited drug abuse prevention program for middle school students in Brazil, Unplugged, showed marginal effects on reducing binge drinking and marijuana use (Sanchez et al. 2016). However, the results are correlational and pertained only to students ages 13 through 15 years; the intervention had no impact on students ages 11 and 12 years. A correlational study of a linguistically but not culturally adapted version of the keepin' it REAL drug abuse prevention program delivered to grade 7 students in Mexico found significant improvements for female students, but none for males (Marsiglia et al. 2014). However, earlier studies of the keepin' it REAL program in the United States achieved significant positive impacts on Mexican-American students' drug use (Kulis et al. 2005).

4. Multicomponent programs

Multicomponent programs deliver a combination of counseling supports to students themselves, their family, or their neighborhood and community. In Table XXIII.5, we summarize our findings on the impacts of multicomponent programs on violence, crime, and correlated outcomes. Our literature searches identified 3,106 papers on school counseling services, of which 21 were eligible studies covering multicomponent programs. Three of the 21 studies focused on LMICs and LAC. In all contexts, the evidence on multicomponent programs' effects on violence and crime is weak, based on few studies with positive or mixed effects. The evidence base for behavioral outcomes in HICs is moderate and includes several studies of programs targeting at-risk children, studies using experimental designs but sometimes based on small samples, and evidence on several well-studied programs (for example, First Steps to Success). Multicomponent programs' effects on behaviors produced generally mixed results. In addition, we found limited, mixed evidence on social-emotional skills and school environment. Appendix X presents more information about all studies of multicomponent counseling programs in this review, including the age group of interest and type of activities.

Table XXIII.5. Strength of evidence on the impacts on outcomes of interest: multicomponent programs

		Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
Intervention	**Region**	**Social-emotional skills**	**Environ-mental factors**	**Risky and protective behaviors**	**Violent crime**	**Nonviolent crime**	**School violence**
Multicomponent programs	HICs	🟡	⊖	🟡	◯	🟡	⊖
	LMICs	◖	🟡	∅	∅	🟡	🟡
	LAC	∅	∅	◖	∅	∅	∅

Note: Among the studies identified through the global foundational literature search, through the bibliographic literature searches in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 21 were eligible for inclusion.

◯ = emerging body of evidence with positive findings; 🟡 = mixed findings in emerging or larger body of evidence; ◖ = weak body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **Research shows mixed impacts of multicomponent programs on improved school environment factors, risk and protective behaviors, and school violence as well as on heterogeneity of effects for different intervention groups**. Linking the Interests of Families and Teachers (LIFT) is a program that combined both universal and targeted components: (1) universal classroom-based social and problem skills training, (2) playground-based behavior modification, and (3) group-delivered parent training. Several rigorous evaluations of the program found a significant decrease in child aggression and improved prosocial behavior, but the effects were strongest for children who had the highest level of behavior problems before the intervention (Stoolmiller, Eddy, and Reid 2000; Eddy et al. 2000). A long-term follow-up of the original RCT found that LIFT had a significant effect on reducing the growth rate in the use of tobacco and illicit drugs, particularly among girls, and that it reduced initial tobacco and alcohol use by 10 percent (DeGarmo et al. 2009). Harrington et al. (2001), in an RCT evaluation of the All Stars character education and problem behavior prevention program, found negative effects of the program over time, particularly for African American and Hispanic students. All Stars used positive role models to deliver curricula designed to help youths identify the consequences of substance abuse for their ideal lifestyles, change beliefs about norms related to abstinence, and develop personal commitments to avoiding substance abuse. Substance abuse, sexual activity, and violence increased over the program's duration. On the other hand, Ngwe et al.'s (2004) evaluation of the Aban Aya Youth project finds largely positive effects for two violence prevention programs African American middle school males. The study examined two curricular programs focused on reducing violence, risky sexual behaviors, and substance abuse, these curricula are unique in that they were developed specifically for Afro-American youth. Both programs significantly reduced the rate of increase in violence (as violence increased in the intervention and control groups) and in provoking behavior, school delinquency, drug use, sexual intercourse, and unprotected sex. The program found null impacts for female students.

Our search found evidence of effective multicomponent programs at different educational levels, including at the pre-primary, elementary, and middle school levels, but at least one study suggests that earlier intervention is more effective. The Metropolitan Area Child Study Research Group (2002) studied a multicomponent intervention that involved parent counseling, a classroom intervention, and small-group peer skills training. In a cluster RCT that included 1,500 elementary school children, the study found that the intervention proved successful in reducing antisocial behavior only if implemented earlier in a child's schooling and only if the school had sufficient resources to implement the program. Schools with more disadvantaged students experienced adverse effects of the program, which, per the authors' speculation, may have been attributable to iatrogenic effects in small-group sessions.

Evaluations of targeted, multicomponent programs show that they may be successful, but there is no direct evidence supporting their superiority over universal programs; one evaluation compared approaches and found that both can succeed. First Step to Success targeted kindergarten students who demonstrated antisocial behavior; it aimed to develop their ability to exhibit positive behavior as they moved into elementary school. The program, which has undergone rigorous evaluation in diverse settings and among diverse populations, significantly reduced participants' problem behavior and improved their prosocial behavior, though there is mixed evidence of its impact on academic outcomes, which dissipate one year post-intervention (Sumi et al. 2012; Walker et al. 2005, 2009; Seeley et al. 2017; Feil et al. 2016; Seeley et al. 2017; Feil et al. 2016; Walker et al. 2009; Woodbridge et al. 2014). Lochman and Wells (2002)

evaluated a multicomponent program called Coping Power for middle school children identified by their teachers as at high risk of behavioral problems. The RCT tested the universal and targeted components of the intervention separately and together against a control group. The study found that all three intervention groups achieved significantly reduced substance abuse rates and reduced aggressive and antisocial behavior and realized an improved home environment with more supportive parents. A follow-up study by Lochman and Wells (2004) found reductions in covert delinquent behavior (theft, fraud, property damage) by the time of the one-year follow-up, but no intervention effects on overt delinquency (assault, robbery). There were also significant improvements in teacher-reported classroom disruptions. The Coping Power program produced reductions in teacher-rated student aggression and externalizing problems post-intervention and at one-year follow-ups (Lochman and Wells 2004; Lochman et al. 2009) and preventive effects on substance use at one-and four-year follow-ups (Wells 2004; Zonnevylle-Bender et al. 2007). A study of the effects on preschoolers was similarly promising (Muratori et al. 2019).

Some studies have concluded that multicomponent programs are not cost effective given their mixed impacts. A meta-analysis of mental well-being programs for primary school students explained that the programs were not worth their cost given their modest or, in the case of the Eron et al. (2002) study, adverse effects (Shucksmith et al. 2007).

LMICs. A single, large study identified within the LMIC literature shows that multicomponent programs, even when implemented by teachers or other lay staff, may be effective in improving student outcomes. The dearth of evidence, however, prevents the formulation of any firm conclusions. In India, lay school health counselors implemented a multicomponent health promotion intervention for students that combined classroom-based life skills training and individual psychosocial and academic counseling. The lay health counselors initially received supervision, but the supervision declined as the program underwent implementation. A randomized controlled trial of nearly 14,500 students found that the program led to positive and significant improvements in school climate, violence perpetration and victimization, attitudes toward gender equity, and secondary outcomes of depression (Shinde et al. 2018). However, the same impacts did not materialize when teachers implemented the same intervention, indicating that other constraints may inhibit teachers' effective implementation of the program.

LAC. **Multicomponent programs focused on counseling and mental health show improvements in risk behavior and school violence.** Chile operates a nation-wide mental health counseling program for elementary school students called Skills for Life, in which students screened as being "at risk" in grade 1 are referred to standardized, 10-session school-based workshops implemented by a psychologist in grade 2. The program also includes universal components, in which all students receive counseling to build resiliency and life skills such as conflict resolution; in addition, parents and teachers undergo training on fostering positive mental health behaviors, reducing exposure to family-level risk factors, and related topics (Garfin et al. 2014). In a large-scale correlational evaluation of the program's effect on 26,429 students, researchers found a strong and significant positive correlation between the number of workshops attended by students and reductions in parent- and teacher-reported behavior problems in grade 3 (Guzmán et al. 2015).

C. Recommendations

1. Recommendations for future research

Our review finds that the evidence connecting school counseling to improvements in violence, crime, and correlated outcomes largely derives from in HICs. We find few studies on counseling programs in LMICs and LAC. Given that school counseling programs differ broadly in their design and implementation, it is difficult to ascertain whether school counseling generally is an effective approach to improving outcomes. Research on responsive services reveals mixed findings on the relative effectiveness of universal, group, and targeted programs. However, we have identified some promising programmatic components. In particular, cognitive behavioral therapy, a key component of responsive services, has consistently improved social-emotional skills, behavior, and the school environment. We therefore recommend high quality research on the effectiveness of school counseling in LAC countries and LMICs be conducted. In addition, we recommend:

- Research exploring whether which of the approaches taken (universal, group, or individual counseling programs) are more effective and what the relative cost-effectiveness is of those that are most effective. Though all such programs have found some success, it remains unknown whether one approach is better than the other in terms of benefits and costs. In addition, exploring whether some programs generate negative effects is also an important consideration.
- **Investment in studies on best practices for teacher-led programs.** Evidence supports reliance on professionally trained implementers to deliver programs, but such a requirement may be out of reach in many resource-poor contexts. Several studies have shown that teachers are already important implementers of counseling programs and that their efficacy is mixed. Studies rarely provide insights into what programs and programs could be adapted for teachers and how to do so. Additional research on teacher-led programs is needed, particularly in diverse contexts.

2. Recommendations for investing in school counseling services

Based on the global evidence, we recommend that policymakers and funders focus on the following:

- **Social and psychological factors, such as behavioral intentions, attitudes, and peer influences, may mediate violence and aggressive behavior and should be a focus of future programs.** Ngwe et al. (2004) found that "virtually all of the associations between the intervention and the reduction in the rate of growth of violence arose from the mediating effects of behavioral intentions, attitudes toward violence, and estimates of peers and best friends' behaviors."

- **Because at-risk students often do not take advantage of the available counseling services, programs should implement targeted strategies for reaching such students.** Some of the reasons that at-risk Kenyan high school students did not seek counseling services included the absence of a same-sex counselor, mistrust or lack of confidence in counselors, and concern about the stigma associated with visits to the counseling center (Kamunyu et al. 2016). Additional research is needed to understand

the challenges and barriers to at-risk students seeking school-based counseling services in LAC countries or LMICs.

- **Service guidelines may be needed to ensure the effectiveness of broad-based counseling services.** Evidence from HICs shows that school counselors can be effective in improving school violence and risk behaviors. However, studies of counselors' day-to-day activities demonstrate that guidelines mandating a focus on specific services are important for ensuring effectiveness. In other words, the simple availability of a consultative service within schools may fail to deliver benefits. Guidelines established by the American School Counselor Association warn against using counselor's time to perform administrative duties and recommend counselor certification.

- **Implementation characteristics are a factor in program outcomes and evidence suggests recruiting professional providers for some programs.** School counselor and responsive services research finds that the counselor's skill level is important to success, particularly when mediating group sessions. Teachers, trained volunteers, and school nurses have proven to be effective in referring students for mental health and other responsive services in resource-constrained environments, but evidence supporting their efficacy as program implementers is mixed (Blank et al. 2010). Furthermore, teachers may not be able to fulfill any additional responsibilities given their obligations to ensuring academic outcomes.

- **Prioritize skills-based substance abuse prevention programs over approaches focused on generating knowledge or changing attitudes.** HIC-based research shows that skills-based substance abuse prevention programs are generally more effective than programs targeting knowledge or attitudes.

XXIV. PARENTING PROGRAMS

Evidence summary and mechanisms through which intervention can affect violence and crime				
	Overall evidence			
Intervention	**Correlated outcomes**	**Violence and crime outcomes**	**Evidence from LAC/LMICs**	**Mechanisms**
Parenting programs	◖	◯	◖	Improving the child's home environment and social emotional skills can reduce violence and crime. They can also improve risky or protective behaviors, which can also reduce violence and crime.
Legend: ● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ◯ = emerging body of evidence with positive findings; ◯ = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ◯ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ∅ = no body of evidence.				
The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.				

A. Program description

In this chapter, we review evidence on the impact of programs that seek to improve children and youth outcomes by educating and engaging parents about child and youth development–on violence, crime, and correlated outcomes. We then identify promising programs and important areas for future research. In Table XXIV.1, we summarize the key program elements, typical target age group, characteristics of the targeted beneficiaries, and goals of parenting programs.

Table XXIV.1. Summary of parenting programs: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
Parenting programs	Ages 3 through 29 years	Parents of varying groups of youth: general public, children or youth at risk of maltreatment, maltreated children and youth	Training, support, or education for parents, focused on the role of parents in children's and youths' development	Improve children's and youths' development

Parenting programs provide parents and other caregivers with training, support, or education on topics of parenting practices and child development to improve children's cognitive, social-emotional, behavioral and physical skills (for example, literacy, emotional regulation) and ultimately educational and later-life outcomes (Britto et al. 2014; Mejia et al. 2012). There is substantial evidence of correlations between parents understanding of child development, their use of coercive or authoritative parenting styles (which rely on the threat or use of violence), parental hostility/warmth, and subsequent child outcomes, including violent and criminal behavior, poor school achievement, delinquency, depression, levels of empathy, behavioral inhibition, aggression, externalizing behaviors, smoking, substance abuse, risky sexual behavior, and acts of domestic violence later in life (Knox et al. 2011; Burkhardt et al. 2013; Coore Desai et al. 2017; Hoeffler 2017). This is further supported by evidence that authoritative parenting, which instead relies on forgiveness and support to respond to misbehavior is associated with

children's level of empathy, their ability to accept responsibility for behavior, and their internal motivation to improve behavior (Ahmed and Braithwaite 2006).

Parenting programs exhibit wide variation in the delivery method, location, content, and components. For example, programs may be delivered to parents individually or in groups and may be held in a variety of locations, including schools, community centers, hospitals, or parents' homes (Coore Desai et al. 2017). Program content may include a diverse range of topics, including discipline without the use or threat of violence, child health and nutrition, and the support of child learning and education (Britto et al. 2014). In addition to training activities, parenting programs may provide parents and caregivers with additional support, such as home visits, adult literacy activities, job training, and components to improve parents' emotional well-being (Britto et al. 2014; Lundahl 2006).

Theory of change. Parenting programs affect the child's home environment, social-emotional skills, and likelihood of engaging in risky or protective behaviors. Because children spend most of their time outside of school, where their learning environment is a product primarily of parents and caregivers (Dowd et al. 2018), information provided to parents and caregivers about child development and best parenting practices can improve child outcomes. By improving parenting practices, the child's home environment and social emotional skills can improve, thereby affecting risky or protective behaviors as well as affecting violence and crime in the longer run as described in Chapter II.

Target beneficiary profiles. The target populations of parenting programs vary widely but may be classified into broad categories based on children's age and whether children are at risk of maltreatment. Coore Desai et al. (2017) classified parenting programs into three groups based on the level of risk associated with children's exposure to maltreatment: universal programs aimed at the general public, selective programs directed to at-risk groups, such as families living in poverty; teen mothers; children at high risk of abuse, and targeted programs that are aimed at groups or individuals that have already exhibited problematic behaviors. Britto et al. (2014 further noted important differences between parenting programs that target parents of children up to age 3 years, which "have a health, nutrition, and/or stimulation focus," and programs that target older children, which "have a social, learning and education focus."

B. Findings from the evidence review

Moderate evidence exists on the impact of parenting programs on risky and protective behaviors, social-emotional skills, and environmental factors, but the results are largely mixed. There is, however, relatively little evidence of the impact on violence and crime, except for an emerging evidence base in HICs and LAC showing mixed results of the impact of parenting programs on violent crime and positive results of the impact on nonviolent crime. We also found no evidence of the impact of parenting programs on community environment factors.

In Table XXIV.2, we summarize the evidence of the effects of parenting programs on violence, crime, and correlated outcomes. Our literature search for community engagement programs identified 1,192 papers, in addition to the 1,969 papers we identified through our

global grey literature search of community outreach and awareness program.[192] Of these papers, 62 studies were eligible for inclusion in this section, including 2 meta-analyses, 7 systematic reviews, 16 studies in LAC, 24 in LMICs, and 23 in HICs. Appendix Y presents more information about all studies of parenting program in this review, including the age group of interest and type of activities.

Table XXIV.2. Strength of evidence on the impacts on outcomes of interest: parenting programs

		Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
Intervention	**Region**	**Social-emotional skills**	**Environ-mental factors**	**Risky and protective behaviors**	**Violent crime**	**Nonviolent crime**	**School violence**
Parenting programs	HICs	🟡	🟡	🟡	🟡	⊖	⊖
	LMICs	◖	🟡	🟡	⊘	⊘	⊘
	LAC	◯	🟡	🟡	⊘	⊘	⊘

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 62 were eligible for inclusion.

◖ = moderate body of evidence with positive findings; ◯ = emerging body of evidence with positive findings; 🟡 = mixed findings in emerging or larger body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. **We found an emerging evidence base in HICs with mixed results of the impact of parenting programs on violent crime.** An experimental study conducted by Haggerty et al. (2007) evaluated (1) a self-administered family training program with telephone support and (2) Staying Connected with Your Teen, a program providing seven weekly family training sessions. The study found that, two years after the end of the intervention, the self-administered program led to improvements in self-reported violence in the past month among African American youths but not among white youths, but the training sessions had no impact on self-reported violence among all youths.

The large evidence base of parenting programs in HICs for risky and protective behaviors includes several rigorous studies, but the findings are mixed. Leijten et al. (2016) conducted a meta-analysis of 129 studies of parenting intervention in the United States, Canada, Australia, the United Kingdom, and Ireland and found positive impacts on risky and protective behaviors. We also identified 5 experimental studies (Beckett et al. 2010; Chung et al. 2015; Somech and Elizur 2012; Spoth et al. 2001; Sumargi et al. 2015) and one systematic review of 8 studies (Lundgren and Amin 2015) of parenting programs in HICs, all of which showed positive impacts. However, we found 3 experimental studies (Bjørknes and Manger 2013; Haggerty et al. 2007; Osman 2017) and one systematic review of 13 studies (Pisani Altafim and Martins Linhares 2016) that showed mixed results and 2 experimental studies (Chung et al. 2015; Scott et

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[192] The bibliographic and grey literature searches for this chapter, as well as for chapters XXV and XXVI, included search terms for all three types of community engagement programs: parenting programs, community outreach and awareness, and school-based management. The GCSE searches, however, were conducted separately for each type of program.

al. 2010) that found no results. In addition, a systematic review conducted by Farrington and Welsh (2007) identified 9 studies of parent behavioral training and found mixed results in the short term but no impacts of training programs in the longer run.

There is less evidence of the impact of parenting programs in HICs on social-emotional skills than that on risky and protective behaviors and it is likewise mixed. Experimental studies by Murry et al. (2005) in the United States, Somech and Elizur (2012) in Israel, and Sumargi et al. (2015) in Australia found positive impacts of parenting programs within three months of the conclusion of programs. In addition, a systematic review by Pisani Altafim and Martins Linhares (2016) identified 13 evaluations of parenting programs and found largely positive impacts on social-emotional skills. We also identified 2 additional experimental studies that found either mixed impacts (Osman 2017) or no impacts (Bjørknes and Manger 2013).

We found a moderate base of evidence with largely positive impacts of parenting programs on the family environment; and inconsistent findings within limited evidence for the effect on the school environment, and no evidence for the effect on the community environment. The strongest piece of evidence comes from a meta-analysis of 23 studies of parenting training programs conducted by Lundahl et al. (2006), which found positive impacts of parenting programs on the family environment. The evidence is supported by the findings of 7 experimental and one quasi-experimental study in HICs as well as by the systematic review conducted by Pisani Altafim and Martins Linhares (2016).[193] We also found, however, some rigorous evidence of mixed or no impacts of parenting programs on family environment factors. Bjørknes and Manger (2013) and Zhang et al. (2018) conducted experimental evaluations of parenting programs in Norway and the United States, respectively, and found mixed impacts. Systematic reviews conducted by Coore Desai et al. (2017) and Lundgren and Amin (2015) identified 28 and 8 studies of parenting program, respectively, that likewise found mixed results. Finally, the systematic review conducted by Pisani Altafim and Martins Linhares (2016) identified one experimental study focused on school environment factors and found positive impacts on relationships of peers.

T**he studies that we identified also include evidence that the impacts of parenting programs on family environment factors may persist over time, but these results are also mixed.** For example, Fabrizio et al. (2014) found positive impacts of a parenting program in Hong Kong at 3-, 6-, and 12-month follow-ups, but another evaluation of the same program a year earlier found that mixed impacts at the end of the intervention dissipated 3 months later (Fabrizio et al. 2013).

LMICs/LAC. **We found no evidence in LAC countries or LMICs of the impact of parenting programs on violent and nonviolent crime, but moderate evidence bases in LMICs and LAC present mixed pictures of the impact of parenting programs on risky and protective behaviors.** We found several experimental and quasi-experimental studies in LMICs and LAC that show positive impacts of parenting programs throughout the first post-intervention

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[193] The seven experimental studies: Beckett et al. (2010); Fabrizio et al. (2014); Marsiglia et al. (2014); Murry et al. (2005); Scott et al. (2010); Somech and Elizur (2012); and Sumargi et al. (2015); the quasi-experimental study: Knox et al. (2011).

year. For example, experimental evaluations of parenting programs showed positive impacts after the first few weeks post-intervention (Magwaza and Edwards 1991 in South Africa; Mejia et al. 2015 in Panama), after three and six months (Mejia et al. 2015); after six to eight months (Campero et al. 2011; quasi-experimental in Mexico); after nine months (Weisleder et al. 2018 in Brazil); and after one year in Turkey (Kagitcibasi et al. 2001; Kagitcibasi et al. 2009), Ethiopia (Klein and Rye 2004), and South Africa (Magwaza and Edwards 1991). In addition, a systematic review conducted by Chen and Chan (2016) identified nine evaluations of parenting programs targeting parents of 3- to 11-year-old children in LMICs and found positive impacts on risky and protective behaviors.

We also identified several evaluations of parenting programs that found mixed or no impacts on risky and protective behaviors, including one-month experimental evaluations in Liberia (Puffer et al. 2015; Sim et al. 2014b; no estimated impacts), a six- to eight-month experimental evaluation in Russia (Williams et al. 2001; no estimated impacts), a one- to five-month quasi-experimental evaluation in Mozambique (Skar et al. 2014; mixed estimated impacts), and a two- to seven-year quasi-experimental evaluation in Ecuador (Lavy et al. 2016; no estimated impacts). Evidence from less rigorous sources is likewise mixed with two pre-post (Maalouf and Campello 2014; Reyes-Moreno 2011) and one qualitative (Arunothong and Waewsawangwong 2012) study showing positive benefits and two pre-post studies showing mixed or no impacts (Cluver et al. 2016; Cluver et al. 2017).

For social-emotional skills, we found emerging evidence in LAC countries and moderate evidence in LMICs, which generally show positive impacts of parenting programs. Of the five experimental evaluations of parenting programs we identified in LMICs and LAC, three showed positive impacts (Kagitcibasi et al. 2009; Klein and Rye 2004; Weisleder et al. 2018), and one showed no impacts (Puffer et al. 2015). Systematic reviews conducted by Chen and Chan (2016) and Britto and co-authors (2017) found largely positive impacts on social-emotional skills, and we identified two pre-post studies of parenting programs in South Africa (Cluber et. al. 2016) and nine LAC countries (Maalouf and Campello 2014) that showed improvements in social-emotional skills among children of program participants. We also identified two quasi-experimental studies that found mixed long-term impacts on children's interest in school (Lavy et al. 2016 in Ecuador) or no medium-term impacts on social skills (Cardenas et al. 2017 in Mexico), but the strength of the evidence is significantly less than that in the experimental studies we identified.

As in HICs, we found a large, mixed-evidence base of the impact of parenting programs on family environment factors, but limited evidence for school or community factors in LAC countries and LMICs. For family environment factors, we found several studies that showed positive impacts on parenting practices and/or parent-child relationships, including 16 experimental studies (7 in LMICs and 9 in LAC), one quasi-experimental study in Mozambique, 3 systematic reviews of studies in LMICs, and 3 pre-post studies (2 in LMICs and one in LAC).[194] However, we also found 8 experimental studies, one quasi-experimental study,

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[194] The 17 experimental studies showing positive results: Andrew et al. (2018a); Ashburn et al. (2015); Castro (2015); Gertler et al. (2014); Kagitcibasi et al. (2001); Katahoire et al. (2019); Klein and Rye (2004); Knauer et al.

and one pre-post study that showed mixed or no impacts on family environment factors.[195] In addition, the study that showed positive short-term impacts (Andrew et al. 2018a) found no impacts two years later. For school and community environment factors, we found only a single pre-post study of the impact of parenting programs on the school environment that showed positive impacts (Cluver et al. 2017), but the quality of the study design was too weak to draw causal inference.

Despite these mixed results, we found high quality evidence in LMICs and in LAC that the impact of parenting programs on family environment factors may take time to develop fully. For example, Wang et al. (2014) and Dinaj-Koci et al. (2015) found no impacts of a parenting program in the Bahamas on the social-emotional skills of grade 10 students after 6 months, but, by 12 months, the estimated impacts were mixed, and, by 18 months, the estimated impacts were consistently positive. Similarly, Ashburn et al. (2015) found mixed impacts of a parenting program in Uganda after 4 months, but the findings became positive between 8 and 12 months post-intervention.

We identified cost-effectiveness analyses of two parenting programs in LMICs and LAC, but neither set of analyses allowed us to draw strong conclusions about the cost effectiveness of parenting programs in these contexts. Cardenas et al. (2017) conducted cost-effectiveness analyses of weekly group parenting sessions in Mexico and found cost-effectiveness estimates of $23.85 per 0.1 gain in a parenting practice index and $54.05 per 0.1 gain in an index of communication and gross motor skills. However, the authors did not provide comparable statistics from other programs, making it unclear how to interpret the results. They also compared the costs of the program to other early childhood care and education programs in LAC and found that the program in Mexico was an order of magnitude less expensive than most other programs (and one-third the cost of a home visit program in Jamaica). Taylor et al. (2017) conducted a cost-effectiveness analysis of a parenting program in South Africa, but it is difficult to place much weight on the analysis because the estimated impacts of the program in the study are not statistically distinguishable from 0.

C. Recommendations

1. Recommendations for future research

Our review found a moderate body of evidence across all three geographic regions for the impacts of parenting programs on risky and protective behaviors, social-emotional skills, and environmental factors, specifically family environment factors. However, the consistency of the findings was low, with several evaluations finding mixed or no impacts within an outcome category. In addition, aside from a small handful of studies, the evidence of impacts on violence

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(2016); Mejia et al. (2015); Oveisi et al. (2010); Puffer et al. (2015); Sim et al.(2014a); Sim et al. (2014b); Skar et al. (2017); To et al. (2019); Wang et al. (2014); and Weisleder et al. (2018). The quasi-experimental study: Skar et al. (2014). The 3 systematic reviews: Chen and Chan (2016, 9 studies); Coore Desai et al. (2017, 2 studies); and Knerr et al. (2016, one study). The 3 pre-post studies: Cluver et al. (2016); Maalouf and Campello (2014); and Vandenhoudt et al. (2010).

[195] The experimental studies: Al-Hassan and Lansford (2011); Ashburn et al. (2015); Banerji et al. (2017); Dinaj-Koci et al. (2015); Knauer et al. (2016); Taylor et al. (2017); Wang et al. (2014); and Williams et al. (2001). The quasi-experimental study: Cardenas et al. (2017); the pre-post study: Cluver et al. (2017).

and crime and for other types of environmental factors was largely non-existent. In addition, the evidence suggests that the impacts of parenting programs may remain unchanged or increase over time, but the findings are somewhat mixed. Because of the mixed findings in the existing literature, we recommend additional experimental or high quality quasi-experimental research on the impacts of parenting programs on violence and crime, especially in LMICs and LAC, that also incorporates cost-benefit analyses. In addition, we recommend high quality research that uses a longitudinal design to track the impact of parenting programs over several years, to provide policymakers with a fuller picture of the long-term impact of parenting programs.

2. Recommendations for investing in parenting programs

Drawing on the available body of evidence we identified, we provide the following recommendation:

- **Based on moderate evidence of the positive impacts of parenting programs on improving parenting and reducing child maltreatment, we recommend that policy makers consider implementing parenting programs as an effective means of improving the home environment.** However, we also found examples of studies with positive, mixed, and no impacts, suggesting that the programs' efficacy might be sensitive to the local context or quality of implementation.

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XXV. COMMUNITY OUTREACH AND AWARENESS PROGRAMS

Evidence summary and mechanisms through which intervention can affect violence and crime				
	Overall evidence			
Intervention	**Correlated outcomes**	**Violence and crime outcomes**	**Evidence from LAC/LMICs**	**Mechanisms**
Community outreach and awareness programs	◐	∅	◐	Improved community, school, and family environment can improve other outcomes correlated with violence and crime. Additionally, improving school enrollment and attendance can indirectly improve social-emotional skills, protective and risk behaviors, which can in turn improve violence and crime.
Legend: ● = strong body of evidence with positive findings; ◐ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ◓ = mixed findings in emerging or larger body of evidence; ◔ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◐ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◑ = weak body of evidence; ∅ = no body of evidence.				
The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.				

A. Program description

In this chapter, we review evidence on the impact of education-focused community outreach and awareness programs—programs that seek to improve youth outcomes by informing and mobilizing community members about education—on violence, crime, and correlated outcomes. We then identify promising programs and important areas for future research. In Table XXV.1, we summarize the key program elements, typical target age group, characteristics of the targeted beneficiaries, and goals of community outreach programs.

Table XXV.1.   Summary of community engagement programs: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
Community outreach and awareness programs	Ages birth through 29 years	Community members, family members of children and youth	In-person or media campaigns, including meetings, performances, posters, radio or television programming	Improve children's and youths' outcomes through increased public knowledge, changes in public norms, and mobilization of community members

Education-focused community outreach and awareness programs seek to inform and mobilize members of the local community to address problems with education and schooling in the community. Program outreach can take place directly through in-person activities, such as community meetings, workshops, or performances, or remotely through media campaigns, such as flyers, posters, or radio or television programming. In addition, some researchers argue that combining both direct and remote activities, including varieties of media communication, may produce more successful communication campaigns by, for example, relying on messaging delivered by different media sources that reinforce one another and may be tailored to different audiences (Schmidt et al. 2016a).

Community outreach and awareness programs are designed to improve child outcomes and correlated environmental outcomes by (1) providing community members with information or (2) engaging directly with community members to undertake collective action:

Information-focused programs. Programs can seek behavioral change by providing information that is designed to change attitudes and perceptions among community members or by providing community members with information about local services and programs to incentivize their use and increased accountability. An important example of community outcomes and awareness programs that provide information to change attitudes are social and behavior change communication (SBCC) activities. SBCC activities have a long history in the field of public health and seek to change community behavior through a communication campaign designed to shift community attitudes (a person's overall favorable or unfavorable feelings toward the behavior), community norms (perceptions of what others think one should do and perceptions of what others are doing), and sense of self-efficacy among community members (confidence in one's ability to perform the behavior) (Schmidt et al. 2016a; Guedes 2004).

An example of programs that seek change by providing information about public services are programs designed to encourage community-based monitoring (CBMs) of the delivery of public services. CBM-focused programs seek to provide community members with information about the existence and performance of public services, either by introducing community members to existing accountability mechanisms or by directly providing them with the relevant information about the public service (for example, information on school performance).

Mobilization-focused programs. Community outreach and awareness programs also include programs focused on facilitating collective action among community members to address a problem facing the community and build local capacity for collective action. An important example of mobilization-focused programs are programs that encourage community members to create community action plans (CAP), which communities can use to help acquire public and private resources to address problems in the community (Blair et al. 2017).

Theory of change. Education-focused community outreach and awareness programs should directly improve the community environment, the school environment, and the family environment by changing attitudes around schooling, particularly for at-risk or marginalized children or youth. The programs may also indirectly improve social-emotional skills development, protective behaviors, and risk behaviors through increased school enrollment and attendance and through increased support from community members, family members, and other students. In turn, these outcomes can affect violence and crime as described in Chapter II.

Target beneficiary profiles. The target population of education-focused community outreach and awareness progress are parents and families of children, other children and students, and other members of their community.

B. Findings from the evidence review

There is a weak body of exclusively qualitative evidence of the effect of community outreach programs on family, school, and community environmental factors (these include aspects of children's home, school, and greater community that either protect them from negative outcomes or put them at risk of negative outcomes, like the presence of violence, substance use,

or support for schooling). In Table XXV.2, we summarize the evidence on the effects of community outreach and awareness programs on violence, crime, and correlated outcomes. We identified 1,192 papers, in addition to the 1,984 papers we identified through our global grey literature search of community engagement programs.[196] Of these papers, 3 were eligible for inclusion in this section, all of which focused on programs in LMICs. Appendix Z presents more information about all studies of community outreach and awareness programs in this review, including the age group of interest and type of activities.

Table XXV.2.   Strength of evidence on the impacts on outcomes of interest: community outreach and awareness programs

Intervention	Region	Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
		Social-emotional skills	Environmental factors	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Community outreach and awareness programs	HICs	⊖	⊖	⊖	⊖	⊖	⊖
	LMICs	⊘	◐	⊘	⊘	⊘	⊘
	LAC	⊘	⊘	⊘	⊘	⊘	⊘

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 3 were eligible for inclusion.

◖ = weak body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. We found no evidence of the relationship between education-focused community outreach and awareness programs and outcomes related to violence and crime in HICs.

LMICs. **We found no evidence of impacts on violence and crime, social-emotional skills, or risky and protective behaviors in LMICs, but we did find a small number of qualitative studies that provide weak evidence of positive impacts on environmental factors**. Adorna et al. (2011) conducted a qualitative study that evaluated a number of programs in Mozambique, including (1) a program that facilitated community discussions with audio-visual presentations in remote areas that were focused on child rights, education, and health and (2) a community theatre program that was focused on issues affecting children and women, including girls' education and violence prevention. The theatre program used a *teatro do oprimido* (or "theatre of the oppressed") strategy, which used audience participation to encourage discussion and debate among community members about the issues presented in the shows. The study reported that both types of programs increased community knowledge and sensitivity to youth-focused issues, including education.

A qualitative evaluation of a UNICEF-funded multicomponent program focused on improving educational access and livelihoods of children working in the streets in Afghanistan

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[196] The bibliographic and grey literature searches for this chapter were combined with those for parenting programs and community outreach and awareness. The GCSE searches, however, were conducted separately for each type of program.

found evidence of reduced use of hitting as a punishment among parents who attended one of the program's awareness campaign events (UNICEF 2015a). Parents also reported stronger community support for street-working children in communities that hosted awareness an meeting. Finally, we found a qualitative evaluation of Opportunities for Vulnerable Children Program, a USAID-funded multicomponent program in Indonesia, which included an activity that used radio, television talk shows, and enrollment drives to raise awareness of disability-inclusive education and increase enrollment rates among disabled children and youth. The study found evidence that parents of disabled children in intervention communities felt less afraid to bring their children into public and send them to school and felt more knowledgeable and able to interact in a positive way with their disabled children (USAID 2013a). The study also found that other students and community members reported becoming more accepting of students with disabilities after exposure to the awareness campaign.

LAC. We found no evidence of the impact of education-focused community outreach and awareness programs on any outcomes related to violence and crime in LAC.

C. Recommendations

1. Recommendations for future research

Our review found a weak body of evidence in LMICs on the impacts of community outreach and awareness programs on environmental factors, and no evidence on the effects of such programming on violence, crime and other correlated outcomes. The findings suggest that outreach programs may improve community members' knowledge and sensitivity to issues that affect schooling decisions and experiences of children and youth in their communities. We therefore recommend rigorous research on the impact of and cost-effectiveness of community outreach and engagement programs on violence, crime and correlated outcomes in LAC countries and LMICs, since the theory of change for such programs to work through environmental factors is strong.

2. Investing in community outreach and awareness programs

Given the weakness of the global body of evidence, we cannot provide recommendations of whether and how to invest in education-focused community outreach and awareness programs to improve violence, crime and correlated outcomes.

XXVI. SCHOOL-BASED MANAGEMENT PROGRAMS

Evidence summary and mechanisms through which intervention can affect violence and crime				
	Overall evidence		**Evidence from LAC countries or LMICs**	
Intervention	**Correlated outcomes**	**Violence and crime outcomes**		**Mechanisms**
School-based management programs	◯ (yellow)	⊘	◯ (yellow)	Improved school environment can reduce school violence and other risky behaviors and can improve learning and social-emotional skill development. Changes in each of these can result in reduced criminal and violent activity.
Legend: ● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ◯ = emerging body of evidence with positive findings; ◯ = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ◯ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ⊘ = no body of evidence.				
The evidence summary in this box reflects the evidence base for any outcome category regardless of the strength or direction of evidence for the other outcome categories.				

A. Program description

In this chapter, we review evidence on the impact of school-based management (SBM) programs that seek to engage the community in management of the school on violence, crime, and correlated outcomes. Table XXVI.1 we summarize the key program elements, typical target age group, characteristics of the targeted beneficiaries, and goals of SBM programs.

Table XXVI.1. Summary of school-based management programs: age group, target beneficiaries, program elements, and goals

Intervention	Typical age group	Characteristics of target beneficiaries	Typical program elements	Goals
School-based management programs	Ages 6 through 29 years	Schools that lack involvement in decision making by local stakeholders such as parents, teachers, directors, and other community members	Decentralized school decision making and increased involvement of parents (for example, school management committees, parent-teacher associations)	Improve children's and youths' outcomes through improved school quality

SBM programs are a form of educational decentralization that seeks to increase the participation of the local community in school administration by shifting a greater amount of decision-making authority and oversight of school management from central governments to principals, teachers, parents, and other community members and by creating and strengthening formal bodies that allow parents to be both better informed about school performance and management and become more involved in school administration. Examples of areas of school management that lend themselves to decentralization under SBM programs include (1) budget allocations, (2) hiring and firing of teachers and other school staff, (3) curriculum development, (4) procurement of textbooks and other educational materials, (5) infrastructure improvement, and (6) monitoring and evaluation of teacher performance and student learning outcomes (Barrera-Osorio et al. 2009). By decentralizing decision-making authority of school management

to local agents and increasing parent engagement in school management and oversight, SBM programs should improve the quality of school services and the school environment.

SBM programs frequently operate through formal local governing bodies, such as a school councils or school management committees (SMC), which typically consist of several local stakeholders, including principals, teachers, and parents (Carlitz 2016; Barrera-Osorio et al. 2009; Snilsveit et al. 2015). In addition, SBM programs often seek to engage the larger body of parents in school administration and the oversight of school administration by creating and supporting parent and parent-teacher associations. These associations may inform parents about current school management decisions and academic performance while providing them with a formal channel to express their opinions and preferences to school administrators.

Theory of change. By improving the overall quality of the school and the school environment, SBM programs can reduce school violence and other risky behaviors and can improve learning and social-emotional skill development. Each of these can in turn affect violence and crime as discussed in Chapter II.

Target beneficiary profiles. School-based management programs typically target schools and communities in which a centralized authority (for example, the national government) retains most if not all decision-making authority over school management, particularly over schools that could benefit most from stronger, more responsive, and more transparent management and from more parent engagement (for example, with respect to dilapidated school buildings, insufficient teaching supplies, lack of qualified teachers, history of misuse of school finances).

B. Findings from the evidence review

There is emerging evidence with mixed findings in LMICs and LAC about the impact of SBM programs on the school environment, but we found no evidence of the impact on other outcomes correlated with violence and crime. We also found no evidence from HICs or any other geographic region of the impact of SBM programs on violence and crime. We summarize the body of evidence of the effects of SBM programs on violence, crime, and correlated outcomes in Table XXVI.2. Our literature search revealed 1,192 papers, in addition to the 820 papers identified through our global grey literature search on community engagement programs.[197] Of these papers, 7 studies were eligible for inclusion in this chapter, including 4 studies in LMICs and 3 studies in LAC (the identified studies did not include meta-analyses, systematic reviews, or studies in HICs). Appendix AA presents more information about all studies of SBM programs in this review, including the age group of interest and type of activities.

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[197] The bibliographic and grey literature searches for this chapter were combined with those for parenting programs and community outreach and awareness. The GCSE searches, however, were conducted separately for each type of program.

Table XXVI.2. Strength of evidence on the impacts on outcomes of interest: school-based management programs

		Impacts on outcomes correlated with violence and crime			Impacts on violence and crime		
Intervention	**Region**	**Social-emotional skills**	**Environ-mental factors**	**Risky and protective behaviors**	**Violent crime**	**Nonviolent crime**	**School violence**
SBM programs	HICs	⊖	⊖	⊖	⊖	⊖	⊖
	LMICs	∅	🟡	∅	∅	∅	∅
	LAC	∅	🟡	∅	∅	∅	∅

Note: Among the studies located through the global foundational literature search, through the bibliographic literature search in LMICs and LAC, and through global grey literature searches in LMICs and LAC, 7 were eligible for inclusion.

🟡 = mixed findings in emerging or larger body of evidence; ∅ = no body of evidence; ⊖ = no evidence identified in the foundational and grey literature searches and not included in systematic bibliographic literature search.

HICs. We did not identify any eligible studies from HICs.

LMICs/LAC. **We found emerging mixed evidence of the impact of SBM programs on the school environment, but our search did not identify any evidence of the impact of SBM programs on other correlated outcomes or violence or crime.** Experimental evaluations of grant provision to school management committees (SMCs) in Niger (Beasley and Huillery 2016) and The Gambia (Blimpo and Evans 2011) found mixed or no impact on school environment factors, respectively. Duflo et al. (2015) also found mixed evidence of the impact of school-based management training when added to an intervention that increased the number of teachers in Kenyan schools. However, Blimpo and Evans (2011) found that the combination of grant provision and school management training for school staff and community members in The Gambia resulted in positive impacts on the school environment, suggesting that SBM programs may be effective only when both local capacity and local resource needs are met. Also, quasi-experimental evaluations conducted Umansky and Vegas (2007) and Sawada and Ragatz (2005) of SBM programs that established community schools in rural areas in Honduras (PROHECO) and El Salvador (EDUCO), respectively, found positive results, but it is difficult to identify the role of SBM in the estimated impacts because the programs also provided schools to areas that did not have them (a third evaluation conducted by Di Gropello and Marshall 2005 found no impacts of PROHECO on school environment).

As a result of the lack of rigorous evidence there is about what works to reduce violence, crime and correlated outcomes, we found no evidence on cost effectiveness.

C. Recommendations

1. Recommendations for future research

In this chapter, we found evidence on the potential of SBM to improve the school environment, but not on crime, violence, or the other correlated outcomes. The large evidence gaps for the effects of SBM programs on violence and crime could be filled by conducting additional research on their effects on the school environment as well as on social-emotional

skills and learning in LMICs, and on the impact of specific components of SBM programs. The evidence suggests that impacts may differ for components that are provided together or singly.

2. Recommendations for investing in SBM programs

Based on the global evidence, we recommend that policymakers and funders focus on the following:

- **Providing a combination of grants to school management committees and school management training to stakeholders to improve school environment factors**. Experimental evidence showed no impacts of grant provision or training alone. However, one study evaluated an intervention that combined the two activities and found significant improvements. This suggests that improving school environment factors may require addressing both resource and capacity constraints facing local school stakeholders.

XXVII. CONCLUSIONS

A. Motivation for review of the evidence on the effects of education programs on violence, crime, and related outcomes

This report presents a review of the evidence available globally on education programs to reduce violence and crime. The motivation for the report was based on the three countries that comprise the Northern Triangle in Central America—Guatemala, Honduras, and El Salvador—given their challenges with high levels of interpersonal violence and high levels of youth that are neither employed nor in school (*nini*). However, many countries in LAC also face these challenges, as well as similar development challenges such as high levels of poverty, unemployment, inequality, and migration. LAC had more homicides in 2017 than any other region in the world, as well as a higher homicide rate (United Nations Office on Drugs and Crime 2019). In addition, human capital development remains a challenge in many countries in the LAC region.

Policy makers, donors, and program implementers have an interest in understanding if and how the education system can incorporate actions to mitigate violence and crime. USAID is particularly interested in this link, given the context in the Northern Triangle and other countries in the region affected by violence, as much of the LAC education programming is directed to countries most affected by violence. USAID's education strategy has three focal outcomes including (1) expanding access to quality education for all; (2) improving foundational learning outcomes in literacy, numeracy, and social-emotional skills; and (3) ensuring youth gain skills that enable productive lives, gainful employment, and positive contributions to society (USG 2019). Education programming at USAID targets programs for children and youth ages 3 through 29, with early childhood education playing an increasingly important role.

In Chapter II of this report, we laid out a theory of change that describes how education programming can influence violence and crime to help USAID and other donors and policy makers think about potential future education programming as part of a strategy to mitigate violence and crime. Education programming can impact some manifestations of violence, crime, and outcomes correlated with violence and crime directly in the short run, as well as in the longer run through prevention. Key outcomes correlated with violence and crime include the focal outcomes of most education programs (educational attainment, learning, employment, and earnings), social-emotional skills, environmental factors, and risky and protective behaviors. In this review, we focused on the outcomes that are not typically included in education studies, and we didn't include educational attainment, learning, employment, and earnings in our search.

We conducted a global evidence review of 43 education programs, selected based on their potential to affect violence and crime as well as those that are commonly funded by USAID, and developed a set of recommendations for future programming and research for USAID to consider. We have combined the findings from the evidence review with the theory of change that describes how educational programs might affect youth's eventual participation in violence or crime; we have used this information to make recommendations on how best to continue to build the body of evidence. Stakeholders will need to consider their local context and how these programs might apply when testing promising programs that seek to influence outcomes related to violence and crime.

B. Conceptual framework

The education system can help children and youth lead productive lives and prevent divergence onto negative pathways where violence and crime play a part. The conceptual framework, or theory of change, on how this happens is based on evidence showing that children and youth are most likely to avoid violence and crime if they remain safely engaged in school and continue their learning, while developing the social-emotional skills that will help them to avoid involvement in risky behaviors, violence, and crime (see Chapter II for details). Table XXVII.1 summarizes how these outcomes are correlated with violence and crime. These outcomes associated with violence and crime are malleable throughout an individual's development, including from ages 3 to 29.

Table XXVII.1. Outcomes correlated with violence and crime that education programming can impact

Correlated outcomes	Mechanisms through which outcomes can affect violence and crime
1. School engagement, educational attainment, learning, employment, and earnings*	Cognitive skills alone can reduce one's likelihood of engaging in violence and crime.
	How individuals allocate their time (time use) affects engagement in violence and crime: when in school, training, or at work, one is not engaging in (most) violent or criminal behavior.
	Students' interest in school activities (school engagement) increases their participation in school activities and motivation to attend and remain enrolled in school—reducing risky behaviors and increasing learning and educational attainment, improving employment and earnings, and reducing violence and crime.
	Cognitive skills can improve educational attainment, learning, and/or employment and earnings outcomes, each of which can reduce one's likelihood of engaging in violence and crime.
	Cognitive skills can reduce one's likelihood of engaging in risky behaviors, which in turn can reduce one's likelihood of engaging in violence and crime.
	Educational attainment and learning improve employment and earnings outcomes, which can reduce one's likelihood of engaging in violence and crime.
	Better employment and higher earnings increase the opportunity cost of violence and crime, can have an incapacitation effect by crowding out violence and crime, and can reduce violent and criminal behaviors through peer effects.
2. Social-emotional skills	Social-emotional skills can affect the likelihood of engaging in violent and criminal behaviors by strengthening one's ability to control their behavior, enable them plan ahead to avoid criminal activity, or help them think through problems in ways that lead to solutions that avoid violence, and also through potential peer effects.
	Social-emotional skills can affect one's likelihood of engaging in risky or protective behaviors, which can in turn affect engagement in violence and crime.
	Improved social-emotional skills can improve educational attainment and learning, which can in turn affect employment and earnings and likelihood of direct engagement in violence and crime.
	Social-emotional skills can improve one's likelihood of obtaining and retaining better employment and of better earnings, which can in turn affect the likelihood of engaging in violence and crime.
3. Environmental factors	The home environment, including within-household relationships (such as attachment or conflict), parent behaviors towards the child (such as warmth, bonding, or discipline), parent behaviors with each other (such as domestic violence), can contribute to child or youth social-emotional skill development and behaviors, which can contribute to violence and crime through a variety of pathways, as described above.
	The school environment, including teacher behaviors (such as attendance), teacher-student relationships, violence in schools, and peer effects, can contribute to child or

Correlated outcomes	Mechanisms through which outcomes can affect violence and crime
	youth learning, as well as social-emotional skill development and behaviors, each of which can contribute to violence and crime through a variety of pathways, as described above.
	The community environment including pro-social cohesion, peer effects, perceptions of and willingness to engage with public and community institutions and officials to prevent and report crime, can contribute to child or youth social-emotional skill development and behaviors, which can contribute to violence and crime through a variety of pathways, as described above.
4. Risky and protective behaviors	Risky, aggressive, and antisocial behaviors can increase the incidence of violent and criminal behavior.
	Protective behaviors can decrease engagement in violent and criminal behaviors, either directly or indirectly through reductions in risky behaviors that may reduce engagement in violent and criminal behaviors.

* These standard education literature outcomes are not the focus of this report, which focuses on searching the non-standard outcomes.

The education sector plays a key role in the academic and non-academic development of children and youth as they progress to adulthood, as illustrated in Figure XXVII.1. Beginning in early childhood, the education sector can support children by providing an early foundation of social-emotional skills and school readiness through high-quality early childhood education. At the primary level, schools and alternative learning environments can support children by continuing to develop students' social-emotional and foundational literacy and numeracy skills while keeping them engaged in learning in a safe environment. At the secondary level, when youth are at higher risk of becoming involved in risky activities or crime and violence, the education sector plays a role by keeping youth engaged either in traditional schooling or alternative educational opportunities—thereby minimizing time youth might spend engaged in risky activities. To minimize the attraction of risky or criminal activities, youth must continue to find learning opportunities more engaging than those activities, and barriers to participating in the education system must be removed. Key elements throughout this process are young people's continuous learning and development of academic or vocational skills and social-emotional skills. Key to achieving these goals is access to safe learning environments offering high- quality instruction.

Education systems can more effectively prevent engagement in violence and crime by implementing a range of programs. Programs can focus on improving instruction either through curricula or pedagogical change, improving non-academic instructor practices, providing alternative non-academic school services, changing school attributes (particularly by providing a safe and healthy environment), increasing the quantity of education that young people receive, improving access to high-quality schooling, providing alternative high-quality learning opportunities, and changing community practices and parent behavior. Programs can be implemented directly with instructors, with schools or alternative education centers, across the entire education system, and in communities. Given differences in country contexts, the theory of change for each intervention's ability to affect violence and crime will vary significantly.

Figure XXVII.1. Education sector support for child and youth development

| Preprimary age | Primary school age | Secondary school age | Post-secondary age |

With support
Children and youth continue to learn and develop social-emotional skills through continued engagement in high-quality, safe learning environments.

Academic pathways

Ongoing development of social-emotional skills

Ongoing support for academic skills

Vocational pathways

Elimination of barriers to education (financial, geographic, insecurity)

Alternative educational opportunities and support for children and youth outside the traditional system

Without support
Children and youth are disengaged from school and lack opportunities to develop social-emotional skills, increasing risk of dropout and risky, violent, and criminal behaviors.

C. Methodology

Our evidence review focuses on the effects of education programming on violence, crime, and outcomes correlated with violence or crime incorporates a systematic search for literature and review of the evidence (see Chapter III for details). We conducted systematic bibliographic and grey literature searches for evidence from LAC and LMICs that were built on global foundational literature reviews of 43 education programming programs. We then used a common protocol to identify and review eligible qualitative and quantitative studies. We reviewed 475 studies across the different education programs. In this chapter, we synthesize the findings presented for each individual intervention to make actionable recommendations for USAID and others that are working in the education sector.

D. Findings/Recommendations

There is very little evidence on what types of education sector programming works to prevent violence, crime, and correlated factors in LAC or in LMICs more broadly. Even in HICs, there is little rigorous research estimating causal effects. Not only is there a wide gap in the literature on the impacts of education programs on violence and crime, but also on evidence of

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Challenges to researching the effects of education programming on violence and crime

- Most education programs affect outcomes that are precursors to or correlates of eventual violence or criminal behavior.

- Impacts on violence and crime may take place years— sometimes up to 10 to 20 years—after the intervention, and longitudinal research takes time, funding, and commitment.

- Measurement of violence and crime outcomes is difficult.

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impacts on outcomes that are correlated with violence and crime. Due to this dearth of rigorous research, there is also a lack of understanding of the cost effectiveness of various programs or intervention components.

This section synthesizes the findings by the amount of evidence that is available by geographic location and by level of evidence. First, this section presents programs that provide compelling global evidence, including some evidence from LAC countries and LMICs, to consider implementing in LAC countries or LMICs (subsection 1). Second, this section presents programs that have generated compelling evidence in HICs only (subsection 2). These programs are grouped separately because programs that have been shown to work well in HICs will not necessarily work in a potentially very different developing country context. Then, this section presents findings for programs with insufficient evidence to draw conclusions about their effectiveness at improving violence, crime, and related outcomes (subsection 3). While there is more known about the effects of some programs than others, there are opportunities to contribute to the evidence base going forward for all programs included in this review.

1. Promising programs with evidence from LAC countries or LMICs

This section presents findings for the 21 programs with an evidence base that suggests they have promise for working to improve violence, crime, or correlated outcomes in LAC countries or LMICs. The evidence base for these programs may include those with emerging or better evidence from HICs with suggestive evidence from LAC countries or LMICs, or emerging or better evidence from LAC countries or LMICs. Table XXVII.2 summarizes the bodies of evidence for programs' effects on the correlated outcomes and violence and crime, and from LAC countries or LMICs.

By providing young children a safe environment where they can begin learning and developing social-emotional skills at an early age, **early childhood education** (ECE) sets children up for success in the long run. Early childhood education has a strong evidence base for improving social-emotional skills in childhood and violence and crime outcomes in adulthood, generated by the well-known longitudinal studies in HICs. There is moderate evidence for ECE's improvements in social-emotional skills in LAC. This is a promising approach to reduce violence and crime, although the benefits would not be realized until years after the intervention.

Table XXVII.2. Strength of evidence and correlated outcomes: Promising programs with evidence from LAC countries and LMICs

Program (Chapter, Section)	Overall evidence			Mechanisms
	Correlated outcomes	Violence and crime outcomes	Evidence from LAC/LMICs	
Formal and non-formal education				
Early childhood education (ECE) (IV)	● (full blue)	● (full blue)	○ (empty)	Time spent in a high-quality learning environment at a young age → Improved social-emotional skills → Improved learning
Literacy and numeracy (V)	◐ (half blue)	⊘ (crossed)	○ (empty)	Improved instruction improves learning → Improved social-emotional skills
Teaching at the right level: Tracking (VI, 1)	○ (empty)	○ (empty)	○ (empty)	Improved instruction improves learning → Improved school engagement → Reduced school dropout or increased educational attainment → Improved social-emotional skills
Classroom-based social and emotional learning (SEL) (VII)	◐ (half blue)	● (yellow)	◐ (half gray)	Improved curricula and non-academic teacher practices → Improved social-emotional skills
School-wide positive behavioral programs and supports (SWPBIS) (X, 1)	◐ (half blue)	○ (empty)	◐ (half gray)	Improved school services and supports → Improved school environment → Reduced school violence
Restorative practices (RPs) (X, 2)	◐ (half blue)	◐ (half blue)	◐ (half blue)	Improved school services and supports → Improved school environment → Reduced school violence
Classroom management (XI)	◐ (half blue)	◐ (half gray)	◐ (half blue)	Improved non-academic teacher practices → Improved classroom environment → Improved social-emotional skills → Improved behaviors
School-based anti-bullying (XIII, 1)	◐ (half gray)	◐ (half blue)	◐ (half gray)	Improved non-academic teacher practices and school services → Improved school environment → Improved behaviors → Improved social-emotional skills
School-related gender-based violence (SRGBV) prevention programs (XIII, 2)	◐ (half gray)	◐ (half blue)	◐ (half gray)	Improved non-academic teacher practices and school services → Improved school environment → Improved behaviors → Improved social-emotional skills
Dropout prevention programs (XIV, 1)	○ (empty)	○ (empty)	○ (empty)	Improved non-academic teacher practices and school services → Reduced school dropout or increased educational attainment → Improved learning → Improved social-emotional skills → Improved school environment → Reduced risky behaviors

Program (Chapter, Section)	Overall evidence			Mechanisms
	Correlated outcomes	Violence and crime outcomes	Evidence from LAC/LMICs	
Class time (XV)	○	● (yellow)	○	Decreased time for opportunities to engage in risky behaviors → Reduced risky behaviors Increased time in a quality school environment → Improved school engagement → Improved learning → Improved social-emotional skills
Cash transfers (conditional and unconditional) (XVI, 1)	◐	◐	◐	Resources for the family that are conditional or not on attendance to school → Improved educational attainment → Improved home environment → Improved learning
School feeding, take-home rations and other in-kind transfers (XVI, 3)	○	⊘	○	Food and other resources for the family → Improved learning → Improved social-emotional skills → Reduced risky behaviors
Vouchers (XVII, 1)	◐	◐	○	Access to improved instruction → Improved school engagement → Improved learning → Improved educational attainment Reduced bullying → Improved school environment → Peers engaging in fewer risky behaviors → Improved school environment
Merit-based scholarships (MBS) (XVII, 3)	○	⊘	○	Access to improved instruction and stronger motivation to perform well → Improved school engagement → Improved learning → Improved educational attainment Reduced bullying → Improved school environment Peers less likely to engage in risky behaviors → Improved school environment
Single sex instruction (SSI) (XVII, 4)	◐	○	○	Reduced classroom disruption and improved instruction → Improved school environment Reduced bullying → Improved school environment
Workforce development (XX)	● (yellow)	● (yellow)	● (yellow)	Access to relevant instruction → Improved learning → Improved social-emotional skills
Adult basic education (ABE) (XXI, 3)	◐	○	○	Access to relevant instruction → Improved learning → Improved social-emotional skills

Program (Chapter, Section)	Overall evidence			Mechanisms
	Correlated outcomes	Violence and crime outcomes	Evidence from LAC/LMICs	
Extracurricular or education support services				
After-school programming (ASP) (XXII, 3)	○	○	○	Improved non-academic school services that provide a safe space and continued opportunities to learn → Improved community environment → Improved learning → Improved social-emotional skills
Responsive services (XXIII, 2)	◖	◗	○	Improved non-academic school services that address an individual child's or youth's needs → Improved social-emotional skills → Improved behaviors → Improved school environment
Community engagement				
Parenting programs (XXIV)	◖	⬤	◖	Training parents to improve their practices and help their children's development → Improved home environment → Improved social-emotional skills → Improved behaviors

Notes: Each intervention is discussed in detail in the noted chapters in the report. LAC = Latin American and Caribbean; LMIC = low-and-middle income country.

Legend: ● = strong body of evidence with positive findings; ◖ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; ◯ (yellow) = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◖ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◐ = weak body of evidence; ∅ = no body of evidence.

By improving instruction, **literacy and numeracy** as well as **tracking** programs can improve learning, which can improve engagement in school and social-emotional skills, which can have effects on violence and crime through multiple pathways.

- Literacy and numeracy programs have a moderately strong evidence base from LMICs but a relatively weak base of evidence from HICs and LAC for improving social-emotional outcomes. There is a high likelihood that high-quality reading and literacy programming in schools will have positive impacts on social-emotional skills in addition to the desired learning outcomes. There is also evidence suggesting family and child-to-child literacy programs have similar effects, although we recommend further research to understand which components of family literacy programs produce desired social-emotional skills, protective behaviors, and family environmental outcomes.
- Tracking programs have an emerging evidence base from LMICs showing their potential to improve instruction and the school environment as teachers are more able to use instruction methods targeted to students' specific level. However, because evidence from HICs and LMICs is mixed on social-emotional skills, policymakers may wish to take steps to minimize stigma associated with being assigned a low track or feelings of being overwhelmed if placed in a high track and monitor impacts of such policies on students' social-emotional skills. We did not locate any evidence on tracking in LAC.

By fostering a positive school environment and working with children and youth to facilitate engagement in school and agency in life, programs—including **classroom-based social and emotional learning (SEL)**, **school-wide positive behavioral interventions and supports (SWPBIS)**, **restorative practices**, **classroom management**, **preventing school-based bullying** and **school-related gender-based violence (SRGBV)**, and **preventing dropout**—can improve engagement in school and social-emotional skills and, thus, encourage behavior change to reduce risky or violent behaviors.

- There is moderately strong evidence in HICs demonstrating positive or mixed effects of classroom-based SEL on crime and violence, social-emotional skills, and behaviors at different points in an individual's life. There is some support for early intervention (though programs implemented later in youths' lives have also succeeded), and there is strong evidence that skills are not fixed at a young age but are highly malleable throughout adolescence (National Academy of Sciences, Engineering, and Medicine, 2019). Our review finds limited evidence of the effects of classroom-based SEL in LMICs and LAC; however, the available studies do show some short-term benefits for social-emotional skills and behavior among children and adolescents.

- Evidence from HICs and LMICs suggests that, when implemented with fidelity, SWPBIS may have positive effects on the school environment, risky and protective behaviors, and, ultimately, school violence. Evidence on social-emotional skills, violent crime, and nonviolent crime is only emerging. We could not identify evidence on the effects of SWPBIS in LAC. Based on the theory of change and existing evidence base, we recommend implementing SWPBIS to mitigate violence and crime in the shorter and longer run.

- Evidence from HICs and LMICs suggest that restorative practices programs may improve the school environment, behaviors, and school violence. Evidence on social-emotional skills, violent crime, and nonviolent crime is only emerging, but this evidence is largely positive in HICs. We could not identify evidence on its effects in LAC. Based on the theory of change and existing evidence base, we recommend implementing restorative practices programs to mitigate violence and crime in the shorter and longer run.

- Classroom management has a moderate base of evidence for improving social-emotional skills and risky and protective behavior outcomes in LAC, as well as a moderate evidence base in HICs. We found little evidence on the intervention's direct impacts on violence or crime but did find weak evidence of reductions in violent crime in HICs. Classroom management is a promising intervention to reduce violence and crime, both in the medium term as well as in the longer run, through prevention. By changing non-academic teacher practices and providing scaffolded support to students at risk in the school, student engagement in school can improve, social-emotional skills can develop, and behaviors can change. Different specific programs are required for different schooling levels, as the social-emotional skills as well as behaviors change as children develop.

- School-based anti-bullying programs have produced strong evidence of their potential to reduce school violence in HICs, as well as emerging evidence from LMICs and weak mixed findings from LAC. While there is strong and credible evidence for the effectiveness of bullying prevention programs in HICs, these studies do not guarantee that results will be easily replicated in LMICs or LAC. We recommend piloting anti-bullying programs before implementing them at scale in LMICs or LAC. A comprehensive, whole-school approach tends to work better at reducing bullying than programs that work individually with bullies or victims. Programs that incorporate firm disciplinary measures for tackling bullying,

implement playground supervision, and last longer are also likely to have more positive results. When in doubt about features to include in a program, the Olweus Bullying Prevention Program can be a useful guide, but the model needs to be adapted to the context.

- The evidence for the ability of school related gender-based violence prevention programming to mitigate such violence in schools in HICs is well established, but it is not so in LMICs or LAC. In HICs, the literature reveals that several gender-based violence prevention programs consistently yield positive impacts. These studies, however, do not guarantee that results will be easily replicated in LMICs or LAC. We recommend piloting school-related gender-based violence prevention programs before implementing them at scale in LMICs or LAC.

- Evidence on dropout prevention programs suggests that they may reduce violence and crime, but the evidence is only emerging and relies on only two studies (one RCT in an HIC and one RCT in LAC). The emerging evidence on their impact on correlated outcomes is mixed in HICs but promising in LMICs. Based on the available body of evidence, we cannot provide recommendations on how best to use dropout prevention programs to improve violence, crime, or correlated outcomes aside from its direct effect on improving dropout, which can directly affect violence and crime.

By increasing the amount of time children and youth spend in high-quality schools (either formally through more **class time**, or encouraging attendance to and progression in schooling through **cash transfers**), children and youth will be in a safe environment more conducive to learning for a longer period of time and will have fewer opportunities to engage in risky or negative behaviors and more opportunities to continue to develop useful skills.

- Programs to increase class time**,** either through lengthening the school day or the school year, have an emerging evidence base for decreasing violence and crime as well as risky behaviors from LAC countries and LMICs. Because longer school days or years have a direct effect on students' time use, such policies could affect youth's participation in crime in the immediate term, so studies could be completed relatively quickly by measuring short-term impacts. In addition, if the additional time is used productively, it would influence school engagement among other outcomes. This is a particularly relevant policy in LAC as some countries move from a traditional half-day school model to a full-day model or extend the academic year.

- In the large evidence base on cash transfers, we found moderate evidence of reduction in violent crime in LAC. This finding is consistent with the moderate evidence of improvements on outcomes correlated with violence and crime identified in LMICs. By getting children or youth to enroll and attend school, they are spending their time in an environment that provides the opportunity to learn new skills (including academic and social-emotional skills) and limits opportunities to engage in risky behaviors or violence or crime.

- An emerging body of evidence in LMICs suggests that school feeding, take-home ration and other in kind transfer programs reduce risky behaviors such as transactional sex or early marriage. However, the evidence from HICs is mixed, and there is no evidence from LAC.

By increasing access to high-quality schools or learning environments through **voucher programs** or **merit-based scholarships** or expanding access to **single-sex instruction**, students gain access to a better school environment. In addition to improving engagement in school and

learning, an improved environment can reduce participation in risky behaviors for students who change peer groups to a group that is less likely to engage in risky behaviors.

- The evidence base on vouchers shows reductions in risky behaviors in LAC and HICs and reductions in crime in HICs. Emerging research on voucher programs in LAC, largely based on Chile's longstanding voucher program, shows their potential for reducing students' participation in risky behaviors by changing their peer group. This is supported by moderate research from HICs showing improvements in school environment and reductions in crime. This evidence is promising, but expansions of voucher programs should consider such programs' possible contribution to social stratification if private school remains out of the reach of relatively disadvantaged public-school students.
- Studies on merit-based scholarships found impacts on students' school environment and risky behaviors; this evidence base is entirely from LMICs, as there is no evidence from LAC or HICs. However, impacts on students' school environment were not limited to impacts resulting from students changing schools—rather, teacher attendance (considered part of the school environment) improved within schools that participated in a merit-based scholarship program. Merit-based scholarships programs may be an effective policy to improve access to high-quality schools for promising students and to improve teacher attendance for all students.
- We found evidence indicating that single-sex instruction has the potential to improve outcomes correlated with violence and crime, including school environment, social-emotional skills, risky behaviors, and—in one study—school violence. Although the large share of identified studies took place in HICs and some studies reported impacts for girls but not boys, we did find positive impacts in studies LAC and one LMIC.

By helping out-of-school children and youth continue their learning, either by facilitating access to traditional academic schooling or to alternative schooling, **workforce development** and **adult basic education** programs facilitate learning and social-emotional skill development—which can have direct effects on behaviors and violence and crime as well as indirect effects on violence and crime through improved employment and earnings.

- Studies of workforce development programs have generated moderate but mixed evidence of impacts on violent and non-violent crime in LMICs, showing the promise of this intervention despite weaker evidence from LAC and HICs. Evidence from LAC and LMICs shows that workforce development components focused on SEL skills can influence SEL outcomes and that these outcomes are valued by employers.
- Adult basic education programs, which improve access to education for adults, have a moderate base of evidence for impacts on outcomes correlated with violence and crime in HICs, driven in part by stronger results for young women and mothers. These programs have moderate evidence of impacts on outcomes correlated with violence and crime in HICs, emerging evidence from LMICs, and weak evidence from LAC.

By providing structure and a safe positive space outside of school, **after-school programming** supports children and youth in their academic, physical, and/or social-emotional development. After-school programming has an emerging evidence base for decreasing violence and crime and improving correlated outcomes in LAC. The literature in HICs and LMICs, however, is not well developed and shows mixed findings. Because of the wide variety of

programs that can be incorporated into after-school programming (ASP), there is uncertainty about which combinations of extracurricular programs are most effective when combined into an ASP, as well as on the populations for whom and the contexts in which they are most effective. The evidence does suggest that integrating youth who are at the highest risk of committing violence or crime with youth who are at less risk could be more effective at reducing violence and crime among those high-risk youth than programs segregating them from other youth. However, caution should be taken in implementing such programs, because it is not entirely clear whether there are secondary benefits or costs for the lower-risk youth who are included in the programs.

Responsive services are delivered in several modes (including individual counseling, skill building for strengthening students' management skills, group counseling, referrals, consultation, and peer assistance programs) and assist youths in addressing specific issues, concerns, and needs, whether related to students themselves, their family, or their neighborhood and community. There is a large body of evidence on responsive services; however, it is based mostly in HICs and LMICs, with few studies from LAC countries. Responsive services generally yield positive effects on risk and protective behaviors and social-emotional skills, but the strength of the evidence varies for different specific services. The evidence base on its effects on violence and crime is weak, as few studies measure these outcomes and report mixed effects. Implementation characteristics are an important factor in program outcomes, and evidence suggests that recruiting professional providers for some programs can be more effective. Teachers, trained volunteers, and school nurses have proven to be effective in referring students for mental health and other responsive services in resource-constrained environments, but evidence supporting their efficacy as implementers is mixed.

By improving the environment where children and youth spend their time outside of school, programs that work with parents support children's learning through social-emotional skill development and improving behaviors. **Parenting programs** have a moderate body of evidence across all three geographic regions for risky and protective behaviors, social-emotional skills, and environmental factors—specifically family environment factors. However, the consistency of the findings was low, with several evaluations finding mixed or no impacts within an outcome category. In addition, aside from a small handful of studies, the evidence of impacts on violence and crime and for other types of environmental factors was largely non-existent. We recommend that policymakers consider implementing parenting programs as an effective means of improving the home environment, as program efficacy seems to be sensitive to the local context or quality of implementation.

2. Promising programs with evidence from HICs, but insufficient evidence from LAC countries or LMICs

Based on the existing evidence, there are seven programs that are worth investing in due to a strong evidence base in HICs, but they have not yet been sufficiently studied in developing country contexts. These programs should be considered for implementation. However, adaptation to the local context will be of primary importance, and implementation should be accompanied by studies to determine their effectiveness. These programs include: tutoring, class size reduction, lotteries, mentoring, organized sports, substance abuse prevention, and multicomponent counseling programs. Each intervention works through different mechanisms to

facilitate engagement in school, as well as learning, social-emotional skill development, or improved behaviors. In Table XXVII.3, we summarize the bodies of evidence for programs' effects on the correlated outcomes and violence and crime, and from LAC countries or LMICs.

Tutoring programs improve instruction by offering individualized instruction on specific issues with which students are struggling. Tutoring programs have a moderate evidence base for impacts on outcomes correlated with violence and crime—with evidence of improvements in social-emotional skills and risky and protective behaviors and emerging evidence showing the potential of tutoring to reduce violent crime. Evidence from LAC and LMICs was insufficient to say how effective tutoring has been in LAC or LMICs at reducing violence, crime, or correlated outcomes. However, the theory of change is strong and the evidence from HICs and on learning impacts from LMICs suggests this is a promising intervention for reducing violence and crime in LAC.

Table XXVII.3. Strength of evidence: Promising programs with evidence from HICs, but insufficient evidence from LAC countries or LMICs

Intervention (Chapter, Section)	Overall evidence			Mechanisms
	Correlated outcomes	Violence and crime outcomes	Evidence from LAC/LMICs	
Formal and non-formal education				
Teaching at the right level: Tutoring (VI, 4)	◖	○	◐	Improved instruction → Improved learning → Improved school engagement
Class size reduction (XII)	◖	⊘	⊘	Improved instruction and classroom environment → Improved social-emotional skills → Improved school engagement
Lotteries (XVII, 2)	○	◖	⊘	Access to improved instruction → Improved school engagement → Improved learning → Improved educational attainment Reduced bullying → Improved school environment Peers engaging in fewer risky behaviors → Improved school environment
Extracurricular or education support services				
Mentoring (XXII, 1)	●	◖	◐	Improved non-academic school services that provide support and connections for students → Improved community environment → Improved learning → Improved social-emotional skills
Organized sports (XXII, 2)	◖	◯(yellow)	●(yellow)	Improved non-academic school services that provide continued opportunities to learn → Improved community environment → Improved learning → Improved social-emotional skills
Counseling: Substance abuse prevention	◖	⊘	◐	Improved non-academic school services with training provided to prevent substance abuse

Intervention (Chapter, Section)	Overall evidence		Evidence from LAC/LMICs	Mechanisms
	Correlated outcomes	Violence and crime outcomes		
program (XXIII, 3)				→ Improved social-emotional skills → Improved behaviors
Counseling: Multicomponent programs (XXIII, 4)	🟡	⚪	🟡	Counseling supports provided to students, their families, or their communities → Improved social-emotional skills → Improved behaviors → Improved environment

Notes: Each intervention is discussed in detail in the noted chapters in the report. HIC = high income country; LAC = Latin American and Caribbean; LMIC = low-and-middle income country.

● = strong body of evidence with positive findings; ◐ = moderate body of evidence with positive findings; ○ = emerging body of evidence with positive findings; 🟡 = mixed findings in emerging or larger body of evidence; ◖ = findings of no impacts in emerging or larger body of evidence; ● = strong body of evidence with negative findings; ◐ = moderate body of evidence with negative findings; ○ = emerging body of evidence with negative findings; ◔ = weak body of evidence; ∅ = no body of evidence.

Class size reduction improves instruction and the classroom environment by enabling teachers to tailor instruction to their students and provide more individualized attention to students. The evidence on the role of class size reduction on violence, crime and correlated outcomes is scant and based entirely on evidence from HICs. Evidence from the United States and Sweden shows that class size reduction has the potential to improve social-emotional skills, behavior, and engagement in class in primary and lower secondary school, but these impacts did not always persist several years after the class size reduction. We did not find evidence from LAC countries or LMICs on social-emotional skills or other outcomes of interest. Given this body of evidence, we cannot provide recommendations on how to use class size reductions to improve violence, crime, or correlated outcomes in developing country contexts.

School assignment through **lotteries** expands students' access to higher quality schools, which may offer improved instruction as well as peer groups who are less likely to engage in risky behaviors and more likely to be highly engaged in school. Lotteries have a moderate evidence base for improving violence and crime outcomes, and an emerging body of evidence shows their potential for reducing risky behaviors. However, the entire evidence base is from HICs. Although we have no information on which to base a recommendation on lotteries for LAC countries or LMICs, the theory of change for lotteries is promising for LAC countries and LMICs and operates similarly to vouchers (which show emerging evidence of reducing risky behaviors).

By improved non-academic school services, **mentoring** and **organized sports** provide students with structured and safe time outside of school to receive additional supports and develop connections with others—facilitating improved social emotional skills as well as academic learning (in the case of mentoring).

- The evidence for mentoring comes almost exclusively from HICs but is strong. HICs show moderate and strong evidence in all three categories of outcomes correlated with violence and crime, as well as moderate evidence of reductions in school violence and emerging evidence for crime reduction. However, we found only weak evidence of

improvements in social-emotional skills in LMICs and no evidence for any outcome in LAC.

- Organized sports have a large evidence base from HICs, suggesting a relationship between organized sports activities and violence, crime, and correlated outcomes, though the evidence is somewhat mixed. The bulk of this suggestive evidence is focused on risky and protective behaviors and indicates that the relationship between sports activities and this outcome area is fairly heterogeneous—varying by type of sports, type of risky and protective behaviors, and across demographic groups. We also found some evidence from HICs of positive impacts of sports activities on social-emotional skills. Findings from LAC countries and LMICs are weak or mixed. We recommend implementing organized sports pilots that are evaluated for their effectiveness and incorporate research that explores the heterogeneity in impacts.

By providing counseling or training, **substance abuse prevention programs** and **multicomponent counseling programs** support students in addressing specific needs. Each may use different strategies to support students.

- Substance abuse prevention programs deliver structured lessons designed to prevent the use and/or abuse of alcohol, marijuana, tobacco, and other drugs. These lessons can be integrated into school curricula, taught by school counselors in collaboration with teachers and other school staff, or may take place in the space of just one classroom session or throughout the academic year. The moderate evidence base is almost entirely from HICs and shows positive effects on behaviors—with better results for interactive, skill-based programs and delivery during early adolescence. Efficacy varies depending on the targeted substance abuse, program design, timeline of the evaluation, and other factors. Substance abuse-specific programs are more beneficial when delivered in an individual rather than group format. We recommend prioritizing skills-based substance abuse prevention programs over approaches focused on generating knowledge or changing attitudes.
- The evidence base for multicomponent counseling services is moderate for behavioral outcomes in HICs, with some studies in LMICs and LAC. The effects of multicomponent programs on behaviors produced generally mixed results. In addition, we found limited, mixed evidence on social-emotional skills and school environment. We found a few studies with positive effects (in HICs) or mixed effects (in HICs and LMICs) on their impacts on violence and crime. We recommend research exploring whether universal, group, or individual counseling programs are more beneficial and cost effective. Because at-risk students often do not take advantage of the available counseling services, programs should implement targeted supports for reaching such students.

3. Programs with insufficient evidence

There are 15 programs that have insufficient bodies of evidence to determine if they should be used to reduce violence and crime. These programs work in a variety of ways, including attempting to improve instruction, the school environment, non-academic teacher practices, and the environment where children spend their time. The specific programs include remedial education, school infrastructure, school security measures and zero tolerance policies, teacher pay-for-performance, contract teachers, expulsion prevention programs, secondary certification, complementary basic education, accelerated education programming, community outreach and

awareness, and school-based management. In Table XXVII.4, we summarize the bodies of evidence for programs' effects on the correlated outcomes and violence and crime, and from LAC countries or LMICs.

The theory of change behind Teaching at the Right Level programs—to enable teachers to tailor their instruction to their students' individual levels—is promising for supporting students who may be at risk of participating in violence, crime, or negative correlated outcomes. However, evidence on **remedial education** shows it may improve violent crime and correlated outcomes (including in LAC), but this evidence base is weak. Similarly, the evidence base for **computer-assisted instruction** is weak, including only mixed findings on social-emotional skills. The evidence base is insufficient to draw conclusions about their effectiveness and justify recommending implementing remedial education or computer-assisted instruction to prevent violence and crime.

Table XXVII.4. Strength of evidence: Programs with insufficient evidence

Intervention (Chapter, Section)	Overall evidence		Evidence from LAC/LMICs	Mechanisms
	Correlated outcomes	Violence and crime outcomes		
Formal and non-formal education				
Teaching at the right level: Remedial education (VI, 2)	half	half	half	Additional or improved instruction → Improved learning → Increased engagement
Teaching at the right level: Computer-assisted instruction (CAI) (VI, 3)	yellow	∅	yellow	Improved instruction → Improved learning → Increased engagement
School infrastructure (VIII)	half	half	half	Improved infrastructure → Improved school environment Reduced opportunities to commit crimes → Reduced school violence
School security measures (IX, 1)	yellow	yellow	∅	Visible school security measures → Reduced school violence
Zero tolerance policies (IX, 2)	half	∅	∅	Sanctions for students violating school rules → Reduced school violence
Expulsion prevention programs (XIV, 2)	half	∅	∅	Programs to reduce the likelihood of using exclusionary discipline → Increased attainment → Increased learning → Improved social-emotional skills → Improved environment → Reduced risk behaviors
Transfer programs: Scholarships and other student financial incentives (XVI, 2)	yellow	∅	yellow	Decreased barriers to attending school → Improved educational attainment → Improved learning → Improved social-emotional skills → Reduced risky behaviors

Intervention (Chapter, Section)	Overall evidence			Mechanisms
	Correlated outcomes	Violence and crime outcomes	Evidence from LAC/LMICs	
Teacher incentives: Pay for performance (XVIII, 1)	⬤ (yellow)	⊘	⊘	Improved teacher attendance or instruction → Improved school environment → Improved learning
Teacher incentives: Contract teachers (XVIII, 2)	◯ (blue)	⊘	⊘	Improved teacher attendance or instruction → Improved school environment → Improved learning
Secondary certification (XIX)	⬤ (yellow)	◯ (dark red)	◐	Access to training and certification → Improved learning
Complementary basic education (CBE) (XXI, 1)	◐	⊘	◐	Access to training → Improved learning
Accelerated education programs (AEPs) (XXI, 2)	⬤ (yellow)	◐	⬤ (yellow)	Access to training → Improved learning → Improved social-emotional skills
Extracurricular or education support services				
Counseling: School counselors (XXIII, 1)	⬤ (yellow)	◐	⊘	Improved non-academic school services with support provided to counselors → Improved social-emotional skills → Improved behaviors
Community engagement				
Community outreach and awareness programs (XXV)	◐	⊘	◐	Communication with community and parents to change knowledge, perceptions, and behaviors → Improved community, school, and family environment → Improved school enrollment
School-based management (XXVI)	⬤ (yellow)	⊘	⬤ (yellow)	Improved community engagement in school management through training and or grant provision → Improved school environment

Notes: Each intervention is discussed in detail in the noted chapters in the report. LAC = Latin American and Caribbean; LMIC = low-and-middle income country.

Legend: ⬤ = strong body of evidence with positive findings; ◐ = moderate body of evidence with positive findings; ◯ = emerging body of evidence with positive findings; ⬤ = mixed findings in emerging or larger body of evidence; ◗ = findings of no impacts in emerging or larger body of evidence; ⬤ = strong body of evidence with negative findings; ◐ = moderate body of evidence with negative findings; ◯ = emerging body of evidence with negative findings; ◖ = weak body of evidence; ⊘ = no body of evidence.

School climate measures that focus on **infrastructure**, **security measures**, **zero tolerance policies**, and **expulsion prevention programs** (that focus on the system change) are not well studied, despite their strong theory of change and potential to reduce violence in schools. The most recent evidence is inconclusive on benefit of security measures, particularly in the use of metal detectors, school police officers, and surveillance cameras. However, the evidence base for the GREAT program, which is based solely on research from the United States, suggests the potential to yield large, positive outcomes for students in LMICs. The evidence for zero

tolerance policies that does exist, mainly from the United States, points to the unintended, negative consequences, while the evidence for expulsion programs is lacking and uninformative. We recommend investing in the GREAT program and studying it during implementation in LAC countries or LMICs, but advise caution in implementing other school security measures or zero tolerance policies in LAC countries or LMICs without first studying their effects further, particularly in developing country contexts.

The effects of transfers in the form of **scholarships** and **other student financial incentives** on violence, crime, or correlated outcomes have not been well studied. The existing evidence is emerging and suggests they may have the ability to impact behaviors and social-emotional skill development, though the evidence is mixed and inconclusive.

Our search identified no studies on the impacts of teacher incentives, including **pay-for-performance** and **contract teachers**, on violence or crime and few studies on outcomes correlated with violence or crime. The little available evidence we found was on the impacts of such arrangements on the school environment, suggesting that teacher incentives can potentially be effective in improving teacher attendance and teachers' responsiveness to student needs. However, the evidence base was too weak to justify recommending implementing such policies to promote the reduction of violence and crime.

The overall evidence base for the effects of **secondary certification**, **complementary basic education,** and **accelerated education programming** (AEP) —three alternate pathways to learning—on violence, crime, and correlated outcomes is relatively weak, with mixed findings. Funder support will be particularly important for rigorous evaluations of AEP. In addition, evaluations that can rigorously identify the impact of adult literacy and numeracy programs alone or as part of larger programs would help policymakers compare the effects of literacy and numeracy initiatives on key outcomes to other program components or programs, such as vocational elements, workforce development programs, or parenting supports.

Evidence on the effect of **school counselors** comes only from HICs and generally has mixed findings on its impacts on behaviors, social-emotional skills, and the school environment. Evidence from HICs shows that school counselors can be effective in improving school violence and risk behaviors. However, studies of counselors' day-to-day activities demonstrate that guidelines mandating a focus on specific services are important for ensuring effectiveness. Service guidelines may be needed to ensure the effectiveness of broad-based counseling services.

There is a weak body of evidence—from LMICs only—of the effect of **community outreach and awareness** programs on family, school, and community environmental factors. The findings suggest that outreach programs may improve community members' knowledge and sensitivity to issues that affect schooling decisions and experiences of children and youth in their communities, but more research is needed to understand when and how such programs can have an impact.

We found an emerging body of evidence of the impacts of **school-based management** programs on the school environment from LAC countries and LMICs only. This evidence was weak and largely drew on studies that did not allow for separately identifying the impacts of school-based management from impacts of other programs occurring simultaneously.

E. Future research recommendations

Given the overall dearth of research on how programming in the education sector can affect violence and crime, we recommend additional research, particularly on those promising programs identified in this review, to fill the gap. In each chapter, across the 43 programs reviewed in this report, we have made recommendations for improving the evidence base. There are also several recommendations that are relevant for building the evidence base across programs. In this section, we discuss these cross-cutting research recommendations.

Invest in expanding the evidence base in LMICs and LAC. As noted, evidence on most programs that have been shown to be effective at mitigating violence, crime, or correlated outcomes is heavily concentrated in HICs, and it is noticeably lacking in LMICs and LAC. Given the unique contexts and issues faced by children and youth in many of these countries, some of the existing evidence from HICs might not help much in understanding whether the programs that worked in those countries will also work in LMICs, or specifically in the LAC region, without efforts to tailor the evidence on what works to those contexts.

Consider evaluating the longer-term impacts of programs. In our review, we found that a short follow-up period is a severe limitation of many existing evaluations. Indeed, our assessment of the literature in LMICs and LAC reveals that conclusions are typically drawn from data collected immediately after the intervention and up to a few months later. Few of the evaluations examined looked at impacts beyond a year after completion of the intervention. This makes it difficult to establish whether the impacts, if any, are sustained over time, change in magnitude, or have important impacts on other outcomes over time. Understanding such longer-term impacts would be of interest to policymakers seeking to invest in these programs.

Invest in research to improve measurement of violence and crime outcomes. Measurement of such outcomes is challenging and is part of the reason why these outcomes have not been measured in some studies. We discuss this further in Appendix C.

Evaluate impacts on outcomes correlated with violence and crime for studies not designed to detect impacts on violence or crime. Detecting statistically significant impacts on violence or crime may require large sample sizes because violence and crime are relatively rare. Studies not powered to detect impacts on violence and crime should focus on detecting impacts on outcomes correlated with violence and crime, which are more likely to be detected with smaller sample sizes.

Support research that disentangles the effects of specific components or different combinations of components in programs. For the most part, the existing evidence base on the impacts of multiple component programs cannot isolate the effects of specific program components, and what information does exist suggests that some impacts may be context-specific. Additional research is needed to help policymakers better understand which components work best for which populations. From a cost-effectiveness perspective, it is important to determine which components or combinations of components are the most effective.

Support research that explores the heterogeneity in impacts for different subgroups. Additional research is needed to understand how programs will impact the outcomes or subgroups that policymakers are interested in affecting.

Prioritize documenting the costs and cost-effectiveness of programs. Policymakers need to understand not only whether programs work, but whether they produce benefits that justify their costs. Documenting costs and cost-effectiveness would help decision makers determine the appropriate trade-offs in investing in human capital, particularly in resource-constrained settings such as low-income countries.

F. Report limitations

As with all research, this report has several limitations. The main limitation is the scant evidence available on the topic—particularly evidence from LMICs and LAC. We hope that, in addition to synthesizing what we do know about policies to combat violence and crime, this report also serves to highlight the gaps in the evidence which still need to be addressed.

Due to the breadth of the research questions and scope of the review, we were unable to conduct a Spanish-language bibliographic literature search and may have missed some important studies. Fortunately, many Spanish-language journals translate abstracts to English, which would have been identified in the bibliographic literature search.

Although we used consistent criteria to define levels of evidence in each findings chapter and in this conclusions chapter, assessing the strength of each study and the body of evidence for each intervention requires judgment about where to draw the line between the evidence levels. Reasonable reviewers could disagree about how to assess evidence.

Finally, we opted for a landscape analysis of the overall existing research, rather than a review focused exclusively on rigorous quantitative analysis. Given the dearth of existing causal research on many programs included in this review, we considered high-quality qualitative research valuable to provide early indications of what programs held promise or should be prioritized for future research.

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APPENDIX A:

REVIEW OF LITERATURE ON FACTORS INFLUENCING INTERNATIONAL MIGRATION

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USAID expressed an interest in not only receiving a synthesis of the literature on the role of education in preventing violence and crime, but also in understanding how education programming might mitigate undocumented international migration among individuals who live in Central America. However, based on our preliminary review of the literature on the factors that affect international migration and discussions with USAID, we excluded this second research topic from this report. In this appendix, we present the findings from our preliminary review, as well as suggestions for a more comprehensive literature search. Our hope is that this can inform future work USAID may engage in on this important topic.

A. Factors that affect international migration

Much of the literature on the root causes of international migration is based on the push-and-pull migration model.[1] The model provides the oldest and most widely recognized framework for understanding international migration. In its simplest form, it argues that factors present at origin and destination countries explain international migration flows. Origin countries possess negative characteristics (push factors) that drive individuals to migrate. Push factors include low wages, unemployment, conflict, and natural disasters. In contrast, destination countries possess positive attributes (pull) factors that attract migrants. Examples include a growing economy, favorable immigration laws, and past colonial ties with the origin country. Taken together, these push and pull factors determine the size and direction of migration flows.

In this appendix, we summarize the most recent empirical evidence on factors associated with international migration. We focus especially on origin country factors that the literature has highlighted as important: income, inequality, human capital, climate, violence, and conflict. We also discuss findings on destination-country factors such as networks and immigration policy that influence migration. We conclude by listing some issues and offering our recommendation for migration-related outcomes that a literature review should include.

The factors that determine international migration are complex. Indeed, the emerging evidence suggests that our previous understanding about the relationship between migration and development needs updating. The push and pull model is static and treats migrants as "passive pawns" who lack agency (de Haas 2011). Moreover, the model does not account for some key global migration trends. For instance, the model predicts that migrants will move from the poorest to the richest countries (de Haas 2010), but substantial international and internal movement occurs as well in highly developed societies. Within countries, it is also not the "poorest of the poor" who migrate, as the model would predict (UNDP 2009), but those who are able to finance migration.

The literature suggests that the development programs of aid agencies who seek to deter migration by simply addressing push factors may have effects on migration that are ambiguous. Although poverty alleviation reduces incentives for individuals to migrate, it can also increase migration by enhancing the ability of these same people to migrate. Development may, therefore, facilitate rather than prevent international migration, as it brings about growing incomes, increased aspirations, better opportunities, and increased connections to networks abroad

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[1] The model traces it's beginning to the first study of international migration conducted by Ravenstein (1885) entitled "The Laws of Migration."

(Clemens and Postel 2018). Indeed there is some evidence that it is not the least educated that migrate (Cuecuecha 2005). Further research is necessary to understand how development programs influence net migration flows, given the complexity of the phenomenon.

1.   Income

Economists have long highlighted income at the country of origin as a key determinant of international migration. The original understanding was that low income at the origin as well as large wage differentials between origin and destination countries drive individuals to seek greener pastures abroad. Therefore, higher incomes should lead to less migration.

A study by Clemens (2014), however, debunks the notion of this simple relationship. Examining country-level data, he uncovered a clear inverted-U shaped pattern between emigration and gross domestic product (GDP) per capita, showing that as country incomes rise, international migration first increases then decreases. He further summarizes 45 years of research in the macroeconomic literature that examines the relationship of income and international migration. He finds that studies generally confirm the positive correlation between emigration the number of people who emigrate and income among poorer, developing countries (the rising part of the inverted-U shape).

Recent studies that focus on household- and individual-level behavior also provide support for the inverted U-shaped relationship between income and international migration. Bazzi (2017) finds that rising incomes from rice increases international migration among poor Indonesian farmers, but reduces it for richer farmers living in developed rural areas. Angelucci (2015) uncovers a similar finding for households selected to receive a conditional cash transfer in Mexico. She demonstrates that increases in disposable income raises the likelihood that poor transfer recipients migrate to the United States. Both of these studies emphasize the importance of liquidity constraints to migration. If households view migration as an investment with upfront costs but large potential returns, rising incomes (which reduce liquidity constraints) may help finance such an investment for the poor. Thus, even as greater incomes reduce pressures to migrate, rising incomes may lead to greater migration.

2.   Inequality

Inequality has also long been posited to be an important driver of international migration. When rising incomes are unevenly distributed, relatively deprived individuals may seek to move elsewhere where the reference level of income is acceptable.

Empirical studies have produced evidence to support this hypothesis. Across countries, Adams and Page (2003) find a positive link between origin-country Gini coefficients and emigration. Czaika and de Haas (2013) likewise find that relative deprivation has a strong positive influence on the number of international emigrants a country has. In studies that use household-level data, Stark and Taylor (1989, 1991) find a positive relationship between relative deprivation within villages and emigration from a small part of rural Mexico. Similar findings are shown by Bhandari (2004) and Quinn (2006) for Nepal and other Mexican communities, respectively. Several other studies uncover an inverted U-shaped pattern between relative Gini coefficients (at the origin compared to destination countries) and migration (Hatton and Williamson 2005; Mayda 2010). This suggests that migration rates from origin to destination

countries are highest where differences in inequality between countries are greatest. Evidence suggests this to be true particularly for Latin American countries and the United States (Clark et al. 2007).

Inequality may be yet another reason for the inverse U-shaped relationship between income and international migration (Clemens 2014). Because rising incomes often exacerbate income inequality, rising incomes may first induce migration before stymieing it.

3.   Human capital

A large body of research has sought to clarify the relationship between observed aspects of human capital and international migration. Are migrants more educated or less educated among those who choose to remain in the origin country? In other words, are migrants positively or negatively selected from the population? Borjas (1987) was the first to propose a formal model on migrant self-selection to understand these questions. According to his model, migrants are negatively selected if the returns to education are larger in the origin country than at the destination. Inasmuch as most developing countries tend to exhibit high income inequality (and therefore relatively large returns to education), the model predicts most migration to be among low-skill individuals.

The Borjas model has since been greatly debated in empirical studies. Much of the attention has focused on the Mexico-U.S. migration corridor, where large flows of migrants cross the border. In contrast to Borjas' prediction, Chiquiar and Hanson (2005) find Mexican migrants to be drawn from the middle of the educational distribution (those with 10 to 15 years of education), and not from the lower or upper end. Similarly, Orrenius and Zavodny (2005) provide evidence for intermediate self-selection when focusing particularly on undocumented migrants. Other studies provide evidence of intermediate to positive self-selection of Mexican migrants to the United States (Cuecuecha 2005; Mishra 2007; Kaestner and Malamud 2014). In contrast, several studies using more representative data sets also show that Mexican migrants are disproportionately less educated (Ibarrarán and Lubotsky 2007; Moraga 2011). McKenzie and Rapoport (2010) reconcile these results by showing that the presence of networks can alter the association between education and migration. They show intermediate and positive self-selection among Mexican households in areas with weak migration networks, and negative self-selection in areas with strong migration networks to the United States. They conclude that education can facilitate migration in cases where migration costs are prohibitive but may also act as a deterrent in places where migration costs are not restrictive.

From a more global perspective, authors of several studies have documented a robust and positive association between education and migration amongst countries. Using data in 2000 on migrants by educational level and source country, Grogger and Hanson (2011) show that more educated individuals are more likely to emigrate to Organisation for Economic Co-operation and Development (OECD) countries. Belot and Hatton (2010) reach the same conclusion using a similar data set. Feliciano (2005) studied the education selectivity of migrants from the top 31 originating countries to the United States and found that immigrants are more educated on average than individuals in those counties who do not migrate. Abramitzky and Boustan (2017) summarize the evidence on American immigration and find that it is mostly characterized by positive self-selection, although historically it was mixed. Gibson and McKenzie (2011) find

positive selection into migration among the "best and brightest" students from Pacific island countries (Tonga, Papua New Guinea, and New Zealand).

Although the educational selectivity of migrants is well studied, this body of research does not address the causal impact of education programming on migration. The research documents the correlation between education and migration, but factors such as immigration policy may be behind this correlation (for example, if skill-selective policies facilitate the migration of the highly educated). The existing literature does not attempt to directly determine whether changes in education programming to improve human capital within a country lead to a change in migration. We are aware of no study that directly evaluates the impact of education programs on international migration while accounting for these factors.

4.   Climate

Given the concern that climate change threatens to displace millions of people in the future, recent studies have endeavored to understand the relationship between factors relating to the environment and human migration. The evidence so far is mixed on whether climactic factors influence migration. Using data on bilateral migration flows from 1960 to 2000, Beine and Parsons (2015) find no evidence that long-run climactic factors affect international migration. Instead, they find that climatic factors influence migration only indirectly through economic variables such as wages. On the other hand, Cattaneo and Peri (2016) find in a similar study that higher temperatures in middle-income economies were responsible for higher migration rates to urban areas and other countries. Climate change damages agricultural output, which prompts individuals living in rural areas to move elsewhere. In poor countries, however, the effect of higher temperatures on migration was to reduce it, which is consistent with the presence of liquidity constraints. That is, global warming diminished agricultural income and reduced the ability of prospective migrants to pay for the costs of migration.

There is similarly not a consensus on the effects of natural disasters on international migration. Natural disasters include droughts, earthquakes, extreme temperatures, floods, storms, volcanic eruptions, and insect infestations. Although several studies suggest a positive relationship between natural disasters and international migration by correlating their incidence at the country level (Reuveny and Moore 2009; Drabo and Mbaye 2011), others (Naude 2008; Beine and Parsons 2015) find only weak evidence of a link in panel data sets. In Beine and Parsons (2015), epidemics and miscellaneous incidents concerning explosions, fires, as well as industrial accidents. induce international migration but the authors also show that the overall evidence is weak that disasters contribute to additional migration. Paul (2005) finds zero evidence that a 2004 tornado in Bangladesh had any effect on migration. In contrast, Halliday (2006) discovers that earthquakes reduce migration from El Salvador to the United States.

More high quality studies are necessary to shed light on the link between climate and international migration.

5.   Violence and conflict

Violence and conflict are leading factors that determine international migration. People want to avoid threats to their personal safety, even if this means abandoning their place of residence.

Much of the literature examines the relationship between conflict and international migration at the national level. Looking at many years of data, several studies show that threats to safety were a leading cause of internal displacement and an important motivator in migration (Davenport et al. 2003; Moore and Shellman 2004; Melander and Öberg 2007). These studies focus on counts of internally displaced individuals, refugees, and asylum-seekers, but a limitation is they do not account for households who may decide to move in general but are not directly forced to (for example, individuals who may move abroad in response to violence but do not apply for refugee status). A few other studies focus on undocumented migration. Dorantes and Puttitanun (2016) show that high homicide rates from origin countries in the Northern Triangle and Mexico drove the surge of unaccompanied minors apprehended at the U.S. border after 2011. Similarly, Shellman and Stewart (2007) find that measures of hostility in Haiti were highly correlated with the number of undocumented Haitians trying to migrate to the United States across time.

Studies that exploit microeconomic data at the municipality or household level within countries provide clearer evidence of the causal relationship by holding conditions at the national level constant. Clemens (2017) utilizes administrative data on the universe of U.S. apprehensions of unaccompanied child migrants from countries in the Northern Triangle to show that violence at their origin municipalities was a major factor for their migration. He finds that one additional homicide per year from 2011 to 2016 caused a cumulative total of 3.7 additional child apprehensions at the U.S. border. Shrestha (2017) uses a panel data set of towns in Nepal to show that Maoist insurgencies at the local level increased the rate of emigration to India, Malaysia, and the Gulf. Qualitative research concludes that violence is a leading cause of recent increases in emigration from the Northern Triangle, including unaccompanied child migration (Carlson and Gallagher 2015; MSF 2017). There is a strong individual-level association between stated future emigration intent among youth and recent experience or witness of crime victimization (Hiskey et al. 2014).

The literature is unclear about whether violence induces more international or domestic migration. Studies by Martinez (2014) and Atuesta and Paredes (2016) show that in Mexico, households are more likely to move to other states and municipalities than to other countries in response to violence and crime. Moreover, internal displacement may serve as an initial step before international migration (King and Skeldon 2003) when violence is a cause, but we are unaware of strong empirical research that investigates this phenomenon.

The literature consistently indicates that violence is a major determinant of migration. This suggests that educational programs that focus on reducing violence have large potential in deterring international migration. However, violence reduction also affects other factors, such as income and educational outcomes that may increase migration. Therefore, the net effect on migration is ambiguous. Our initial search has uncovered no studies that look at the joint effect of education on violence and international migration.

6. Networks

The number of previous migrants from the source country or community is an important determinant of future migrant flows. These individuals can serve as networks to help alleviate information constraints which are a barrier to international migration. Individuals contemplating migration benefit from connections with individuals at the destination who offer information

about job search, the cost of living, legal processes, and extralegal channels for movement (Clemens 2014). Networks of individuals also serve as insurance against various forms of risk, providing, for example, food and relief for temporary periods of unemployment after migration.

Munshi (2003) shows that community social networks among Mexican migrants in the United States were instrumental in increasing Mexican emigration. Networks facilitated the employment of migrants in preferred nonagricultural jobs. McKenzie and Rapoport (2010) demonstrate that the lack of networks was an important barrier for Mexicans seeking to migrate to the United States. These are consistent to findings of sociologists who have long highlighted the contribution of migrant networks in perpetuating chain migration from source countries (see, for example, Massey et al. 1998 and Haug 2008).

International networks have a positive influence on the likelihood of migration. However, the effect of education programming on the formation of networks with individuals living abroad is not well understood. Education programs may enhance language skills and Internet literacy, and promote overseas connections. In this sense, education programming has the potential to facilitate greater migration. On the other hand, better networks combined with improved employment opportunities within one's home country could have a negative influence on the likelihood of migration. By staying in school longer and obtaining better jobs a home, individuals can form stronger local networks and outcomes, which could decrease migration. We are not aware of any research on this topic.

7.   Immigration policy

International migration is governed by policies intended to shape migration flows. These policies may take the form of immigrant quotas, requirements for entry, and border enforcement. Although successful at times, these policies may fail to accomplish the purpose of reducing migration.

Although international migration is highly responsive to income per capita at destination, research shows that migration flows are buffered by the tightening of laws regulating immigrant entry, and that significantly reduces international migration (Mayda 2010; Ortega and Peri 2013). The tightening of laws can take the form of decreasing immigrant quotas for entry (whether for reuniting families, refugee resettlement, or employment), increasing requirements or fees for entry, or increasing waiting times to obtain work permits.

A number of studies investigate amnesty programs for undocumented migrants and examine whether these deter future flows of these type of migrants (Donato et al. 1992; Woodrow and Passel 1990; Bean et al. 1990). The most rigorous research, by Orrenius and Zavodny (2003), concludes that the 1986 Immigration Reform and Control Act, which legalized nearly 2.7 million undocumented migrants in the United States, did not alter long-term trends of undocumented migration from Mexico.

There is also research on the effects of tougher border enforcement on illegal immigration. Hanson et al. (2002) and Hanson and Spilimbergo (1999) show that greater enforcement has minimal effects but more recent research by Feigenberg (2017) shows that the construction of border fences at the U.S-Mexico border has deterred illegal migration to the United States.

Understanding how current migration policies shape migration flows is important in studying how education programs may reduce international migration. Although in theory policies identify the groups of people who are able to migrate, research is lacking on how education programming may interact with policies to influence migration.

B. Recommendations for future research

Our review indicates that very few researchers study undocumented migration—let alone the effect of various programs on undocumented migration, given that undocumented migration is difficult to measure. **We, therefore, recommend that a review focus on international migration in general, as more studies look into this outcome**. However, a review should be careful to note that undocumented migration is distinct from international migration in general and might be affected by different factors.

Internal migration is closely related to international migration in the sense that it may facilitate it. Conceptually, migrants may proceed with stepwise migration by first moving to cities within a country to familiarize themselves with an urban environment before moving abroad. On the other hand, internal migration can also be seen as a substitute for international migration if the former can provide lower costs and better returns to migration (King and Skeldon 2003). **Ideally, a literature review on international migration should be complemented with a review of studies on internal migration.** However, the literature on internal migration predates the literature on international migration and is separate and expansive.

A review to summarize the literature on how educational programs affect all factors of migration mentioned above may not result in valuable key takeaways. USAID is interested in the effect of education programs on undocumented migration. The ideal study is an evaluation of a program that measures effects on this outcome. Our preliminary review of the literature has found no such studies; the literature has focused on how factors listed above affect international migration. The literature on how education programs affect these factors is also well developed. However, it may be too broad to include all of this in a review. For instance, the literature on how education programs affect income is in itself vast.

We recommend a review of studies that explore how reductions in violence may influence international migration. This is relevant to USAID missions in Latin America whose explicit goals include the reduction of violence in the region. This also makes the review manageable. One downside of such an approach, however, is that it may not capture the full complexity of international migration. As discussed, education programs may affect many other factors that influence migration in different, and sometimes opposing, ways. Education may increase incomes but reduce violence in the local community. Given that the evidence shows increasing incomes to increase migration and reductions in violence to decrease migration, it is unclear which effect dominates. Highlighting these nuances in the literature review would be important.

C. Proposed outcomes to include in a comprehensive literature search on migration

Below, we propose outcome domains and factors of migration to examine for a future literature search. In Table A.1, we group outcomes in domains the way the literature typically classifies international migration, although we acknowledge the difficulty of fully classifying migrants into mutually exclusive categories. International migration can be legal, undocumented, or forced. To these domains, we add "intentions to migrate," given that several studies have focused on desires to migrate, in the absence of direct measures of international migration. We also list some suggested search terms corresponding to these migration outcomes in Table A.2. In Table A.3, we list outcomes and measures for factors that are closely correlated to international migration. These factors are derived from our preliminary review of the literature discussed above.

Table A.1. International migration domains and outcomes

Undocumented migration
• Unauthorized border crossings • Apprehensions • Deportations • Visa overstayers • Undocumented migrants • Unaccompanied alien children (UACs) or unaccompanied child migrants
Legal migration (or international migration in general)[a]
• Legal permanent migrants • Guest workers/seasonal workers/temporary contract workers • Labor migrants/overseas workers • International migrants in general
Forced migration
• Refugees • Asylum seekers • Smuggled individuals • Trafficked individuals • Displaced individuals
Intentions to migrate
• Visa applications • Desire to migrate

[a] This outcome domain is intended to cover both legal migration and international migration in general, inasmuch as most measures of international migration cannot identify whether the migrant legally migrated or not.

Table A.2. Potential list of search terms, by domain

Undocumented migration
Border crossings
Deportations
UAC
Unaccompanied child migrants
Visa overstayers
Legal migration (or international migration in general)
International migration
Migration
Migrant
Migrate
Guest worker
Seasonal worker
Temporary contract worker
Overseas workers
Forced migration
Refugee
Asylum seeker
Human trafficking
Smuggled individuals
Displaced individuals
Intentions to migrate
Visa applications
Intention to migrate
Desire to migrate

Table A.3. Factors and measures correlated with international migration

Income	
• GDP per capita • Wages • Employment • Poverty	Clemens (2015) shows that there is an inverted-U shaped pattern in the relationship between emigration numbers and country GDP per capita. That is, migration first increases as GDP per capita rises, then decreases after a certain threshold. He then summarizes the literature that looks at the effects of economic development on international migration. He finds that rising incomes have typically been associated with more migration, not less, in studies that look across countries or within poor countries. This suggests that liquidity constraints deter migration but increased incomes help alleviate these constraints. This means that education programs that seek to deter migration may, in fact, promote international migration by raising incomes of individuals.
Inequality	
• Gini coefficient • Indices of relative deprivation	Several studies suggest inequality at the country of origin to be an important driver of migration. In the macroeconomics literature, Adams and Page (2003) and Czaika and de Haas (2013) both find a positive relationship between measures of relative deprivation and emigration. In microeconomic studies, Stark and Taylor (1989, 1991), Bhandari (2004), and Quinn (2006) uncover similar findings looking at households in Mexico and Nepal. These suggest that if education programs are able to reduce income inequality, they may also deter international migration.
Human capital	
• Educational attainment • Years of schooling • Skills	Using the most comprehensive data available on the number of migrants by educational level residing in OECD destinations, Grogger and Hanson (2010) document that an enduring feature of the global economy is that the more educated are those most likely to move abroad. They further provide evidence that this positive selection is due to income maximization, where rewards to skill are relatively larger in destination countries. Several other studies which focus on Mexico show the same positive self-selection of migrants (for example, see McKenzie and Rapoport 2010 and Orrenius and Zavodny 2005]. This indicates that rising educational attainment from educational programs may increase migration if individuals seek to increase incomes by moving abroad.
Environment and climate	
• Temperature • Natural disasters	The evidence on how climate and environment affects international migration is mixed. Beine and Parsons (2015) find no evidence of short- or long-run climactic factors affecting international migration, using data on bilateral migration flows from 1960 to 2000. In contrast, Cattaneo and Peri (2016) find that that higher temperatures in middle-income economies correlated with migration rates to urban areas and to other countries. At the same time, higher temperatures reduced the probability of migration to cities and to other countries from poor countries. More evidence is necessary to understand the link between environment and migration. It is as yet unclear how education programs may interact with environment to influence international migration.
Violence and conflict	
• Death rate • Homicide rate • Human rights violations	The effect of violence on domestic displacement is well studied, but there is little quantitative evidence on the causal effect of violent crime or conflict on international migration. Two exceptions are Shrestha (2017) and Clemens (2017). In Nepal, Shrestha (2017) shows that increases in the death rate because of Maoist insurgencies in urban areas raises the rate of emigration to several countries. Similarly, Clemens (2017) finds that increases in the homicide rate per year in the Northern Triangle, causes increases in apprehensions of unaccompanied children in the United States. These two studies suggest that if education programs are able to reduce violence in the community, they may also reduce displacement and international migration.

Networks	
• Relatives abroad • Community members abroad	The number of previous immigrants from the source country/community has been contended to be the single most important determinant of the migrant flow, at least for the United States (Yang 1995). The seminal paper is by Munshi (2003), who shows that larger community social networks among Mexican migrants in the United States increase their probability of migration and employment. Sociologists have also emphasized the contribution of migrant networks in perpetuating chain migration from source countries (see, for example, Massey et al. 1998 and Haug 2008). The presence of migrant networks can change the association between education and migration. McKenzie and Rapoport (2010) show that in Mexico, more educated individuals migrate in communities with small migration networks whereas less educated individuals migrate from communities with strong networks. These findings suggest that education programs could potentially reduce migration in contexts where strong migrant networks currently exist.
Immigration policies	
• Bilateral labor agreements • Amnesty programs • Border enforcement • Cost of visas	The key pull factors that have been found to affect migration to destination countries are economic prosperity and immigration policies. International migration flows are highly responsive to income per capita at destination; however, these flows are buffered by the tightening of laws regulating immigrant entry, which significantly reduces international migration (Mayda 2010; Ortega and Peri 2013). Many studies investigate how amnesty programs do or do not reduce illegal immigration (see, for example, Orrenius and Zavodny 2003). There is also fertile research on how border enforcement affects illegal immigration. In particular, Hanson et al. (2002) and Hanson and Spilimbergo (1999) show that these have minimal effect. More recent research by Feigenberg (2017) shows that the construction of border fences matter in deterring illegal migration to the United States. However, since more educated and higher income groups tend to overstay visas instead of crossing borders, the effects of such policies may have differential effects by education groups. Understanding how current migration policies shape migration flows may be important in studying how education programs may reduce international migration.
Internal migration	
• Previous residence and place of birth	That internal migration may facilitate international migration has been theorized in the migration literature but has not been well established empirically (King and Skeldon 2003). Conceptually, migrants may proceed with stepwise migration by first moving to cities within a country to familiarize themselves with the urban environment before moving abroad. On the other hand, internal migration can also be seen as a substitute for international migration if the former can provide lower costs and better returns to the migration investment. The few descriptive studies that have been conducted have provided support for either hypothesis in select settings. Zabin and Hughes (1995) document that Mexican migrants from the town of Oaxaca had typically worked in other states before emigrating to the United States. In contrast, Lozano-Ascencio et al. (1999) show that most Mexican migration from 1985 to 1990 seems to be direct flows from rural areas to the United States. Lindstrom and Lauster (2001) argue that both hypothesis are correct but for different time periods: they show that migrants to the United States were first stepwise migrants who eventually facilitate direct emigration flows from rural villages in Mexico. These studies suggest that greater opportunities to migrate internally may reduce international migration, but may also facilitate it if it allows individuals to gain resources and connections to allow for a move abroad.

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APPENDIX B:

MECHANISMS UNDERLYING THE THEORIES OF CHANGE AND PROGRAM ACTIVITIES

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In this appendix, we summarize the different activities included in each program category, and provide additional information related to school climate programs. We first present in Table B.1 the various activities included in the programs discussed in this report, and indicate when activities fall into multiple chapters. We then provide detail on classroom and school environment improvement strategies, and we provide additional information on how we map the school climate related programs discussed in this report to the literature on school climate in Table B.2.

Table B.1. Program activities

Program category[c]	Program	Activity
	IV. Early childhood education (ECE)	• Center- or home-based preschool or day care • Funding supports for families to access preschool or day care • Kindergarten

	V. Literacy and numeracy programs	• Curriculum-based early grade reading and math programs
		  – *Early literacy and numeracy skill-building activities (Chapter XXI)*
		  – *Teacher training on best practice pedagogy for literacy and numeracy development (Chapter XXI)*
		  – Improved reading and math materials
		  – *Computer-assisted instruction (Chapter VI)*
		• After-school reading and math programs
		  – *Remedial education (Chapter VI)*
		  – *Tutoring (Chapters VI, XIV, XII)*
		• Family reading and community engagement programs

FORMAL AND NONFORMAL EDUCATION	**VI. Teaching at the right level**	• Teaching at the right level • Tracking by class or school • Ability grouping within classes • *Remedial education (Chapter V)* • *Computer-assisted instruction (Chapter V)* • *Tutoring (Chapters V, XIV, XII)*

	VII. Classroom-based social-emotional learning (SEL)	• Social-emotional skill building curricula
		  – *Cognitive behavioral therapy (Chapters XIV, XX, XXIII)*
		  – *Conflict resolution training (Chapter XIII)*
		  – Mindfulness training
		  – Play-based learning
		  – Other approaches
		
		• Multicomponent programs provide skill-building curricula and activities for teachers, parents, and others to support students' social-emotional skills
		  – *Parent training on behavioral management, the importance of social-emotional skills, others (Chapter XIV)*
		  – *Teacher training on behavioral management, classroom management, others (Chapter XI, XIV)*

	VIII. School infrastructure	• School infrastructure
	IX. School security measures and zero tolerance policies	• School security infrastructure • School security measures/deterrence policies
	X. Schoolwide positive behavioral programs and supports (SWPBIS) and restorative practices (RP)	• *School-wide positive behavioral programs and supports (SWPBIS)* • Restorative practices *and integrating SEL activities into school disciplinary practices (Chapter VII)* • *Teacher training on classroom management (Chapter XI)*

Program category[c]	Program	Activity
	XI. Classroom management	• *Teacher training on classroom management (Chapter X)*
	XII. Class size reduction	• Class size reduction, hiring additional teachers
	XIII. School-based bullying and violence prevention programming (including GBV)	• Awareness-raising efforts • Anti-bullying policies • Peer mediation or *mentoring (Chapters XIV, XX, XXII)* • Improved playground supervision • *Conflict resolution training (Chapter VII)* • Professional help for bullies and victims • Group trainings on gender expectations, roles, and behavior

	XIV. Dropout and expulsion prevention programs	• Early warning systems (EWS)
		• Family supports, *information on attendance and benefits of schooling (Chapter XXIV, XXV)*
		• Performance, enrichment, and school attachment activities
		  – *After-school programs (Chapter XXII)*
		  – *Tutoring (Chapters V, VI, XXII)*
		  – Curriculum improvements
		  – *Teacher training for cultural competency and SEL (Chapter VII)*
		• Monitoring and *mentoring (Chapters X, XX, XXII)*
		• *Cognitive behavioral therapy (Chapters VII, XX, XXIII)*

	XV. Increased class time	• Extended learning time • Longer school days/additional school days
	XVI. Transfer programs	• Cash transfers (conditional and unconditional) • *Scholarships (Chapter XVII)* and other student financial incentives • School meals, take-home rations, and other in-kind transfers
	XVII. Expanding access to high quality schools	• Vouchers • Lotteries • Merit-based scholarships to attend high quality schools • Same-sex instruction

	XVIII. Teacher incentive programs	• Teacher performance pay
		  – Pay for performance
		  – Contract teachers

	XIX. Secondary certification programs	• Exam-based secondary certification programs and preparation • Alternative secondary school programs • *Flexible learning environments (Chapter XXI)*
	XX. Workforce development programs (WFD)	• *Technical vocational skills training (Chapter XXI)* • On-the-job training (including internships and apprenticeships) • Entrepreneurship promotion

FORMAL AND NONFORMAL EDUCATION (CONTINUED)

Program category[c]	Program	Activity
		• Youth civic engagement • Peace-building activities • *Soft/life skills training (Chapter XXI)* • *Cognitive behavioral therapy (Chapters VII, XIV, XXIII)* • *Basic education support (including financial or in-kind support) (Chapters XII, XIV)* • *Mentoring (Chapters XIX, XIV, XXII)*
EXTRACURRICULAR/EDUCATION SUPPORT SERVICES	**XXI. Programs for out-of-school children and youth** • Complementary basic education (CBE) programs • Accelerated education (AEP) programs • Adult basic education (ABE) programs	• Accelerated or compressed primary curriculum adapted for overage learners • *Early literacy and numeracy skill-building activities (Chapter V)* • *Teacher training on best practices pedagogy for literacy and numeracy development (Chapter V)* • *Flexible learning environments (Chapter XIX)* • Primary-level equivalency and certification • Teacher training on sensitivity (toward children in post-conflict environments) • *Technical vocational skills training (Chapter XX)* • *Soft/life skills training (Chapter XX)* • *Family engagement elements (Chapter XXIV)*

	XXII. Extracurricular
	• After-school programming
	• School-based mentoring
	• School-based sports
		• *After-school programs (Chapter XIV)*
		  – Bundle of structured, adult-supervised, after-school activities
		• *Tutoring (Chapter V, VI, XIV)*
		  – *One-on-one supplemental academic instruction from adult, older youth, or peer volunteer*
		• *Formal mentoring with an unrelated adult volunteer (Chapter XIII, XIV, XX)*
		• Sports programming run by schools or independent organizations at schools

	XXIII. School counseling services	• School counselors • Meditation and mindfulness • Peer counseling and mediation • Individual and group counseling • *Cognitive behavioral therapy (Chapter VII, XIV, XX)* • *Conflict resolution training (Chapters VII, XIII)* • Peace education • School-based health centers • Academic and career counseling • Substance abuse prevention • Multicomponent programs
COMMUNITY ENGAGEMENT	**XXIV. Parenting programs**	• *Parent training on behavioral management (Chapter VII)* • Parent training on discipline • Parent training on learning/education • *Providing information to families on the benefits of schooling (Chapter XIV, XXV)*

	XXV. Community outreach and awareness programs	• In-person or media campaigns designed to inform, change behavior, and mobilize community
		  – Social Behavior Change Communication (SBCC)
		  – Community Action Plans (CAPs)

Program category[c]	Program	Activity
		– *Providing information to families on the benefits of schooling (Chapters XIV, XXIV)*
	XXVI. School-based management programs	• Decentralized school management/administration – Subnational level – School Management Committees (SMCs) – School improvement/action plans – School block grants • Increasing parental involvement in school administration and oversight – Parent-teacher partnerships (for example, PTAs)

Note: Italicized activities with numbers referencing other chapters are present within at least one other program area.

Classroom and school environment program strategies. In this section, we present the framing from Wang et al. (2015) about school environment programs, as discussed in Chapter II. In Table B.2, we present illustrative examples of the diverse programs designed to modify aspects of the school climate. We have grouped the programs by domain, although some programs may include activities related to several school climate domains, and some programs may not fit neatly into a single domain. The program strategies corresponding to each school climate domain follow:

- **Academic climate** activities seek to modify schools' approaches to promote student learning. Such activities may include school-, teacher-, and content-level programming. School-level programs include efforts to modify standards that schools use to measure learning as well as efforts to determine how school administrators promote compliance with these standards. Teacher-level activities seek to improve methods and practices of instruction through teacher training, establishment of new standards for student evaluation, and other activities. Content-oriented programs focus on improving curricula and other teaching materials with the aim of optimizing learning.

- **Safety** programs are unified in their goal of improving students' safety by changing the physical, organizational, or normative aspects of the school climate. Safety programs focused on the school's physical context include the installation of infrastructure that directly and indirectly promotes safety. Direct programs might include the presence of police officers, and indirect programs might involve the installation of improved lighting). Programs that modify organizational aspects of safety include school or classroom management strategies that specify how teachers, administrators, and others are to promote and handle discipline. Changing the normative aspects of safety may involve policies, rules, or norms, such as positive behavioral supports, that promote a reduction in disruptive behavior.

- **Relational climate** programs assign a high priority to improving the quality of distinct school-based relationships, including student-teacher, student-student, and other relationships. The quality of relationships is measured by their frequency, consistency, and qualitative aspects as expressed through connectedness, respect, and support that contribute to the formation of social bonds or other mechanisms that generate changes in violence and other correlated outcomes. Relational climate programs are broad in their focus. They may

include campaigns that promote diversity and respect as a means of improving student-student relationships and reducing victimization of specific student groups or teacher coaching programs that seek to improve teachers' capacity to communicate with particular students.

- **Institutional climate** programming seeks to change structural aspects of the school. Programming may include changes to school infrastructure, organization, and materials. Infrastructure improvements may involve upgrades to building quality or conditions through, for example, changes in building design) and rigorous school maintenance, among others. Programs focused on organizational structure include the adoption of policies governing school or class size or the composition of the student body at the class or school level. Finally, programs increasing the availability of school resources (such as learning aids, tutors, or counselors) may also be considered institutional climate programs.

Table B.2. Illustrative school climate programs and related chapters in this report

School climate domain	Illustrative programs (Wang et al. 2015)	Related chapters/sections
Academic climate	• Alignment of curricula with specific goals and standards • Innovative curricula and pedagogical methods such as supportive instruction • Modification of feedback and evaluation strategies	• VI: Teaching at the right level (TaRL)[i] • XVIII: Teacher incentive programs
Safety	• Metal detectors, security guards • Positive behavioral supports and other disciplinary policies • Classroom management techniques (such as teacher effectiveness in handling infractions) • Counseling services aimed at improving emotional safety and eliminating unsafe behavior	• VIII: School infrastructure • IX: School security measures and zero tolerance policies • X: Schoolwide positive behavioral programs and supports (SWPBIS) and restorative practices (RP) • XIII: School-based anti-bullying and school-related, gender-based violence prevention
Relational climate	• Campaigns for cultural sensitivity • Parental outreach and involvement programs • Teacher coaching aimed at enhancing student-teacher relationships	• XI: Classroom management • VII: Classroom-based SEL • XXIII: School counseling services • XXV: Community outreach and awareness programs • XXVI: School-based management programs
Institutional climate	• Building additions and quality upgrades • Class size reductions • Ability tracking	• VI: TaRL • VIII: Infrastructure • XII: Class size reduction

[i]. Wang et al. (2018) classify TaRL as part of the institutional climate domain in that it may be viewed as an organizational approach rather than as a pedagogical strategy. In this report, we present TaRL as both an organizational approach and a pedagogical strategy.

Report focus. In this report, we address the school climate programs in multiple chapters. In some chapters we focus on programs that primarily or exclusively address contextual factors in their approach to modifying the school climate, incorporating programs in the safety, relational, and institutional climate domains. We cover programs under the academic climate domain in other chapters. In addition, we incorporate programs that take an individualized approach to improving behaviors that result in an improved school climate in the chapter on

school-based anti-bullying and school-related gender-based violence prevention (Chapter XIII) and SWBPIS and RP (Chapter X). We examine programming related to safety research covering relationships between school and nonschool actors (for example, relationships among schools, parents, and the community) as well as relational studies on curricula or resources aimed at enhancing emotional safety the chapters on community outreach and awareness programs (Chapter XXV), school-based management programs (Chapter XXVI), school counseling services (Chapter XXIII), and classroom-based SEL (Chapter VII).

We also review safety, relational and institutional climate programs targeting pre-primary, primary, and secondary school populations, albeit the evidence may be more heavily concentrated in some developmental groups. For instance, evidence on school climate programs in the safety domain may often feature secondary school populations because safety issues are more prevalent among older students. In addition, when possible, we discuss the implications of programs for distinct demographic populations, as the literature notes that socioeconomic status, race, and other factors may affect students' perceptions of school climate and thus interact with program effectiveness. However, the literature notes that analyses of school climate programs that attempt to identify how these demographic factors affect school climate are largely absent and thus present a major area for future research (Wang et al. 2015; Amrit et al. 2013).

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APPENDIX C:

OUTCOME MEASUREMENT

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In this appendix, we present additional information about the outcomes of interest for this literature review. This appendix is intended to provide information we identified related to the measurement of these outcomes of interest, while recognizing that we did not conduct a comprehensive literature review of measurement itself. We present illustrative measures of each outcome, resources identified during the literature review related to measurement, and discuss some of the measurement challenges. First, we present illustrative measures used in the literature to capture violence, crime, and correlated outcomes. We list measures that were included in sources we used to structure our conceptual framework, program chapters, and other references identified throughout the search process. The metrics vary in their validity, reliability, and level of standardization. Second, we present illustrative measures of the outcome categories we focused on in this report, along with citations for different measures. Third, we present a short compendium of measures that we identified in the literature. We conclude by discussing some of the challenges associated with some of the measures included in this report.

A. Violence and crime outcomes

During our preliminary review of the foundational literature, we identified significant overlap between violence and crime outcomes, so we made the decision to present them as a group. The domains and outcomes for direct measures of crime and violence (see Tables 1 and 2) were initially based on existing systematic reviews focused on crime prevention in the United States, including Sherman and colleagues (1998); the Blueprints for Healthy Youth Development database (Mihalic 2017); and Crimesolutions.gov, which was developed by the National Institute of Justice (2017). These were grouped by the authors into general measures of crime (for example, arrest rates); violent crimes; and nonviolent crimes (for example, property and substance-related crimes). We also included additional search terms and outcomes that are linked to crime in the LAC region, such as violence within schools and perceptions of safety drawn from Baliki (2014), the World Bank (2010), Heinemann and Verner (2006), Raderstorf and colleagues (2017), and Ruiz-Rodriguez Mariella (2017).

Table C.1. Violence and crime outcome categories and outcomes often used within the categories

Category	Outcome	Source
Violent crimes (offending and victimization)	• Child abuse • Domestic violence • Physical abuse • Assault • Sexual violence • Gang participation and violence • Political violence • Violent extremism • Armed crimes/violence • Homicide • Kidnapping • Torture • Rape • Homicide • Assault • Gender-based violence	• Sherman and colleagues (1997) • National Institute of Justice (2017) • Mihalic (2017) • Baliki (2014) • The World Bank (2010) • Heinemann and Verner (2006)
Nonviolent crime	Property crimes (offending and victimization) • Burglary	

Category	Outcome	Source
	• Shoplifting • Robbery • Vandalism Substance-related crimes • Drug and alcohol use (can also be a risky behavior) • Drug production/possession • Drug dealing • Driving under the influence Other crimes • Human trafficking • Fraud • Money laundering	
School violence	• School violence • Youth violence (around schools) • Bullying • Substance abuse (if occurring at school) • Corporal punishment • Use/possession of weapons • School-related gender-based violence (including unwanted touching) • Abusive interactions • Student perceptions of school safety	• Sherman and colleagues (1997) • National Institute of Justice (2017) • Mihalic (2017) • Baliki (2014) • The World Bank (2010) • Heinemann and Verner (2006) • Ruiz-Rodriguez Mariella (2017) • Kremser (2014)
General measures of crime	• Arrests • Apprehensions • Detentions • Convictions • Incarceration • Delinquency[a] • Criminal behavior/offenses • Crime victimization • Self-reported criminal participation	• Sherman and colleagues (1997) • National Institute of Justice (2017) • Mihalic (2017) • Baliki (2014) • The World Bank (2010) • Heinemann and Verner (2006) • Heller and colleagues (2017)

[a] We included delinquency as an outcome in general measures of crime because some studies referenced the outcome without giving details about the crime. However, we did not include delinquency as an outcome in school violence because the acts that constitute delinquency in the school setting have been covered in other outcome categories. Jenkins (1995) categorizes school delinquency as (1) school crime (2) school misconduct, and (3) school nonattendance.

B. Outcomes correlated with violence and crime

To develop the correlated factor domains and outcomes (see Table C.3), we initially reviewed Gates and colleagues (2016), a USAID-supported literature review on which soft skills most effectively contribute to positive outcomes for youth across workforce development, violence, prevention, and sexual and reproductive health. The key soft skills identified in that review served as the backbone for the soft skills listed in Table C.2, and we incorporated them into the search terms (including both risky and protective factors). Based on Chioda (2017), we included additional domains and outcomes in two main categories: (1) alternative activities, such as employment, and school attachment that may "crowd out" violence and criminal activities and (2) environmental factors related to parents, family members, peers, and the community.

Table C.2. Correlated outcomes and their measurement

Category	Outcomes	Some measures	Incomplete list of sources that use the measures
Social-emotional	• Self-regulation: Attention, frustration, inhibition, self-control, impulsivity, response inhibition, emotional/behavioral regulation, emotional stability • Social skills: Interpersonal skills, conflict resolution, affective empathy, extraversion, agreeableness, altruism • Higher-order thinking: Problem-solving, critical thinking, sound planning behavior, decision making, conscientiousness • Positive self-concept: Self-esteem, self-awareness • Other soft skills: Integrity/ethics, resilience and communication, goal orientation, trust	• The Social and Personal Competencies Scale (Brea 2010) • Rosenberg Scale (Rosenberg 1965; Brea 2010) • Single-Item Self-Esteem Scale (Robins et al. 2001) • Grit Scale (Brea 2010) • CASEL Framework (CASEL 2017; Osher et al. 2016; Oberle et al. 2016) • Big Five Inventory (John 2000; Kautz et al. 2015) • The Jesness Inventory Classification System (Jesness 1998; Algan et al. 2014)[i] • Children's Depression Inventory (Kovacs 1983; Algan et al. 2014) • Diagnostic Interview Schedule for Children Predictive Scales (Lucas et al. 2001; Jones et al. 2011)[ii] • ADHD Symptomatology Scale (Milich et al. 1982; Jones et al. 2011) • Social Competence Scale, Emotional Regulation Subscale (CPPRG 1999; Jones et al. 2011) • Social Skills Rating Scale (Elliott et al. 1988; Durlak et al. 2011) • Children's Manifest Anxiety Scale (Kitano 1960; Durlak et al. 2011) • Developmental Asset Profile (Benson 1990, 1997, 2006) • The Parental Account of Child Symptoms interview (PACS; Taylor et al. 1991) • The Eyberg Child Behaviour Inventory (Boggs et al. 1990) • Visual Analogue Scale (Aitken 1969)	• Brea (2010) • CASEL (2017), Osher and colleagues (2016), Oberle and colleagues (2016) • John (2000), Kautz and colleagues (2015) • Jesness (1988), Algan and colleagues (2014) • Kovacs (1983), Algan and colleagues (2014) • Lucas and colleagues (2001), Jones and colleagues (2011) • Milich and colleagues (1982), Jones and colleagues (2011) • CPPRG (1999), Jones and colleagues (2011) • Elliott and colleagues (1988) and Durlak and colleagues (2011) • Kitano (1960), Durlak and colleagues (2011) • Meadows and Metcalf (2008) • Scales and colleagues (2013) • Beckett and colleagues (2012) • Midgett and colleagues (2017)

Category	Outcomes	Some measures	Incomplete list of sources that use the measures
Environmental factors	• Home environment: Family relationships, parental protective factors (that is, conflict resolution training), conflict, violence, substance abuse, domestic violence • School environment: Violence in school, positive peer relationships, positive student-teacher relationships, student perceptions of school connectedness, peer-related crime, substance abuse by peers, peer antisocial behavior • Community environment: Social cohesion, prosocial involvement, neighborhood violence, number of criminals in neighborhood	• Alabama Parenting Questionnaire (Shelton et al. 1996) • Psychological Sense of School Membership Scale (Goodenow 1993)	• Beckett and colleagues (2012) • Midgett and colleagues (2017)
Risky and protective behaviors	• Risky behaviors: Drug use, alcohol use, smoking, expulsion, unprotected sex, aggressive/antisocial behaviors (dishonesty, rule breaking, hostility toward police, favorable attitude toward violence) • Protective behaviors: Pro-social behavior and crime avoidance, including preventing children from playing in the street and at night, avoiding public transportation, moving to safer neighborhoods	• Home Interview Questionnaire (Dalhberg et al. 1998; Jones et al. 2011)[iii] • Behavioral Assessment for Children (Reynolds and Kamphaus 1998; Jones et al. 2011) • Social Competence Scale, Prosocial-Communication Subscale (CPPRG 1999; Jones et al. 2011; Jones et al. 2015) • Aggression Scale (Orpinas and Frankowski 2001; Lewis et al. 2013) • Child Behavior Checklist[iv] (Achenbach 2001; Wilson and Lipsey 2007)	• Dalhberg and colleagues (1998), Jones and colleagues (2011) • Reynolds and Kamphaus (1998), Jones and colleagues (2011) • CPPRG (1999), Jones and colleagues (2011), Jones and colleagues (2015) • Orpinas and Frankowski (2001), Lewis and colleagues (2013) • Achenbach (2001); Wilson and Lipsey (2007)

[i] The Jesness Inventory generates a self-reported measure of personality and psychopathology. It is designed for children and adolescents with behavioral problems. Algan and colleagues (2014) use the Jesness Inventory, Children's Depression Inventory, and other sources to develop their measures, which include self-esteem, trust, altruism, and friends.

[ii] Jones and colleagues (2011) use this reference to measure depressive symptoms.

[iii] Jones and colleagues (2011) use the Home Interview Questionnaire to measure aggressive interpersonal negotiation strategies. They use the Behavioral Assessment for Children to measure child aggression. The instrument asks teachers about children's behaviors in the past 30 days. It includes 30 items related to aggression (physical aggression, threatening, critical of others).

[iv] The Child Behavior Checklist measures problem behaviors closely related to aggression among children age 6 to 18.

C. Measurement compendiums

In addition to the above citations, there are several measurement compendiums that we have identified in this process. We list each below by outcome domain.

- Social-emotional skills

    - EASEL (Harvard): http://exploresel.gse.harvard.edu/

        o Measures in conflict effected environments: https://easel.gse.harvard.edu/inee-qelo-sel-mapping

    - Youth Development Measurement Tools (USAID): https://www.usaid.gov/what-we-do/education/expanding-access-higher-education-and-workforce-development/Scan-Review-Youth-Development-Measurement-Tools

    - Soft Skills and Life Skills in International Youth Development Programs (USAID, PEPFAR, Youth Power): https://www.fhi360.org/sites/default/files/media/documents/resource-yp-measuring-soft-skills.pdf

    - Education Assessment finder (RAND): https://www.rand.org/education-and-labor/projects/assessments/tool.html#q=&tags=educational-measures%3Ainter-personal&ageGroups=9-12&feeForUse=Free+and+publicly+available

    - Assessment Guide for Measuring SEL (CASEL): http://measuringsel.casel.org/access-assessment-guide/

    - Measurement of Subjective Well-Being (Diener at al., 2003): https://www.scopus.com/record/display.uri?eid=2-s2.0-0042438832&origin=inward&txGid=66b0ab9d4079d31af52e9a4167e83c9c

- Environmental factors

    - Early Education Essentials (Ehrlich et al., 2018): https://www.tandfonline.com/doi/full/10.1080/10409289.2018.1556969

- General

    - Youth Thrive: https://cssp.org/wp-content/uploads/2018/10/Youth-Thrive-Survey-User-Manual.pdf

D. Measurement challenges

Many of the outcomes of interest in this paper have challenges related to their measurement. Individual perpetration of crime or violence, in particular, is difficult to measure. For instance, measuring crime can be challenging because survey questions on crime can be stressful for respondents and because respondents may not answer truthfully. The item count technique used by Coffman and colleagues (2016) can put respondents at ease by masking their individual responses, while allowing researchers to estimate group means.

In addition, there are several challenges in social-emotional skills measurement, including a lack of standardization across terms and concepts, bias due to intervening variables and survey behaviors, and the limited cultural transference of commonly used instruments. Regarding

standardization, Osher and colleagues (2016) observed that frameworks and disciplines may use different terms to refer to the same skills or concepts or they may define the same term differently. We also observed a lack of standardization in indicators and measurement strategies because several authors used their own variables and they tailored established instruments to assess skills. Lax standardization affects the comparability of findings and researchers' ability to assess relationships between skills and among skills, related factors, and outcomes of interest. On bias, Kautz and colleagues (2015) noted that measuring socio-emotional skills via performance on specific tasks or self-reports—measures favored by several works cited in our chapter on classroom-based SEL (Chapter VII)—is misleading because individuals' distinct stock of skills, incentives, and effort levels are intervening factors that will bias performance. Similarly, self-reports are particularly vulnerable to different forms of bias—for example, reference bias, social desirability bias, and other negative survey behaviors. Finally, Laajaj and Macours (2017), demonstrated that instruments used to measure social-emotional skills in developed countries—specifically, the Big Five Inventory—may suffer from several forms of measurement error in developing countries, at least when measured in adults. Many authors included in our chapter on SEL raised this concern when transferring instruments across populations or cultures, and several addressed how they mitigated this threat.

APPENDIX D:

COMPREHENSIVE LITERATURE SEARCH AND REVIEW PROTOCOL

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Our overall literature search incorporated two steps: (1) a foundational literature search to develop an understanding about each program's evidence base and how each program may affect violence, crime, and correlated outcomes; and (2) a comprehensive literature search to identify the evidence of the effect of education programming on violence, crime, and correlated outcomes in low- and middle-income countries (LMICs) and Latin America and the Caribbean (LAC).

We describe the protocol for the comprehensive literature search and review in this appendix, detailing the databases and websites that were searched, the search process and terms, and the screening and review of the search results for inclusion in this report.

A. Databases and websites

The literature search included all published and grey literature, and excluded dissertations unless specifically suggested by one of the topic experts with whom we consulted. Our search relied on several different sources. First, we performed literature searches in nine reputable bibliographic databases (Table D.1). These databases consist of published peer-reviewed articles.[2] Second, we searched, in English, relevant organizational websites for grey literature (Table D.2) either using a Google custom search engine (GCSE) or directly in the websites, depending on the formatting of the organization's publication database.

Table D.1. List of bibliographic databases searched

Bibliographic databases
Cochrane Library/Cochrane Collaboration
ScienceDirect
Academic Search Premier
EconLit
ERIC (Education Resource Information Center)
PsycINFO
SocINDEX with Full Text
PAIS (Public Affairs Information Service, international)
ProQuest

We determined which bibliographic databases and websites to include in the search by consulting with a librarian, reviewing the databases used in other similar literature reviews, including two recent and relevant USAID-funded systematic reviews (AIR 2016; Abt and Winship 2016); and testing our search protocols to be sure we captured key relevant literature. To identify published literature, we selected nine bibliographic databases used by two USAID-funded systematic reviews. Altogether these databases include published literature from thousands of English- and Spanish-language journals on education topics relevant for this report. To capture evidence from grey literature, we first considered the universe of funding and research organizations that deal with our program and outcome domain areas. We then selected those with prolific databases of working papers, reports, evaluations, and policy briefs.

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[2] The databases include English journals and foreign language journals that have translated paper titles and abstracts to English. We considered also searching Spanish language databases, but determined, jointly with USAID, that the effort to do so was not justifiable given the potential return. Specifically, a test search of Spanish-language journals covering one program area required high search and screening times and provided less than 10 sources that met our study criteria. Some eligible references were translated, English-language literature.

Table D.2. List of websites to search for grey literature

Source	URL
American Institutes of Research	https://www.air.org/resource/
Harvard Family Research Project	https://globalfrp.org/Articles/(type)/6,8,9 AND https://globalfrp.org/Articles/
Institute of Development Studies (IDS)	https://www.ids.ac.uk/publications/
Overseas Development Institute (ODI)	https://www.odi.org/publications
RAND	https://www.rand.org/pubs/
Regional Educational Laboratories (IES)	https://ies.ed.gov/ncee/edlabs/projects/
University of California Center for Effective Global Action (CEGA): Research Projects	http://cega.berkeley.edu/evidence/
Violence Research Centre at the University of Cambridge	https://www.vrc.crim.cam.ac.uk/vrcresearch
Center for Global Development (CGD)	https://www.cgdev.org/publication/
FHI360 - Global Education Articles	https://www.fhi360.org/sites/default/files/media/documents/
Brookings Institution	https://www.brookings.edu/research/
Innovations for Poverty Action (IPA)	https://www.poverty-action.org/publication/
Inter-American dialogue (IAD)	https://www.thedialogue.org/analysis/
MDRC	https://www.mdrc.org/publication
Migration Policy Institute	https://www.migrationpolicy.org/research/
National Bureau of Economic Research	http://www.nber.org/papers/
Sexual Violence Research Institute	http://www.svri.org/sites/default/files/attachments/
RTI International	https://www.rti.org/publication/
The Abdul Latif Jameel Poverty Action Lab (J-PAL)	https://www.povertyactionlab.org/evaluation AND https://www.povertyactionlab.org/publications
Washington Office on Latin America	https://www.wola.org/analysis
Millennium Challenge Corporation (MCC) - Evaluation Catalog	https://data.mcc.gov/evaluations/index.php/catalog
OECD - Education Working Papers	https://www.oecd-ilibrary.org/education/
The United Nations Children's Fund (UNICEF) - LAC	https://www.unicef.org/evaldatabase/
Oxfam	https://oxfamilibrary.openrepository.com/bitstream/handle/
Inter-American Development Bank Office of Evaluation and Oversight	https://publications.iadb.org/
The U.K. Department for International Development (DfID) Evaluations	https://www.gov.uk/government/publications
World Bank Working Papers	https://openknowledge.worldbank.org/handle/10986/8
African Development Bank Evaluation Reports	http://www.afdb.org/en/documents/evaluation-reports/
Asian Development Bank (ADB) Evaluation Resources	https://www.adb.org/documents/
USAID Development Experience Clearinghouse - USAID Evaluations	https://dec.usaid.gov/dec/content/evaluations.aspx
Abt Associates – Insights	https://www.abtassociates.com/insights
Mathematica Policy Research - Education/International Publications	https://www.mathematica-mpr.com/our-publications-and-projects/publications#sort=relevancy
The International Initiative for Impact Evaluation (3ie) - Impact Evaluation Repository	http://www.3ieimpact.org/evidence-hub/publications

Note: These are not live links; instead, they are prefixes to publications hosted on the organizations' websites that were searched with the custom engines.

To conduct the literature searches, we relied on three different strategies across the websites and databases in Tables D.1 and D.2.

- First, we searched for published literature in bibliographic databases, using a systematic approach of narrowing the topic with foundational research, selecting program-specific search terms, and building search strings for each program using the parameters illustrated in the tables below.

- Second, we used four GCSEs to search for grey literature across the organization websites listed in Table D.2, with each search using a shortened version of the bibliographic string and retrieving up to the top 100 most relevant items. To determine the composition of organizations in each engine, we categorized the websites by the quantity of relevant literature and the type of organization (development banks and funders, multilateral implementers, and research organizations). With this system, we conducted multiple GCSE searches so that a single organization's website—however prolific—would not overwhelm the content offered by the remaining websites in the engine group. This required testing and calibrating search terms and groupings.

- Third, we manually searched the databases of four key organizational websites (USAID, 3ie, Abt, and Mathematica) for additional grey literature. This process was necessary when the GCSE system could not extract relevant search results from the organizational database. Within each organization's site, we applied filters (e.g., education sector, years 2000 to the present) to keep results consistent with our limiters from the bibliographic and GCSE searches.

B. Search process

The search process for each education program proceeded as follows:

1. Determine geographic focus of the search

For the bibliographic search, we sought evidence from emerging economies, defined in this report as countries across the globe with low-income, lower-middle-income, and upper-middle income economies, as well as countries with high-income economies in the LAC region. For grey literature searches, we did not apply geographic restrictions, for two reasons: (1) the GCSE engines have limitations on the length of each string, making a list of target countries infeasible; and (2) we anticipated finding valuable unpublished experimental evidence from high-income countries on the programs we reviewed.

2. Determine time frame

Unless findings from the foundational literature review indicated otherwise, we restricted the time frame of the bibliographic literature search for most programs to studies published between 2000 and 2018 or 2019, depending on whether we conducted the search in 2018 or 2019. The time frame restrictions for each search are shown in Table D.3. Due to differences in the output of search results, we did not include time frame restrictions in grey literature searches.

3.   Conduct literature searches

The literature search was conducted similarly for each program area, with specific variations introduced depending on information about the overall evidence base we gleaned from the foundational literature review, as described above.[3] Table D.3 summarizes the bibliographic searches conducted.

Table D.3. Bibliographic searches

Program	Time frame restriction
Formal and non-formal education	
Early childhood education	2000–2018
Literacy and numeracy programs	1995–2018
TaRL: Tracking	2000–2019
TaRL: Remedial education	2000–2019
TaRL: Computer-aided instruction	2000–2019
TaRL: Tutoring[i]	2000–2018
Classroom–based SEL	2000–2018
School infrastructure	2000–2018
School security measures and zero tolerance policies	2000–2018
Schoolwide positive behavioral programs and supports (SWPBIS) and restorative practices	2000–2019
Classroom management	2000–2019
Class size reduction	2000–2019
School–based anti–bullying and gender-based violence prevention programming	2000–2018
Dropout and expulsion prevention programs	2000–2018
Increased class time	2000–2019
Transfer programs: Cash transfers (conditional or unconditional)	2000–2019
Transfer programs: Scholarships and other student financial incentives	2000–2019
Transfer programs: School feeding, take-home rations, and other in-kind transfers	2000–2019
Expanding access to high quality schools: Vouchers	2000–2019
Expanding access to high quality schools: Lotteries	2000–2019
Expanding access to high quality schools: Merit-based scholarship	2000–2019
Expanding access to high quality schools: Single-sex instruction	2000–2019
Teacher incentive programs: Pay for performance	2000–2019
Teacher incentive programs: Contract teachers	2000–2019
Secondary certification	2000–2019
Workforce development (including TVET)	2000–2018
Programs for out-of-school children and youth: Complementary basic education	2000–2018
Programs for out-of-school children and youth: Accelerated education programs	2000–2018
Programs for out-of-school children and youth: Accelerated education programming	2000–2018
Extracurricular and education support services	
Extracurricular programs: Mentoring	2000–2018

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[3] During the review of literature located through bibliographic and grey literature searches, we identified additional terms that related to violence, crime, and correlated outcomes. To ensure a complete review of the literature, for each education program, we conducted a second "mop-up" search of the nine selected bibliographic databases using the new outcome terms. We subsequently screened and reviewed the new results using our established protocols.

Program	Time frame restriction
Extracurricular programs: Organized sports	2000–2018
Extracurricular programs: After-school programming	2000–2018
School counseling services: School counselors	2000–2019
School counseling services: Responsive services	2000–2019
School counseling services: Substance abuse prevention programs	2000–2019
School counseling services: Multicomponent programs	2000–2019
Community engagement	
Parenting programs	2000–2019
Community outreach and awareness programs	2000–2019
School-based management programs	2000–2019

[i] Tutoring was initially included in the education services chapter search, and then later moved to teaching at the right level due to common theories of change.

C. Search terms

We used findings from the foundational literature review to develop search terms for each type of education program, for violence and crime outcomes, and for correlated factors. We developed search terms for each type of education program based on the foundational literature review conducted for each program. Through this foundational literature review, we identified key studies and systematic reviews on the effects of each education program on outcomes of interest. The foundational literature review was important in identifying outcomes and constructs on which to search. We focused on developing relevant search terms that could appear in a study's title, abstract, and list of keywords, because these are the search fields used in the bibliographic database searches listed in Table D.1. Search strings encompassed five components: (1 program terms, (2) outcome terms, (3) evidence terms, (4) topical terms, and (5) geographic terms. In addition, searches included time restrictions. We also adapted the terms to search the grey literature, where we developed a shortened list of terms to be used in the website searches.

1. Programs

The team initially developed program search terms on the basis of USAID education programming. We complemented or revised these terms with keywords that appeared in the abstracts of multiple foundational papers for the corresponding program type (Table D.4).

Table D.4. Program search terms

Program type	Bibliographic search terms	GCSE search terms
Early childhood education	"Early child* development*" OR "Early child* education" OR "Head Start" OR "PreK "OR "Pre-K" OR "Pre-kindergarten*" OR "Pre-school*" OR preschool* OR Kindergart*	"early childhood" OR "early child" OR "pre-primary" OR preprimary OR "pre-school" OR preschool OR kindergarten OR "pre-k" OR "pre-kindergarten" OR "child care" OR "day care"
Literacy and numeracy programs	"Literacy program*" OR "Reading program*" OR "literacy instruction" OR "Numeracy program*" OR "Literacy education" OR "Literacy campaign*" OR "Early literacy" OR "Early-grade reading" OR "Early-grade literacy" OR "Literacy program*" OR "Numeracy program*" OR "Early numeracy" OR "Adult literacy" OR "Adult numeracy" OR "Literacy gap*" OR "Remedial education" OR "Improv* basic learning" OR "Reading improvement*" OR "Literacy skills development" OR " literacy development" OR "Reading class*" OR "Numeracy improvement*" OR "Numeracy skills development" OR " Numeracy development"	"Literacy program" OR "Numeracy program" OR "Reading program" OR "Early grade reading" OR "Early grade mathematics" OR "remedial reading"
Teaching at the right level (tracking, remedial education, and computer-assisted instruction)	"track*" OR "remedial education" OR "remedial teaching" OR "teach* at the right level*" OR "teach* at the appropriate level*" OR "tailor* instruction" OR "tailor* class* instruction" OR "catch-up program*" OR "ability grouping*" OR "group* by ability" OR "streaming" OR "rapid academic leveling" OR "computer-aided instruction" OR "technology-aided instruction" OR "instructional computer program*" OR "summer school*" OR "reading camp*"	"tracking" OR "remedial-education" OR "teaching-at-the-right-level" OR "ability-grouping" OR "streaming" OR "computer-aided-instruction"
Tutoring[i]	"Tutoring" OR "Tutorship*" OR "Homework help" OR "Homework assistance" OR "Homework support" OR "Peer-assisted learning" OR "PAL" OR "Remedial lesson*" OR "Remedial learn*" OR "Remedial teach*"	See terms for mentoring, organized sports, and after-school programs.
Classroom-based SEL	"Social emotional learning" OR "Socio-emotional learning" OR "Socioemotional learning" OR "Social emotional skill* development" OR "Socio-emotional skill* development" OR "Socioemotional skill* development" OR "Social emotional skill* curriculum" OR "Socio-emotional skill* curriculum" OR "Socioemotional skill* curriculum" OR "Social emotional skill* training*" OR "Socio-emotional skill* training*" OR "Socioemotional skill* training*" OR "Social emotional competenc* development" OR "Socio-emotional competenc* development" OR "Socioemotional competenc* development" OR "Social competenc* development" OR "Social competenc* training*" OR "Social competenc* curriculum" OR "Social competenc* learning" OR "Social emotional competenc* training*" OR "Socioemotional competenc* training*" OR "Socio-emotional competenc* training*" OR "Socio-emotional competenc* learning" OR "Socioemotional competenc* learning" OR "Social emotional competenc* learning" OR "Socio-emotional competenc* curriculum" OR "Socioemotional competenc* curriculum" OR "Social emotional competenc* curriculum" OR "Psychosocial skill* training*" OR "Psychosocial skill* development" OR "Psychosocial skill* curriculum" OR "Psychosocial skill* learning" OR "Social emotional asset* building" OR "Socioemotional asset* building" OR "Socio-emotional asset* building" OR "Social asset* building" OR "Social asset* training*" OR "Social asset* development" OR "Positive youth development" OR "SEL training*" OR "SEL development" OR "SEL curriculum" OR "SEL learning" OR "Social and emotional education" OR "Socio-emotional education" OR "Socioemotional education"	"social emotional" OR "social and emotional" OR "socioemotional" OR "soft skills" OR "noncognitive" OR "psychosocial" OR "social skills" OR "citizenship competencies"

Program type	Bibliographic search terms	GCSE search terms
School infrastructure, school security measures, zero tolerance policies, school-based anti-bullying and gender violence prevention programming	"school-based violence prevention" OR "school violence prevention" OR "psychosocial program*" OR "psychosocial program*" OR "gender-based violence program*" OR "gender-based violence program*" OR "anti-bullying" OR "bullying prevention" OR "zero-tolerance polic*" OR "three-strikes polic*" OR "school security measure*" OR "metal detector*" OR "security camera*" OR "security guard*" OR "police in school*" OR "school police" OR "school resource officer*"OR "school sanction*" OR "school environmental design*" OR "school infrastructure improvement*"	"zero-tolerance" OR "metal detector" OR "security camera" OR "school police" OR "school infrastructure" OR "security measure" OR "environmental design"
		"anti-bullying" OR "bullying prevention" OR "violence against women" OR "violence against girls" OR "gender-based violence" OR GBV OR "gender violence"
Schoolwide positive behavioral programs and supports (SWPBIS) and restorative practices (RP)	"Adaptive behavio* support*" OR "non-aversive behavio* support*" OR "nonaversive behavio* support*" OR "positive discipline" OR "positive program* and support*" OR "positive behavio* support*" OR "positive behavio* program* and support*" OR "positive behavio* program*" OR "positive behavio* program*" OR "PBIS program" OR "PBS program" OR "PIS program" OR "exclusionary school discipline" OR "exclusionary discipline" OR "restorative practice*" OR "restorative justice" OR "restorative principle*"	"Positive behavior programs" OR "positive behavior supports" OR "positive behavioral" OR (restorative AND (practices OR approach)) OR "positive behavioural" OR "positive behaviour"
Classroom management	"classroom management" OR "classroom organization" OR "classroom organisation" OR "classroom arrangement*" OR "classroom design*" OR "classroom layout*" OR "classroom planning" OR "classroom routine*" OR "classroom behavio* management" OR "classroom relationship* management" OR "universal behavio* management" OR "teacher warmth" OR "teacher trust" OR "teacher responsiveness" OR "teacher-student relationship* coaching" OR "teacher-student relationship* program*" OR "teacher-student relationship* training*" OR "student-teacher relationship* coaching" OR "student-teacher relationship* program*" OR "student-teacher relationship* training*" OR "teacher-student interaction* coaching" OR "teacher-student interaction* program*" OR "teacher-student interaction* training*" OR "student-teacher interaction* coaching" OR "student-teacher interaction* program*" OR "student-teacher interaction training*" OR "student-cent* classroom*" OR "learner-cent* classroom*" OR "prosocial classroom*" OR "positive behavio* management" OR "proactive behavio* management" OR "student-teacher relationship*" OR "teacher-student relationship*"	"classroom management" OR "student-teacher relationship" OR "classroom organization" OR "classroom relationship" OR "classroom layout" OR "student-centered" OR "behavior management"
Class size reduction	"class-size" OR "contract teacher*" OR "extra teacher*" OR "pupil-teacher ratio" OR "teacher-pupil ratio" OR "student-teacher ratio" OR "teacher-student ratio" OR "small class*" OR "large class*"	"class-size" OR "extra teachers" OR "pupil-teacher ratio" OR "student-teacher ratio" OR "small-class" OR "large-class"

Program type	Bibliographic search terms	GCSE search terms
Dropout/expulsion prevention programming	"absen* information" OR "absen* prevention" OR "absen* reduction" OR "drop-out prevention" OR "drop-out reduction" OR "dropout prevention" OR "dropout reduction" OR "expulsion reduction" OR "expulsion prevention" OR "reducing absen* OR "prevent* absen*" OR "reduc* drop-out*" OR "prevent* drop-out*" OR "prevent* expulsion*" OR "prevent* dropout*" OR "reduc* dropout*" OR "truancy reduction" OR "truancy prevention" OR "reduc* truanc*" OR "prevent dropping out" OR "grade promotion" OR "Early warning system*" OR "School engagement" OR "student engagement" OR "school attachment" OR "attach* to school" OR "conditional cash transfer*" OR "unconditional cash transfer*"	"drop-out prevention" OR "drop-out reduction" OR "expulsion prevention" OR "preventing dropout" OR "preventing expulsion" OR "Early warning system"
Increased class time	"instruct* time" OR "instruct* hour*" OR "instruct* day*" OR "class* time" OR "time on task" OR "academic learning time" OR "school time" OR "full school day*" OR "long* school day*" OR "long* school year*" OR "long* academic year*" OR "extended-day" OR "extend* school day*" OR "extend* school year*" OR "extension of the school day*"	"instruction time" OR "instructional time" OR "full-day" OR "full-school-day" OR "extended-day" OR "extended-school-day"
Transfer programs (cash transfers [conditional and unconditional], scholarships and other student financial incentives, and school feeding, take-home rations and other in-kind transfers)	"conditional cash transfer*" OR "labeled cash transfer*" OR "cash and voucher assistance" OR "child cash grant*" OR "emergency cash transfer*" OR "unconditional cash transfer*" OR "matching remittance*" OR "merit-based scholarship*" OR "merit scholarship*" OR "need-based scholarship*" OR "eliminat* school fee*" OR "reduc* school fee*" OR "school fee elimination" OR " school fee reduction*" OR "free school uniform*" OR "free uniform*" OR "student pay-for-performance" OR "student incentive*" OR "student financial incentive*" OR "financial incentive* for student*" OR "school feeding*" OR "take-home ration*" OR "school meal*" OR "school canteen*" OR "food-for-education" OR "supplementary nutrition program*" OR "school lunch*" OR "midday meal*" OR "school nutrition" OR "supplementary feeding*" OR "school breakfast*" OR "free or reduced lunch*" OR "free and reduced lunch*" OR "reduced school meal*" OR "reduced-price school meal*" OR "free or reduced-price lunch*"	"cash transfer" OR scholarship OR school AND feeding OR meal OR lunch OR breakfast OR "food-for-education" OR "take-home ration"
Access to high quality schools (vouchers, lotteries, merit-based scholarships, and single-sex instruction)	Voucher* OR lotter* OR "single-sex school*" OR "single-sex instruction" OR "single-sex education" OR "single-sex primary" OR "single-sex secondary" OR "single-sex class*" OR "school choice" OR "low-cost private school*" OR "low-cost primary school*" OR "low-cost secondary school*" OR "low-fee private school*" OR "low-fee primary school*" OR "low-fee secondary school*"	voucher OR lottery OR "single-sex" OR "school choice" OR "low-cost" AND primary OR school OR secondary OR private
Teacher incentives (pay-for-performance and contract teachers)	"incentive-pay*" OR "teacher-incentive*" OR "teacher-performance-pay*" OR "performance-based-pay*" OR "pay-for-performance" OR "performance-related pay*" OR "merit-pay*" OR "performance-incentive*" OR "competency-pay*" OR "merit-based-pay"	"performance incentive" OR "teacher-incentive" OR "performance-pay" OR "monetary incentive" OR "value-added" OR "contract teacher" OR "performance-based pay"

Program type	Bibliographic search terms	GCSE search terms
Secondary certification programs	"high school equivalen*" OR "secondary school equivalen*" OR "secondary equivalen*" OR "equivalen* exam*" OR "equivalen* education" OR "equivalen* program*" OR "high school certificate*"OR "high school certificate*" OR "secondary school certificate*" OR "secondary education certificate*" OR "secondary certificate*" OR "certification exam*" OR "equivalen* certificat*" OR "high school diploma program*" OR "general education* development" OR "GED program*" OR "GED receipt" OR "GED exam*" OR "GED test*" OR "GED credential*" OR "GED certificat*" OR "second-chance program*" OR "dropout recovery" OR "modalidad* flexible*" OR "secundaria flexible" OR "National External Diploma Program" OR "credit-earning program*" OR "Alternative high school*" OR "Flexible high school*" OR "Condensed high school*" OR "Accelerated high school*" OR "Self-paced high school*" OR "Fast-track high school*" OR "Compressed high school*" OR "Alternative school*" OR "Alternative secondary school*" OR "Alternative secondary education*" OR "Flexible secondary education*" OR "Condensed secondary education*" OR "Accelerated secondary education*" OR "Self-paced secondary education*" OR "Fast-track secondary education*" OR "Compressed secondary education" OR "Alternative secondary program*" OR "Flexible secondary program*" OR "Condensed secondary program*" OR "Accelerated secondary program*" OR "Self-paced secondary program*" OR "Fast-track secondary program*" OR "Compressed secondary program*"	"high school equivalency" OR "secondary school certificate" OR "secondary equivalency" OR "alternative high school" OR "general educational development"
Workforce development (including TVET)	"Workforce development" OR "WFD" OR "Workforce readiness program*" OR "Workforce readiness training*" OR "Workforce readiness program*" OR "Vocational skills training*" OR "Technical skills training*" OR "Vocational skills program*" OR "Technical skills program*" OR "Vocational skills program*" OR "Technical skills program*" OR "Technical vocational education" OR "Vocational education" OR "Vocational training*" OR "TVET" OR "Employment training*" OR "Job training*" OR "On-the-job training*" OR "OJT" OR "Job skills training*" OR "Employment skills training*" OR "Employability skills training*" OR "Employment training*" "Employment program*" OR "Employment program*" OR "Job program*" OR "Job program*" OR "Workplace-based learning" OR "Workplace-based education" OR "Workplace-based training*"	"Workforce development" OR "Technical skills training" OR "Technical vocational education" OR "Vocational training" OR "Employment training" OR "Job training" OR TVET
Accelerated education programs	"Accelerated primary school*" OR "Fast-track primary school*" OR "Compressed primary school*" OR "Accelerated primary education" OR "Fast-track primary education" OR "Compressed primary education" OR "Accelerated basic education" OR "Accelerated primary program*" OR "Fast-track primary program*" OR "Compressed primary program*" OR "Accelerated learning program*" OR "Accelerated education program*" OR "Accelerated education program*" OR "Accelerated school program*"	"Accelerated education program" OR "accelerated basic education" OR "accelerated primary" OR "accelerated learning program"
Complementary basic education (including adult literacy)	"Complementary basic education" OR "complementary primary school*" OR "complementary formal education" OR "adult literacy program*" OR "adult basic education" OR "adult literacy program*"	"Complementary basic education" OR "complementary primary" OR "adult literacy program" OR "adult basic education"
Mentoring	"Mentor*" OR "Youth lead*" OR "Peer support" OR "Peer guidance" OR "Peer coach*"	"after-school" OR extracurricular OR "out-of-school" OR
Organized sports	Sport* OR Recreation* OR Intramural OR "Physical education"	

Program type	Bibliographic search terms	GCSE search terms
After-school programs	"After-school program*" OR "Afterschool program*" OR "After-school time program*" OR "Afterschool time program*" OR "After-school project*" OR "Afterschool project*" OR "After-school time project*" OR "Afterschool time project*" OR "After-school activit*" OR "Afterschool activit*" OR "After-school time activit*" OR "Afterschool time activit*" OR "After-school program*" OR "Afterschool program*" OR "After-school time program*" OR "Afterschool time program*" OR "Out-of-school program*" OR "Out-of-school project*" OR "Out-of-school activit*" OR "Out-of-school program*" OR "Out-of-school time program*" OR "Out-of-school time project" OR "Out-of-school time activit*" OR "Out-of-school time program*" OR "Extra-curricular program*" OR "Extra-curricular project*" OR "Extra-curricular activit*" OR "Extra-curricular program*" OR "Extracurricular program*" OR "Extracurricular project*" OR "Extracurricular activit*" OR "Extracurricular program*" OR "Education support service*"	"recreational activity" OR mentoring OR "peer-support" OR tutoring OR sport OR art OR music

Program type	Bibliographic search terms	GCSE search terms
School counselling services	"School-based counsel*" OR "Guidance and counsel* program*" OR "Guidance counsel* program*" OR "School counsel*" OR "Guidance counsel*" OR "Individual planning" OR "Response services" OR "Responsive services" OR "Remedial services" OR "Student support services" OR "Counselor-led program*" OR "Counselor-implemented program*" OR "Counselor-led program*" OR "Counselor-implemented program*" OR "Counselor-led services" OR "Counselor-implemented services" OR "School-based guidance program*" OR "School guidance program*" OR "School-based guidance program*" OR "School-based guidance services" OR "School guidance services" OR "School-based therap*" OR "School-based social work" OR "School-based consultative services" OR "School-based consultative program*" OR "School-based consultative program*" OR "School-based psychological counsel*" OR "School-based psychological therap*" OR "School-based psychotherap*" OR "School-based psychotherapeutic program*" OR "School-based psychotherapeutic program*" OR "School-based psychotherapeutic services" OR "School-based mental health counsel*" OR "School-based mental health therap*" OR "School-based mental health services" OR "School-based mental health program*" OR "School-based mental health program*" OR "School-based behavio* counsel*" OR "School-based behavio* therap*" OR "School-based behavio* adjustment counsel*" OR "School-based behavio* adjustment therap*" OR "School-based behavio* change counsel*" OR "School-based behavio* change therap*" OR "School-based cognitive therap*" OR "School-based cognitive counsel*" OR "School-based cognitive behavio* therap*" OR "School-based cognitive behavio* counsel*" OR "Peer mediation counsel*" OR "Peer mediation therap*" OR "Peer counsel*" OR "Peer therap*" OR "Conflict resolution mediation" OR "Conflict resolution counsel*" OR "Conflict resolution therap*" OR "School-based primary prevention counsel*" OR "School-based primary prevention therap*" OR "School-based drug counsel*" OR "School-based drug therap*" OR "School-based substance abuse counsel*" OR "School-based substance abuse therap*" OR "School-based alcohol counsel*" OR "School-based alcohol therap*" OR "School-based cannabis counsel*" OR "School-based cannabis therap*" OR "School-based HIV/AIDS counsel*" OR "School-based HIV/AIDS therap*" OR "School-based sex* behavio* counsel" OR "School-based sex* behavio* therap*" "Respons* services" OR "counsel* ratio*" OR "guidance curricul*" OR "Individualized planning" OR "individual* counsel*" OR "classroom counsel*" OR "group counsel*" OR "small-group counsel*" OR "personal* counsel*" OR "counsel* service*" OR "school-based psychosocial" OR "School-based psychotherapy* service*" OR "School-based cognitive therap*" OR "School-based cognitive counsel*" OR "peer mediat*" OR "peer-led mediat*" OR "peer-led counsel*" OR "peer-led conflict resolution" OR "peer conflict resolution" OR "School-based health cent*" OR "school health cent*" OR "school-based health clinic*" OR "school health clinic" OR "School-based sex* behavio* counsel*" OR "School-based sex* behavio* therap*" OR "psycho-educ* counsel*" OR "psycho-educ* group*" OR "school-based psycho-educ*" OR "psycho-educ* program*" OR "psycho-educ* program*" OR "psycho-educ* service*" OR "school-based meditat*" OR "school-based mindful*" OR "school meditat*" OR "school mindful*" OR "peace education"	("counselor" OR "counseling" OR "counselling" OR "counsellor" OR "responsive services" OR "guidance curriculum" OR "individual planning" OR "therapy" OR "peer counseling" OR "peer mediation")

Program type	Bibliographic search terms	GCSE search terms
Parenting programs	"parent* program*" OR "parent* training*" OR "parent* program*" OR "parent*-focused program*" OR "parent*-focused training*" OR "parent*-focused program*" OR "parent*-child* program*" OR "parent*-child* training*" OR "parent*-child* program*" OR "parent* workshop*" OR "parent* engagement" OR "engag* parent*" OR "parent* involvement program*" OR "parent* education program*" OR "parent* education program*" OR "parent*-focused education" OR "parent* support and education" OR "home visit program*" OR "home visit program*"	"parenting program" OR "parenting program" OR "parent training" OR "parent education" OR "parental education" OR "parent-child" OR "home visit"
Community outreach and awareness	"community awareness raising" OR "community advocacy" OR "community engage*" OR "community member* engage*" OR "community policing" OR "community-based crime prevention" OR "community-based monitoring" OR "educat* adult*" OR "engag* adult*" OR "engag* communit*" OR "engag* the communit*" OR "community action plan*" OR "community action program*" OR "community action program*" OR "community action activit*" OR "community action component*" OR "social and behavior* change communication"	("community engagement" OR "community mobilization" OR "SBCC" OR "community-based monitoring" OR "community action" OR "community education" OR "educate adult")
School-based management programs	"school management committee*" OR "school management program*" OR "school-based management" OR "school-based decision making" OR "school-based decision-making" OR "community-based school management" OR "community-based education" OR "community-school partnership*" OR "school-community partnership*" OR "community school*" OR "full-service school*" OR "decentral* school management" OR "decentral* education management" OR "school decentral*" OR "education decentral*" OR "participatory action in education" OR "parental participation in school management"	("school management committee" OR "school committee" OR "school-based management" OR "school-based decision-making" OR "parent association")
Teacher training[ii]	"Teacher train*" OR "Teacher professional development" OR "Classroom management train*" OR "Pedagog* train*" OR "Teacher coach*" OR "Teacher mentoring" OR "Teacher pedagog* support"	NA
Institutional Strengthening[iii]	"Institutional strength*" OR "Institutional capacity building" OR "Education system*" OR "School system*" OR "Education ministr*" OR "Ministr* of education" OR "Department* of education" OR "Education department*" OR "Education administration*" OR "Education polic*" OR "Education reform*" OR "Education management information system*" OR "EMIS" OR "Education monitoring and evaluation system*" OR "Education institution*" OR "Education policy reform*" OR "Public-private partnership*" OR "School management" OR "Education management" OR "Teacher contract*" OR "Teacher recruitment" OR "Teacher certification*" OR "Curriculum reform*" OR "Pedagogical reform*" OR "Government institution*" OR "Education quality improvement*" OR "Education quality reform*" OR "School quality improvement*" OR "School quality reform*"	NA

Note: We used a subset of the GCSE search terms for individual website searches, depending on the number of acceptable search terms allowed on each website.

[i] Tutoring was searched on with extracurricular and educational support services programs, and then moved to the chapter on teaching at the right level based on the theories of change.

[ii] Based on the search results, we determined that teacher training would not be a stand-alone program topic, but would instead be incorporated in the other program chapters.

[iii] As with teacher training, after reviewing the foundational and bibliographic search literature, we found no relevant literature and decided not to treat this as a separate chapter, but instead to incorporate it in discussions of programs that include institutional strengthening as a component.

2.   Outcome domains

Search terms for violence and crime outcomes were initially based on existing systematic reviews focused on crime prevention in the United States, including Sherman et al. (1998), the Blueprints for Healthy Youth Development database (Mihalic 2017), and Crimesolutions.gov, developed by the National Institute of Justice (2017). Additional search terms and outcomes that are linked to crime in the LAC region, such as school-based violence, are drawn from Baliki (2014), the World Bank (2010), Heinemann and Verner (2006), Raderstorf et al. (2017), and Ruiz-Rodriguez (2017). We synthesized search terms based on the foundational literature review, consultations with stakeholders, and iteration of the search strategy. See Appendix C for additional information.

Search terms for correlated factors were initially drawn from Gates et al. (2016), a USAID-supported literature review of links between soft skills and violence prevention. Foundational development of outcome domains for environmental factors relied heavily on Chioda (2017). Each outcome domain for a correlated factor was then complemented by the foundational literature review, with a focus on reducing the dimensionality of the search terms while retaining those terms for which there is a strong evidence base of links between that correlated factor and violence and crime outcomes (Table D.5).

Table D.5. Outcome domain search terms

Outcome domain	Bibliographic search terms	GCSE search terms
Violence and crime	Crime* OR Criminal* OR Violence OR Violent OR Arrest* OR Apprehen* OR Detention* OR Convict* OR Prosecut* OR Incarcerat* OR Imprison* OR s OR "Justice system involvement" OR Misdemeanor* OR Felon* OR Offense* OR Offend* OR Recidivism OR Victimization OR "Child abuse*" OR "Child maltreatment" OR Lawbreak* OR Assault* OR "Spousal abuse*" OR Aggress* OR "Physical abuse*" OR "Sexual harassment" OR Rape OR "Gang membership" OR "Gang participation" OR "Gang recruitment" OR Burglar* OR Theft* OR Pickpocket* OR Mugging* OR Shoplift* OR Robber* OR Vandalism OR "Substance abuse" OR "Tobacco use" OR "Tobacco abuse" OR "Smoking" OR "Drug use" OR "Drug abuse" OR "Drug consumption" OR "Narcotic use" OR "Narcotic abuse" OR "Narcotic consumption" OR "Alcohol use" OR "Alcohol abuse" OR "Drug production" OR "Drug possession" OR "Narcotic production" OR "Narcotic possession" OR "Drug dealing*" OR "Drug selling" OR "Drug trafficking" OR "Drug transaction*" OR "Drug transit*" OR "Drug trade" OR "Drug distribution" OR "Drug sale*" OR "Drug seizure*" OR "Drunk driving" OR "Driver under the influence" OR "Driving under the influence" OR "DUI*" OR "Driving while intoxicated" OR "DWI*" OR "Human trafficking" OR "Money launder*" OR "Cash launder*" OR "School fight*" OR "Student aggression" OR "Student fight*" OR "Youth fight*" OR "Child fight*" OR Bullying OR "Hostile behav* OR "Corporal punish*" OR "Surveillance by criminal organization*" OR "Unwelcome touching" OR "Abusive relation*"	crime OR criminal OR violence OR delinquency OR "gang participation" OR "drug abuse" OR "student aggression" OR "child maltreatment" OR "physical abuse" OR bullying
Risky and protective behaviors	"Risky behav*" OR "Protective behav*" OR "Sexual behav*" OR "Aggressive behavior" OR "Safe sex" OR "Risky sex" OR "High-risk sex" OR "Low-risk sex" OR "Unprotected sex" OR "Protected sex" OR "Prosocial behav*" OR "Avoid* behav*" OR "Harm avoidance" OR "Antisocial behav*" OR Dishonest* OR "Rule-break*" OR "Rule-abid*" OR "Rule-follow*" OR Temperament OR "Impulse control*" OR "Sensation seek*" OR "Problem behav*" OR "Risk-tak*" OR "Risk aversion" OR "Interpersonal alienation" OR "Deviant behav*" OR "Behav* disengagement" OR "Conduct disorder*" OR "Rebelliousness" OR "Teen* pregnan*" OR "Adolescen* pregnan*" OR "Early pregnan*" OR "Teen* marriage" OR "Adolescen* marriage" OR "Early marriage*" OR "Child marriage*" OR "Teen* childb*" OR "Adolescen* childb*" OR "Early childb*" OR "Teen* motherhood" OR "Adolescen* motherhood" OR "Early motherhood*" OR "Delay* pregnancy" OR "delay* marriage*" OR "delay* childbearing" OR "delay* motherhood" OR "Trust in government" OR "Trust in community" OR "Trust in public institution*" OR "Perception* of public institution*" OR "Confidence in public institution*" OR "Trust in public official*" OR "Perception* of public official*" OR "Confidence in public official*" OR "Confidence in public sector" OR "Trust in public sector" OR "Trust in government" OR "Perception* of government" OR "Confidence in government" OR "Trust in the justice system" OR "Perception* of the justice system" OR "Confidence in the justice system" OR "Trust in the police" OR "Perception* of the police" OR "Confidence in the police" OR "Trust in law enforcement" OR "Perception* of law enforcement" OR "Confidence in law enforcement" OR "Interpersonal trust" OR "Perception* of safety" OR "Feel safe" OR "Safety at home" OR "Safety in the community" OR "Community safety" OR "Safety in the neighborhood" OR "Safety in the neighbourhood" OR "Neighborhood safety" OR "Neighbourhood safety" OR "Church attendance" OR "Church participation" OR "Religious*" OR "Spiritual*" OR "Civic engagement" OR "Civic participation" OR "Voting behav*" OR "Registered to vote" OR "Planning on voting" OR "Plan* to vote"	"Risky behavior" OR "Protective behavior" OR "Sexual behavior" OR "Prosocial behavior" OR "Aggressive behavior" OR "church attendance" OR "trust in government"

Outcome domain	Bibliographic search terms	GCSE search terms
Social-emotional skills	"Self-Control" OR "Self Control" OR "Effortful control" OR "Emotion* regulat*" OR "Emotionality" OR "Self-regulat*" OR "Emotion* regulat*" OR "Behav* control" OR "Executive function*" OR "Social Skill*" OR "Prosocial skill*" OR "Prosocial behav*" OR "Resolution skill" OR "Social competenc*" OR "Empath* behav*" OR "Higher order thinking skill*" OR "Self-concept" OR "Self-esteem" OR "Sense of identity" OR "Self-efficacy" OR "Self-confidence" OR "Self-concern" OR "Locus of control" OR Socioemotional OR "Socio-emotional" OR "Social-emotional" OR "Soft skill*" OR "Life skill*" OR Noncognitive OR "Non-cognitive" OR "Resilien*"	"self-control" OR "self-regulation" OR "social skills" OR "self-concept" OR "locus of control" OR "empathetic behavior" OR noncognitive OR "non-cognitive" OR socioemotional OR "socio-emotional"
Family environmental factors	"Parent* factor*" OR "Parent* relation*" OR "Family relation*" OR "Child-parent relation*" OR "Parent-child relation*" OR "Relation* protective factor*" OR "Parent* involvement in education" OR "Nonviolent discipline" OR "Physical discipline" OR "Parental social support" OR "Attachment to parent*" OR "Attachment to caregiver" OR "Communicat* with parent" OR "Communicat* with caregiver" OR "Family conflict" OR "Family abuse" OR "Family transition" OR "Family mobility" OR "Interparental conflict*" OR "Inter-parental conflict*" OR "Family cohesion" OR "Family connectedness" OR "Parent* neglect" OR "Hostile parenting" OR "Parental monitoring" OR "Good parenting" OR "Bad parenting" OR "Positive parenting" or "Negative parenting" OR "Child-rearing practice*" OR "Parent* attitude*" OR "Family substance abuse" OR "Family mental health problems" OR "Home environment" OR "Parent* warmth" OR "Caregiver warmth" OR "Bonding with parent*" OR "Bonding with caregiver*" OR "dysfunctional parent*" OR "violent disciplin*" OR "physical disciplin*" OR "abusive disciplin*" OR "harsh disciplin*" OR "positive disciplin*" OR "emotional abus*" OR "psychological abus*" OR "child neglect" OR "authoritarian parent*"	Parenting OR "parent child" OR "family conflict" OR "home environment" OR "positive parenting"
School environmental factors	"Problem* with teacher*" OR "Conflict* with teacher*" OR "Peer factor*" OR "Peer effect*" OR "Peer influence*" OR "Peer relation*" OR "Interaction with peer*" OR "Peer interaction*" OR "Peer affiliation*" OR "Problem with classmate*" OR "Conflict with classmate*" OR "Bonding with mentor" OR "Child-mentor relation*" OR "Youth-mentor relation*" OR "Mentor-child relation*" OR "Mentor-youth relation*" OR "Student-teacher relation*" OR "Teacher-student relation*" OR "teacher attend*" OR "teacher absen*"	"problem with teacher" OR "conflict with teacher" OR "Peer factor" OR "Peer influence"
Community environmental factors	"Prosocial involvement" OR "Social cohesion" OR "Community protective factor*" OR "community trust" OR "community equity" OR "social connection*" OR "social capital" OR "Positive neighborhood*" OR "Positive neighbourhood*" OR "Negative neighborhood*" OR "Negative neighbourhood*""	"Prosocial involvement" OR "social cohesion" OR "community trust" OR "social connection" OR "positive neighborhood"

Notes: Early violent and criminal behaviors are combined with direct violence and crime outcomes in our literature search, because terms like drug use and delinquency in adolescence are captured by the search terms in the violence and crime domains.

3.   Evidence search terms

This report prioritizes evidence in descending order of rigor, with high quality randomized controlled trials (RCTs) and high quality quasi-experimental designs serving as the strongest possible evidence. Pre-post quantitative evidence, case studies, and other qualitative evidence are used to complement RCTs and quasi-experimental designs where stronger evidence is unavailable. We did not rate the evidence quality of each study directly. However, studies with poor quality were not included (see Section E for a discussion of study eligibility), and the program chapters discuss the rigor of each study that is included as part of the review.

Additional quality criteria under consideration that are especially important include the length of the follow-up period, the targeting of the program, and the degree to which the study is able to comment on the mechanism by which a particular program affected outcomes. For education programs in early or middle childhood, there are relatively few studies that track outcomes into adulthood; however, those that do exist are high quality. Several studies focus on programs directed at particularly high-risk groups, and the generalizability of any findings to the larger population is a concern we address in the body of the text. Finally, where high quality evidence of mechanisms is available, the evidence informs our use of correlated factor domains and is highlighted in the body of the text above.

Given these caveats, we focused our literature search on studies that are designed to yield impact, descriptive quantitative, or qualitative evidence on the effects of an program instead of searching for longitudinal tracking or other purely correlational studies. To ensure that the literature search would yield relatively high rates of relevant papers that met these criteria, all database searches included the study objective and program terms listed in Table D.6.

Table D.6. Study type search terms

Type	Bibliographic search terms	GCSE search terms
Study objective	Efficac* OR effect* OR impact* OR benefit* OR improv* OR progress OR growth OR increas* OR gain* OR decreas* OR reduc* OR assess* OR evaluat* OR examin* OR estimat* OR affect* OR higher OR lower	evaluate OR program OR program OR effect OR impact
Program	Approach* OR Practice* OR Model* OR Technique* OR Program* OR Program* OR Project* OR Treatment* OR Activity OR Activities OR Train* OR Strateg* OR Initiative* OR Strengthening OR Support* OR Development OR Trial* OR Pilot* OR policy OR policies OR Law* OR Experiment* OR "Random assign*"	

4.   Education topical terms

The process for determining search terms for outcome domains and programs was iterative, lasting for several rounds of iteration across outcome domains and programs. It also included search terms for the type and quality of auxiliary, in an effort to identify search terms that would yield a manageable number of studies to screen and review for each program topic as well as a reasonable "hit rate" of studies relevant to the research questions. Although the number of results for each topic varied depending on the denseness of the corresponding literature, for bibliographic searches we averaged 271 studies per program, and for GCSE and other grey literature searches we averaged 868 studies per program. The relevance yield ranged from 5 to

30 percent upon initial screening, which compares well with other comprehensive and systematic reviews.[4]

Among the tweaks to our literature search protocol that allowed us to achieve our objectives were (1) including education-related terms, and (2) deliberately excluding medical terminology and terms specific to other programs not covered in this literature review. In particular, search terms in our outcome domain for social-emotional skills and for crimes related to drug and alcohol abuse often return primarily results from medical and other clinical journals. The education inclusion and exclusion terms are shown in Table D.7.

Table D.7. Topical search terms

Type	Bibliographic search terms	GCSE search terms
Education sector	Educat* OR School* OR Curricul* OR Pedagog* OR Course* OR Class* OR Academi* OR Learn* OR Teach* OR Instruct*	education OR school
Exclusion terms	Surgery OR Neurosurgery OR Surgical OR Nutrition OR Obesity OR Autism OR Asthma OR Dermatology OR Spinal OR "Traffic injur*" OR "Ocular injur*" OR "Oral health" OR Dental OR "Brain injur*" OR Pedophil* OR Otology OR "Infectious disease" OR Immunology OR Schizophrenia OR "Heart disease" OR "Head injury" OR "Head trauma" OR Malaria OR "Emergency medicine" OR "Emergency nurse" OR Otolaryngology OR "Chronic disease" OR "Sleep medicine" OR "Health literacy" OR "Financial literacy" OR "Cancer" OR "Information literacy" OR "Food literacy" OR "Nutrition Literacy" OR "Pharmac*" OR "Pharmac*"	n/a

5.   Geographic search term restrictions

We added emerging economies and LAC-specific search term restrictions as shown in Table D.8. We used the World Bank's list of economies[5] to identify emerging economies[6] and LAC countries, including regional terms. We then worked with our librarian to identify other common terms used in database searches for emerging economies and LAC countries. We did not use geographic terms in the GCSE process, given string length limitations.

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[4] Based on consultations Mathematica What Works Clearinghouse certified reviewers.

[5] See https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups.

[6] According to the World Bank, for " the current 2019 fiscal year, low-income economies are defined as those with a GNI per capita, calculated using the World Bank Atlas method, of $995 or less in 2017; lower middle-income economies are those with a GNI per capita between $996 and $3,895; upper middle-income economies are those with a GNI per capita between $3,896 and $12,055; high-income economies are those with a GNI per capita of $12,056 or more" (World Bank 2019).

Table D.8. Geographic search terms

Type	Bibliographic search terms
Emerging economies (includes LAC countries)	"low-income econom*" OR "lower-middle-income econom*" OR "upper-middle-income econom*" OR "transforming econom*" OR "non-transforming econom*" OR "developing econom*" OR "second world econom*" OR "third world econom*" OR "poor econom*" OR "emerging econom*" OR "low-income countr*" OR "lower-middle-income countr*" OR "upper-middle-income countr*" OR "transforming countr*" OR "non-transforming countr*" OR "developing countr*" OR "second world countr*" OR "third world countr*" OR "poor countr*" OR "emerging countr*" OR "South Asia" OR "Central Asia" OR "Middle East" OR "North Africa" OR "East Asia" OR "Asia Pacific" OR "Sub-Saharan Africa" OR "Afghanistan" OR "Albania" OR "Algeria" OR "Angola" OR "Armenia" OR "Azerbaijan" OR "Bangladesh" OR "Belarus" OR "Benin" OR "Bhutan" OR "Bosnia and Herzegovina" OR "Botswana" OR "Bulgaria" OR "Burkina Faso" OR "Burundi" OR "Cape Verde" OR "Cabo Verde" OR "Cambodia" OR "Cameroon" OR "Central African Republic" OR "Chad" OR "China" OR "Comoros" OR "Democratic Congo Republic" OR "Côte d'Ivoire" OR "Djibouti" OR "Egypt" OR "Equatorial Guinea" OR "Eritrea" OR "Ethiopia" OR "Fiji" OR "Gabon" OR "Gambia" OR "Georgia" OR "Ghana" OR "Guinea" OR "Guinea-Bissau" OR "India" OR "Indonesia" OR "Iran" OR "Iraq" OR "Jordan" OR "Kazakhstan" OR "Kenya" OR "Kiribati" OR "North Korea" OR "Kosovo" OR " Kyrgyzstan" OR "Laos" OR "Lebanon" OR "Lesotho" OR "Liberia" OR "Libya" OR "Macedonia" OR "Madagascar" OR "Malawi" OR "Malaysia" OR "Maldives" OR "Mali" OR "Marshall Islands" OR "Mauritania" OR "Mauritius" OR "Micronesia" OR "Moldova" OR "Mongolia" OR "Montenegro" OR "Morocco" OR "Mozambique" OR "Myanmar" OR "Namibia" OR "Nauru" OR "Nepal" OR "Niger" OR "Nigeria" OR "Pakistan" OR "Papua New Guinea" OR "Philippines" OR "Romania" OR "Russia" OR "Rwanda" OR "Samoa" OR "Sao Tome and Principe" OR "Senegal" OR "Serbia" OR "Sierra Leone" OR "Solomon Islands" OR "Somalia" OR "South Africa" OR "South Sudan" OR "Sri Lanka" OR "Sudan" OR "Swaziland" OR "Syria " OR "Tajikistan" OR "Tanzania" OR "Thailand" OR "Timor-Leste" OR "Togo" OR "Tonga" OR "Tunisia" OR "Turkey" OR "Turkmenistan" OR "Tuvalu" OR "Uganda" OR "Ukraine" OR "Uzbekistan" OR "Vanuatu" OR "Vietnam" OR "West Bank and Gaza" OR "Yemen" OR "Zambia" OR "Zimbabwe" OR "Northern Triangle" OR "Latin America" OR "LAC" OR "Caribbean" OR "Latin America and the Caribbean" OR "Central America" OR "El Salvador" OR Guatemala OR Honduras OR Nicaragua OR Bolivia OR Brazil OR Cuba OR "Dominican Republic" OR Colombia OR Ecuador OR Haiti OR Jamaica OR Mexico OR Panama OR Paraguay OR Peru OR Venezuela OR "Antigua and Barbuda" OR Argentina OR Aruba OR Bahamas OR Barbados OR Belize OR "British Virgin Islands" OR "Cayman Islands" OR Chile OR "Costa Rica" OR "Curaçao" OR "Dominica" OR Grenada OR Guyana OR "Puerto Rico" OR "Sint Maarten" OR "St. Kitts and Nevis" OR "St. Lucia" OR "St. Martin" OR "St. Vincent and the Grenadines" OR Suriname OR "Trinidad and Tobago" OR "Turks and Caicos Islands" OR Uruguay OR "Virgin Islands"

Note: The GCSE and website searches did not have geographic restrictions.

6.   Search restrictions for grey literature

Both the GCSE and specialized website database searches required shorter search strings than the search strings used for bibliographic databases. For the former, we created shorter search strings based on the search terms presented above. GCSE searches restricted the number of characters allowed in a given search string to 32 search terms (excluding "and" and "or" terms). The search terms restrictions for specialized website databases varied by database. To accommodate this limitation, we limited search terms to the most relevant terms, as triangulated using abstract keywords from the foundational literature review.

D. Screening

After receiving the search results, we screened the results to identify studies that were eligible for inclusion in this report. The eligibility criteria covered five different parameters: (1) topic, (2) sample, (3) location, (4) language, and (5) publication type. The study topic had to focus on an education program within the three categories covered in this report: (1) formal and non-formal education, (2) extracurricular, and (3) community outreach and awareness. The study

also had to examine the effectiveness of an education program on at least one of the violence and crime outcomes or outcomes correlated with violence and crime covered in this report. The study could be conducted in any country, but it had to focus on children and youth ages 3 to 29. Finally, the study had to be available in English or Spanish, and could not be a dissertation. Table D.9 depicts the eligibility criteria the screeners applied.

Table D.9. Eligibility screening criteria

Eligibility		Decision
E1	Is the study a medical trial?	IF YES, EXCLUDE AND GO TO *Eligibility decision*
E2	Does the study examine a relevant education program?	IF NO, EXCLUDE AND GO TO *Eligibility decision*
E3	Does the study evaluate or discuss the *effectiveness or impact* of a relevant education program? *Note: This may include impact evaluations, systematic reviews/meta-analyses of impact evaluations, cost-effective analyses, and qualitative studies assessing causal pathways. Feasibility or acceptability studies are not eligible.*	IF NO, EXCLUDE AND GO TO *Eligibility decision*
E4	Does the study focus on children and youth ages 3 to 29? *Note: Studies that include children of other age groups may be reviewed as long as some of the study population falls within the target range.*	IF NO, EXCLUDE AND GO TO *Eligibility decision*
E5	Does the study examine a relevant violence and crime outcome (school violence, violent crime, nonviolent crime) and/or correlated outcome (risky and protective behaviors, social-emotional skills, family/school/community environmental factors)?	IF NO, EXCLUDE AND GO TO *Eligibility decision*
Eligibility decision	Does the study meet all of the above eligibility criteria (E1–E5)?	IF YES, MARK AS ELIGIBLE

E. Review

Chapter III in the report describes the review process at a high level. In this appendix, we include additional details related to the review process. We reviewed each study across four key dimensions: (1) study relevance, (2) sample size, (3) study design and internal validity, and (4) external validity. Table D.10 below includes details on how reviewers applied these criteria.

Table D.10. Checklist of key dimensions for study review

Key dimensions for study review

1	**Relevance:** Is the study relevant to and worth including in the literature review? Relevance will be highly subjective, but considerations may include: (1) whether the study is already included in a high quality systematic review that you have already read and that provides sufficient detail; (2) whether a more recent and rigorous evaluation of the program exists (which should take precedence); (3) whether the study is outdated (note that we do not have strict eligibility criteria for publication date, but studies published prior to around 2000 may have outdated methods); (4) whether the program is more appropriate for another chapter of the literature review.
2	**Sample size:** Does the study have a large enough sample size? Quantitative studies: A benchmark is that the sample size should be at least 100 observations for RCTs and at least 100 observations for quasi-experimental methods at baseline (control and treatment groups combined). Cluster RCTs must randomize at least 4 clusters. *Note: The 100 and 4 observation thresholds are an internal rule of thumb. We set these guidelines after revising the review criteria of organizations that produce high quality study ratings or systematic reviews and examining literature on problems with including small samples studies in meta-analyses. This exercise showed that standards for sample size vary. For instance, the What Works Clearinghouse (WWC) evidence standards (Version 4) do not set explicit cutoffs for sample size (but they do suggest that RCTs have more than 1 unit in each of the treatment and control groups; Cochrane's GRADE criteria propose "rule-of-thumb" sample sizes of 300–400 observations, depending on the outcome (Cochrane, undated); and 3ie's screening protocol sets a threshold at 50 observations for RCTs and 100 for quasi-experimental designs at baseline (for control and treatment groups combined). Some guidelines for appropriate sample size prioritize reaching cutoffs for statistical power. Power-based guidelines require imposing assumptions on appropriate effect sizes for different programs and outcomes. In addition, while there are several biases related to small sample size, small sample studies are widely included in meta-analyses and it is unclear whether they radically change meta-analytic results, particularly when assessed alongside adequately powered studies (Turner et al. 2013; Grange 2015).* Qualitative studies: At least 20 individuals for interviews or 5 focus groups of at least 5 people each (Sim et al. 2018).
3	**Study design/internal validity:** **Quantitative studies**: Is the study design rigorous enough to ensure internal validity? The study's primary identification or estimation strategy should be experimental or quasi-experimental, and should be any of the following, each of which mitigates bias: a) Randomized controlled trials or cluster-RCT b) Propensity score matching (PSM) or other matching methods (including synthetic controls) c) Difference-in-differences (DID), or a fixed or random effects model with an interaction term between time and program for baseline and follow-up observation d) Instrumental variable (IV) estimation (or other methods using an instrumental variable, such as the Heckman Two-Step approach) e) Regression discontinuity design (RDD) or fuzzy-RDD Additional aspects of internal validity that reviews consider include (1) levels of overall and differential attrition, (2) comparability or balance between the program and comparison units in the analytic sample (sample available after accounting for nonresponse and attrition), (3) level of detail provided on measurement instruments, (4) and rigor of sources' analytical techniques. We use the criteria proposed by the WWC "rule-of- thumb" benchmarks for acceptable levels of overall attrition, which are 10–15%. We do not set thresholds for differential attrition but do recognize WWC's guideline of 6–10% differential attrition and will incorporate in our review of the studies if authors report or discuss differential attrition. Regarding analytic techniques, we focus on whether authors include sufficient information to understand and detect the quality and completeness of the analysis. We also note major errors such as failure to clearly identify the size of the analytic sample or account for the structure of nested samples. **Qualitative studies:** Is the qualitative or descriptive study design rigorous enough to ensure internal validity? This may be subjective; loose criteria are whether or not the findings make sense, are credible, and offer an authentic portrayal of the situation (Miles and Huberman 2014). Established analytical approaches include: a) Case study b) Ethnography c) Grounded theory d) Phenomenology Appropriate data collection methods may include:

Key dimensions for study review
a) Interviews with participants and program stakeholders (family members, community leaders) b) Focus groups with participants and program stakeholders c) Review of documents and observation of participants d) Assessment of participant characteristics (descriptive or correlational study) *Note: The study may also use additional methods not listed here (such as pre-post or regression with controls), or may use an evaluation methodology not listed (such a natural experiment). Less rigorous studies may be excluded if the study is not critical to the findings in the overall literature review.*
4   **External validity:** Do the authors provide sufficient evidence to allow the reader to interpret whether the study results are generalizable? Considerations: a) Should describe the eligibility/selection criteria for participants b) Should describe the settings and locations where data were collected c) Could check for baseline differences to the target population d) Should discuss external validity in conclusion/discussion section *Note: The study results do not have to be externally valid to be included (as long as they are internally valid); rather, the authors need to provide sufficient evidence to allow the reader to interpret external validity.*

Because this evidence review incorporates a broad set of research methods, in some cases a prohibitively large number of studies could have been included. To mitigate this challenge, we adopted our approach to determining study eligibility in cases where we had a large number of relevant studies. We applied review criteria related to sample size and study design considering the strength of the evidence base for the program and outcome under review. When working with a strong or moderate evidence base, we applied stricter criteria than when working with an emergent or weak evidence base (see Chapter III for a definition of the overall evidence base). For instance, when reviewing literature on an program and outcome for which multiple, high quality studies were available, we chose to exclude studies below our rule-of-thumb threshold of 100 observations. When reviewing research for an program and outcome with multiple low quality studies, we did not necessarily exclude papers with fewer than 100 observations. We used this approach because we considered the information provided in less rigorous studies to be more valuable in areas with little existing evidence than in areas with a strong evidence base. When evaluating the overall strength of evidence to support an program, we also took into consideration the strength of each study.

F. Consultations with experts

Consultations. At study outset, we consulted with several experts on violence and crime, LAC, and education topics to help with framing the study and with beginning the foundational literature review for several topics.

Expert panel. We formed a panel of experts in education, violence, crime, and Central America who reviewed a draft of this report. The panel shared feedback on our approach to reviewing and synthesizing evidence, and specific feedback on the findings chapters. Although it was too late to make any changes to our literature search, we incorporated their feedback into our interpretation of the findings. For example, members of the panel suggested we emphasize the limitations to how we might use evidence from research conducted in HICs to formulate recommendations to policymakers in LAC countries.

APPENDIX E:

EARLY CHILDHOOD EDUCATION PROGRAMS

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This appendix focuses on information from the foundational literature on the impacts of early childhood education (ECE) programs on academic achievement and provides additional information on the studies summarized in Chapter IV, Table IV.2.

Impacts of ECE programs on standard education outcomes

HICs. **A majority of the ECE programs led to improvements in cognitive skills, though those improvements typically faded over time.** Abecedarian improved math and reading achievement by 0.40 standard deviations on average from ages 8 to 21 and these impacts faded only slightly. Abecedarian also reduced grade retention and referrals to special education services while increasing high school graduation rates (Barnett 2008). Participants in the Perry Program had significantly improved academic achievement through middle school and also had higher high school graduation rates (Barnett 2008). The CPC Program also had impacts on cognitive skills. Although they faded with time, they still improved cognitive skills by 0.20 standard deviations as late as eighth grade (Barnett 2008). In contrast, the HSIS found limited evidence of impacts on reading at the end of 3rd grade overall (Puma et al. 2012), but substantially helped students who did not speak English at home to catch up (Bloom and Weiland 2015).

However, not all programs had positive impacts, and one study showed negative impacts of center-based care on cognitive skills. Baker, Gruber, and Mulligan studied the impacts of universal access to child care in Quebec and found that the policy decreased children's scores on the Peabody Picture Vocabulary Test (PPVT) compared to children's scores in provinces where such a policy was not implemented. The authors argued that the policy led to negative impacts because the policy expanded access to low quality programs. Although Loeb et al. (2007) found that center-based care had positive effects on academic outcomes overall, they also found that academic benefits were reduced along with social-emotional skills for children who started before age 2. As we discuss in section (b) below, some programs that did improve students' cognitive skills either did not lead to improvements in social-emotional skills or worsened participants' social-emotional skills (Loeb et al. 2007; Magnuson et al. 2007; Manship et al. 2015).

LMICs. **The evidence base on pre-primary programs in LMICs also shows that pre-primary programs can improve academic outcomes, but the evidence base is mixed, and is based on studies of short-term outcomes.** In Sub-Saharan Africa, studies revealed that preschool programs in Mauritius (Raine et al. 2003) and Mozambique (Martinez, Naudeau, and Pereira 2017) led to significant improvements in educational attainment. An RCT in Cambodia showed small, but significant impacts of preschool on cognitive skills (Berkes and Bouguen 2019). The authors found larger impacts for the subset of children who would have otherwise stayed home in the absence of new access to preschool. A quasi-experimental study in Zambia (McCoy et al. 2017) also found positive impacts on cognitive skills at age 6. However, other studies have found mixed or negative outcomes. An evaluation of two types of preschools in Cambodia found that neither formal nor community volunteer-run preschools improved children's cognitive skills. Authors attributed these disappointing findings to failures in implementation and low take-up (Bouguen et al. 2013). A program to increase kindergarten participation in Bulgaria also had mixed effects on short-term child development: researchers found impacts on cognitive skills for Bulgarian students, but achievement among Roma and

Turkish children declined, suggesting the need for additional or different support for disadvantaged children (Huillery, de Laat, and Gertler 2017).

LAC. **An emerging body of evidence from LAC countries also shows that ECE programs can have significant impacts on cognitive skills and progression through school, but the evidence base is mixed**. A common model of pre-primary education in LAC countries is through community homes or centers that offer child care in a community home or center, with psychosocial and cognitive development activities provided by trained "caretaker mothers" from the community, to infants and children through age 6. Two such programs include the *Hogares Comunitarios de Bienestar* (HCB) program in Colombia (Bernal et al. 2009) and the *Proyecto Integral de Desarrollo Infantil* (PIDI) Preschool in Bolivia (Behrman et al. 2004). Bernal et al. (2009) and Behrman et al. (2004) identified impacts by comparing outcomes for same-age children with different durations of exposure to the program and found significant positive impacts on cognitive skills for children who had spent at least 15 months in the program (in the Colombian study) or 7 months in the program (in the Bolivian study). Three other studies examined the impacts of large-scale preschool expansion programs: in Argentina (Berlinski et al. 2009), Uruguay (Berlinski et al. 2008), and Guatemala (Bastos et al. 2017). The studies on preschool expansion in Guatemala (Bastos et al. 2017) and Uruguay (Berlinski et al. 2008) found that preschool access led to improved timely progression through school. In Argentina, children's improved access to preschool led to higher test scores in third grade (Berlinski et al. 2009). However, two studies from Ecuador found negative impacts of center-based pre-primary education on cognitive skills (Rosero 2012 and Rosero and Oosterbeek 2011). Rosero studied the Child Rescue Program, which is similar to the programs evaluated in Bernal et al. (2009) and Behrman et al. (2004), but operated in larger centers that cared for 20 to 60 students. Rosero and Oosterbeek (2008) studied a large-scale program that funded various local child care centers. In both studies, Rosero and Oosterbeek urge policy-makers to weigh the potential benefits of pre-primary education programs against the value of caring for young children in their homes. The net benefit is likely to depend on the quality of the care offered at a center and the quality of the activities the child would engage in in the absence of center-based care.

Appendix Table E.1. ECE programs – seminal longitudinal studies from the United States

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
Seminal longitudinal studies													
Elango et al. 2015; Schweinhart et al. 2013; Heckman et al. 2013; Schweinhart et al. 2005; and Carneiro and Ginja 2008.	RCT	Perry Preschool: HighScope half-day preschool program with weekly home visits in Ypsilanti, Michigan (US)	Longitudinal through adulthood	3-4 years	Primary school Adult	+[i]		+[ii]		Mixed[iii]		+[iv]	+[v]
Campbell et al. 2012; Heckman et al. 2013.	RCT	Abecedarian Preschool: Intensive full-day early childhood development program from infancy through age 4 for children identified as at-risk (US).	Longitudinal through adulthood	Infant to age 5	Adult	+[vi]				Mixed[vii]		Mixed[viii]	
Garces, Thomas, and Currie 2000; Carneiro and Ginja 2008; Puma et al. 2012; Bitler et al. 2014; Schanzenbach and Bauer 2016	RCT (Puma et al. and Bitler et al.), QED (others)	Head Start: Federally funded preschool program that featured home visits for parents (US).	Longitudinal through adulthood	3-4 years	Pre-primary Primary Adolescence Adult	Mixed[ix] Mixed[xi] +[xiii] +[xvi]	+[x] +[xii]			+[xvii]		+[xiv] Mixed[xviii]	+[xv] Mixed[xix]
Reynolds, Ou, and Topitzes 2004; Reynolds, Temple, and Ou 2010;	QED (matched comparison group)	Chicago Child-Parent Center Preschool: High quality preschool	Longitudinal through adulthood	3-4 years	Primary Adolescence Adult	+[xx] +[xxiii]	+[xxi] +[xxiv]			+[xxii] +[xxv] +[xxvi]		+[xxvii]	+[xxviii]

| Abridged citation | Research design | Program and description | Outcome follow-up period | Age range (years) | | Correlated outcomes | | | | | Violence and crime | | |
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
Reynolds et al. 2011a [in Child Development]; Reynolds et al. 2011b [in Science]		with parent education and elementary school supports (US).											

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; QED = quasi-experimental design; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] Elango et al. 2015.
[ii] Schweinhart et al. 2013.
[iii] Heckman et al. 2013; Schweinhart et al. 2005; Carneiro and Ginja 2008. Results are mixed because Heckman et al. (2013) report significant beneficial impacts at age 27 on drug use for women, but no significant impacts for men; while Schweinhart et al. (2005) report beneficial impacts at age 40 for male participants.
[iv] Schweinhart et al. 2013; Schweinhart et al. 2005.
[v] Schweinhart et al. 2013; Schweinhart et al. 2005.
[vi] Garcia, Heckman, and Ziff (2018) examined impacts on social-emotional skills, risky behavior, and crime, and found more impacts for girls than for boys and argued that the larger impacts for girls (including cognitive skills, social-emotional skills, risky behavior, and crime), were observed because girls' fathers were less likely to support their families than fathers of sons. While multiple studies assess impacts of the Abecedarian Project on cognitive outcomes of younger ages, this review did not identify studies that assess relevant social-emotional or family/school environmental outcomes at younger ages.
[vii] Elango et al. 2013; Campbell et al. 2012; Campbell et al. 2002. Campbell et al. (2002) and Heckman et al. (2013) found that Abecedarian participants were less likely than a control group to use drugs by ages 21 and 27, respectively, but Campbell et al. (2012) found no difference in substance abuse by age 30.
[viii] Elango et al. 2013; Campbell et al. 2002. Program significantly reduced arrests for women, but had no significant impact on arrests for men.
[ix] Garces, Thomas, and Currie 2000; Schanzenbach and Bauer 2016; and Bitler et al. 2014 reported on the impacts of Head Start on social-emotional skills. Evidence on the early-age social-emotional impacts of Head Start vary by study. While the earlier longitudinal study showed some evidence of positive impacts, evidence from the randomized HSIS showed that Head Start does not appear to have a short-term social and emotional outcomes, but it does have a longer-term impact on wellbeing in early adolescence and young adulthood.
[x] Garces, Thomas, and Currie 2000.
[xi] Garces, Thomas, and Currie 2000; Bitler et al. 2014 (most results for social-emotional skills were small and not statistically significant); Puma et al. (2012) found positive impacts on social-emotional skills in 3rd grade when reported by parents, but not when reported by teachers. See note on impacts on social-emotional skills at the pre-primary level.

[xii] Garces, Thomas, and Currie 2000.
[xiii] Carneiro and Ginja 2008.
[xiv] Carneiro and Ginja 2008.
[xv] Carneiro and Ginja 2008.
[xvi] Schanzenbach and Bauer 2016.
[xvii] Schanzenbach and Bauer 2016.
[xviii] Garces, Thomas, and Currie 2000.
[xix] Garces, Thomas, and Currie 2000. Effects are positive for black participants, and there is no impact for other participants. The study does not specify if the crime is violent or non-violent.
[xx] Reynolds, Temple, and Ou 2010.
[xxi] Reynolds et al. 2011b [in Child Development]; Reynolds, Ou, and Topitzes 2004.
[xxii] Reynolds, Temple, and Ou 2010.
[xxiii] Giovanelli et al. 2018.
[xxiv] Reynolds et al. 2011b [in Child Development]
[xxv] Reynolds, Temple, and Ou 2010.
[xxvi] Reynolds et al. 2011b [in Child Development]; Reynolds et al. 2011a [in Science]
[xxvii] Reynolds et al. 2011b [in Child Development]; Reynolds et al. 2011a [in Science]; Reynolds, Temple, and Ou 2010; Reynolds, Ou, and Topitzes 2004; Giovanelli et al. 2018.
[xxviii] Reynolds et al. 2011b [in Child Development]; Reynolds et al. 2011a [in Science]; Reynolds, Ou, and Topitzes 2004; Giovanelli et al. 2018.

Appendix Table E.2. ECE programs – other studies

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
HICs													
Baker et al. 2019	QED (DID)	Public funding to reduce the price of center-based or home-based day care to $5 per day in Quebec (Canada)	Ages 2 through 29	Infant through 4 years	Ages 2 through 29	-[i]						-[ii]	-
Manship et al. 2015	QED	The first year of a two-year kindergarten program known as "transitional kindergarten" to support the youngest children beginning kindergarten (US)	School year following program	3-4 years	4-5 years	Mixed[iii]							
Cappelen et al. 2020	RCT	Full day preschool with curriculum designed to promote social-emotional skills (Chicago Heights Early Childhood Center) (US).	4 years after program	3-4 years	7-8 years	+[iv]							
Magnuson et al. 2007	PSM	Pre-K education, as identified by parents in the ECLS-K data set, assumed to typically be attached to a school or as part of a publicly funded pre-K initiative,	1 to 2 years after program	4-5 years	5-7 years	-[v]							

| Abridged citation | Research design | Program and description | Outcome follow-up period | Age range (years) | | Correlated outcomes | | | | | Violence and crime | | |
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
		compared to all other types of care (US).											
Loeb et al. 2007	OLS, matching, and IV	Using ECLS-K data, authors study the dose response of spending more hours per day at day care or starting center-based care earlier (US).	1 to 5 years after program (retrospective study)	Infant to kindergarten	Kindergarten	-[vi]							
				LMICs									
Martinez et al. 2017	RCT	Community-based half-day, rural preschool program, including community mobilization, learning materials, and monthly parent meetings (Mozambique).	2 years after program	3-5 years	5-7 years	NS							
Bouguen et al. 2013	RCT	Formal preschools, community preschools, and home-based services (Cambodia).	2-3 years after program	3-5 years	5-8 years	Mixed[vii]							
Berkes and Bouguen 2019	RCT	Formal center-based preschool (Cambodia).	Short-term	2-4 years	3-5 years	+[viiii]							
Huillery et al. 2017	RCT	Elimination of school fees for kindergarten and conditional payments for ongoing preschool attendance (Bulgaria).	1 year after program	3-5 years	4-6 years	NS[ix]	NS[x]						

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
McCoy et al. 2017	PSM (kernel exact matching)	Participation in preschool, based on survey data (Zambia).	0-3 years after program	3-6 years	6 years	+[xi]							
Zhang 2016	PSM	Access to preschool (China).	7-10 years after program	3-6 years	7th and 9th grade	Mixed[xii]							
Raine et al. 2003	Matched comparison group[xiii]	Center-based program with education, nutrition, and exercise components (Mauritius).	Teenage and early adulthood	3-5 years	17 and 23 years	+[xiv]						+[xv]	+
				LAC									
Andrew et al. 2018	RCT	Community day care in urban areas with government support or government and foundation support (Colombia).	18 months during program	12-36 months	30-54 months	NS[xvi]							
Attanasio et al. 2017	RCT	Free public day-care program, which includes food, health services, toys, and parenting support in Rio de Janeiro (Brazil).	2-5 years after program	Infant through 3 years	5-8 years	NS	+[xvii]						
Rosero and Oosterbeek 2011	RDD	Center-based child care and home visiting (Ecuador).	Concurrent with program or shortly thereafter	Infant to 4 years	Infant to 6 years	NS							

| Abridged citation | Research design | Program and description | Outcome follow-up period | Age range (years) | | Correlated outcomes | | | | | | Violence and crime | | |
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
Rosero 2012	PSM	Center-based child care (Ecuador).	Concurrent with program or shortly thereafter	Infant to 4 years	Infant to 6 years	NS							
Behrman et al. 2004	Matching using participants with relatively little program exposure as comparison group	"PIDI preschool": day care, nutrition, and educational services for children in poor, urban areas, offered in local women's homes (Bolivia).	Concurrent with program or shortly thereafter	6 months to 6 years	3-6 years	+							
Bernal et al. 2009	QED[xviii]	*Hogares* Comunitarios program: subsidized child care and nutrition provided in the home of a local mother (Colombia).	Concurrent with program or shortly thereafter	Infant to 5 years	3-6 years	Mixed[xix]							
Angeles et al. 2014	QED (pipeline analysis)	A childcare progam to support working mothers in Mexico by subsidizing child care for working mothers (Mexico).	Concurrent with program or shortly thereafter	1-5 years	1-5 years	NS[xx]	NS [xxi]						
Berlinski et al. 2009	QED[xxii]	Preschool expansion: Expansion of facilities	Three years after program	3-5 years	3rd grade	+[xxiii]							

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
		for public preschool (Argentina).											

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; DID = difference in differences; IV = instrumental variables; OLS = ordinary least squares regression; PSM = propensity score matching; QED = quasi-experimental design; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i.] Authors found significant negative (non-beneficial) impacts on social-emotional skills at age ranges 2 to 3 and 5 to 9. They found no significant impact on self-reported mental health at age ranges 12-29. Authors also found negative impacts on cognitive skills during the preschool years as measured by the Peabody Picture Vocabulary Test (PPVT).

[ii.] Crime results do not specify violent or non-violent crime.

[iii.] Transitional kindergarten students had an advantage in executive function, but there was no significant impact on socio-emotional skills. Transitional kindergarten improved students' language, literacy, and math skills.

[iv.] In games designed to reveal their social preferences, children who had been randomly assigned to the preschool group were significantly more likely than control group students to choose egalitarian outcomes in two of the four games. Impacts in the other two games were not significant.

[v.] Prekindergarten increases aggression and decreases self-control at kindergarten entry and persist through spring first grade.

[vi.] Loeb et al. found that overall, center-based care led to increased cognitive skills, but decreased social-emotional skills.

[vii.] Authors estimated impacts of formal preschools and home-based preschools on five measures of social-emotional skills, including estimates of both intent to treat (ITT) and treatment on the treated (TOT). Most estimates were not significant, but the ITT estimate on one of the five outcomes was significantly negative and impacts were significantly negative for students of an age that they delayed entry to primary school because of access to formal preschool; students appear to have learned less in preschool than in primary school. Estimates of the impact of home-based and community-based child care were not significant.

[viii.] Authors found small, but significant intent to treat estimates of 0.05 on cognitive skills and socioemotional development.

[ix.] No impact on the percent correct of socioemotional tasks tested.

[x.] Effects on family involvement in child's education were non-significant and most had a negative sign.

[xi.] The program had a significant positive impact on executive functioning and task performance skills.

[xii.] Impacts on self-reported social skills were mixed. For "easy to get along with," impact was positive and significant for both grades with PSM, but for neither grade with OLS. For "participates in school activities often," impact was positive and significant for 9th-grade students only.

[xiii.] The control group was not kept from attending preschool and members of the control attended traditional "petite ecoles" preschools with larger class size, no structured exercise, and what was described as less nutritious food.

[xiv.] At age 17, the program had significant negative impacts on conduct disorder, psychotic behavior, motor excess, schizotypal personality, positive schizotypal personality, and disorganization. At age 23, the only impact that was significant was of the interaction of nutrition and the program on schizotypal personality.

[xv.] At age 23, the program had a significant negative impact on self-reported crime, and a non-significant negative impact on non-self-reported crime.

[xvi.] Authors found that community day care had no impact on socio-emotional skills. The evaluation used a 3-armed RCT and found no impact from either treatment arm: standard government model or standard government model with additional support from a private foundation.

[xvii.] The program had a positive, significant impact on reading and books in the home.

[xviii.] Authors used two methods: (1) OLS with a comparison group and controlling for observable differences and (2) comparing outcomes for participants with shorter and longer duration of exposure to the program.

[xix.] Compared to children with less than one month of exposure to the program, children with 16 or more months of exposure had significantly better results for social isolation and adequate interactions, but significantly worse outcomes for aggressive behavior. Results were generally only significant for 3-year-olds, but not for those 4-years-old or order. Because data for these estimates are based on evaluations by the caretaker at the Hogar Comunitario, estimates based on the comparison group cannot be made. Impacts on the early development index (EDI), based on parents' assessments, were positive and significant compared to the control group, but not significant when compared to participants with less than one month of exposure.

[xx.] Children whose mothers were unemployed before the program was offered had increased personal-social behavior scores.

[xxi.] The program did not have a significant impact on mothers' mental health. The program decreased time mothers spent watching children under 5 at home, while increasing time other family members spent watching children under 5 at home.

[xxii.] Estimates impacts of expanded number of preschool "spots" and uses municipality, province, and year fixed effects.

[xxiii.] Preschool had a significant, positive impact on three of four social skills tested: paying a lot of attention, putting forth a lot of effort, and participating regularly. The impact on being well disciplined was positive but not significant. Assessment was of third grade students, by their teachers.

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APPENDIX F:

LITERACY AND NUMERACY PROGRAMS

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This appendix provides information from the foundational literature on the impact of literacy and numeracy programs on academic achievement, with additional information on the studies summarized in Chapter V, Table V.2.

Impacts of literacy and numeracy programs on standard education outcomes

HICs. **Evidence from HICs suggests that literacy and numeracy programs have positive impacts on standard education outcomes.** For example, Lam et al. (2013) conducted a randomized control trial of a 7-week reading program for preschoolers and their caregivers in Hong Kong.[7] At the end of the program, children in the treatment group were significantly more likely to be motivated to read and to be interested in reading and had significantly higher levels of reading fluency and word recognition than comparison children. For the purposes of this appendix, we are reporting principally findings from studies of programs in LMICs and LAC.

LMICs. **A large body of literature shows positive impacts of LN programs on standard literacy skills, particularly when the programs deploy teacher training and support**.[8] Kim et al. (2019) conducted a systematic review of evidence on literacy programs in LMICs, which included 67 studies from 32 countries. The evaluations varied in indicator reporting and in terms of program structure and components. Kim and coauthors compute effect sizes for each of the literacy indicator types measured and produce an overall effect size of the programs across multiple literacy indicators of 0.30 (standardized mean difference between control and treatment groups). The authors' estimates of the impacts of specific program characteristics on literacy skills suggest that ongoing, in-service teacher training produces significantly stronger literacy gains among students than one-time or preservice teacher training. Using evidence from Kenyan primary schools, Piper and coauthors (2018) suggest that teacher training and instructional support alone did not generate significant student gains in literacy and numeracy, but that adding new teacher's guides and student books produced significant positive effects.

Research suggests that local-language reading instruction can have significant positive impacts on non-literacy education outcomes. Bagby et al. (2017) evaluated the effects of the USAID-supported Niger Education and Community Strengthening (NECS) projects, which included primary-level reading activities (such as teacher training on new curriculum and new materials in the local language). The researchers found that the activities produced significant gains among participants three years after initial program rollout in both mathematics and local language abilities even though the curriculum had no math-focused activities. Improved mathematics outcomes were likely due to improved school attendance, teaching quality, learning environment, and parent engagement. In communities where the NECS activities were combined

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[7] Hong Kong is a Special Administrative Region of China, but is classified in the World Bank Country and Lending Groups (2018) apart from China as a high-income country (HIC).

[8] In addition to the systematic reviews discussed here—Kim et al. (2019) and the LAC Reads Capacity Program (2016)—the following papers examine literacy and numeracy program impacts on cognitive domains: Macdonald and Vu (2018), Alvares de Azevedo (2018), Wolf et al. (2018), Kerwin and Thornton (2015), Duflo et al. (2015), He et al. (2009), Abeberese et al. (2011), Van Steensel et al. (2011), Banerji and Chavan (2016), and Irwing et al. (2008). Findings from these papers are in line with the general trends reported by AIR and Kim and coauthors above. For additional detail on LN programs, see the UNESCO Effective Literacy and Numeracy Practices Database.

with new-school construction, gains were even higher. The program also boosted school enrollment and attendance.

A small base of research suggests that parent and community engagement programs may produce positive impacts on literacy development in children ages 5 to 7 (Spier et al. 2016). However, these programs, such as parent-child reading programs, child-to-child tutoring, and educational television, do not have consistent impacts across LMICs.[9] Cao et al. (2014) and Nag et al. (2014)[10] reviewed the evidence on LN programs in LMICs involving a child's parents and their community, and found that family-based early literacy programs vary widely in intensity and content. Evidence suggests that parental involvement programs with higher intensity and more structure produce positive literacy impacts. Less structured and lower-intensity programs do not produce consistent impacts, and community literacy programs do not show impact on early literacy. Paired reading (parents and children reading alongside each other), hearing reading (direct feedback and assistance to the reading child), radio and TV instruction, and tutoring with volunteers, peers, and older children all show some positive impact on literacy outcomes.

The literature on numeracy programs is sparser than that exploring literacy programs, particularly in LMIC contexts. Though research gaps exist in evaluation of numeracy instruction (Evans et al., 2019), evaluators increasingly examine numeracy outcomes alongside literacy with assessments such as the early grade mathematics assessment (EGMA), which makes measurement of numeracy skills more standard across program contexts (Gove et al. 2013, Platas et al 2014; for useful examples, see DeStefano et al. 2012, Bridge International 2015, and EDC 2017). Likewise, in practice, implementers and policymakers are also working to produce and deliver integrated reading and math curricula, which can help build skills such as oral language facility, mental math abilities, and critical thinking (EDC 2018). In Rwanda, a new integrated literacy-numeracy curriculum from EDC produced significant gains in both reading and mathematics skills among primary students in grades 1 through 4. Seminal studies, such as the Banerjee and coauthors' 2007 evaluation of the Balsakhi program, suggest that remedial literacy and numeracy tutoring can significantly increase test scores and that a computer-assisted learning (CAL) programs for math can have substantial and significant effects on numeracy. However, powerful effects from short-term programs can wane over time, as evidenced by the diminished gains one year after the completion of the Balsakhi and CAL initiatives.

LAC. **Research from LAC suggests that programs and factors affecting literacy vary substantially from country to country.** LAC Reads Capacity Program (2016) reviewed the evidence from 108 papers on Early Grade Reading (EGR) program impacts on literacy outcomes with a geographic scope limited to LAC. The authors noted that over 90 percent of included studies examined programs in high- and upper-middle-income countries, suggesting that quality evidence on EGR in countries like Nicaragua, Honduras, and Guatemala is not readily available. Core findings from the review of both program and non-program studies included (1) teacher training programs with ongoing coaching were effective in significantly improving EGR outcomes in high-income countries; (2) distribution of laptops to children can have negative

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[9] Spier and coauthors also note that program evaluators tend to assess performance rather than impact, preventing researchers from assembling a conclusive body of evidence on parent and community engagement programs.

[10] Cao et al. (2014) was supported by USAID; Nag et al. (2014) was supported by DfID.

impacts on reading ability when the ICT component is not complemented with other program elements; (3) efforts to address nutritional deficiencies among children in low-income settings, such as Guatemala, can improve EGR outcomes; (4) poverty and child labor may impede development of early reading ability; (5) EGR outcomes are strongly associated with the quality of preschool programs children have had access to; and (6) publication bias may have repressed dissemination of evidence showing non-statistically significant effects.

USAID actively supports LN programs and evaluation in LMICs, including LAC. Early grade reading has been a key USAID priority, and a synthesis of USAID-funded education evaluations found that reading programs have significant but small effects on critical indicators, such as letter recognition and oral reading fluency, as tested by the Early Grade Reading Assessment (EGRA) and similar literacy assessments (Alvares de Azevedo, et al, 2018).[11] Kim et al (2019)'s review of nine USAID-funded literacy development programs showed promising impacts of ICT-based programs on literacy gains in LMICs (Bulat et al. 2014). USAID continues to promote development of new LN programs, such as the *Lectores a Líderes* program in Honduras, and the Early Grade Reading and Mathematics Project (RAMP) in Jordan.[12,13]

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[11] Overall, girls participating in the programs showed greater performance improvement than boys, but boys still had higher endline literacy scores. Similarly, rural students made stronger gains than urban students, though urban schools had higher initial literacy scores. For more resources on EGRA and its structure, see Gove and Cvelich, 2011.

[12] *Lectores a Líderes*, also known as the Honduras Reading Activity, is designed to address the poor reading resources, low family literacy, and inadequate schooling available to many students in Honduras. Readers to Leaders includes Ministry of Education strengthening, reading curriculum improvement, teacher development, and family engagement. The project aims to improve literacy among children in grades 1-6 (with a goal of 20% improvement of comprehension capacity of sixth grade students), and thereby reduce the academic attrition that can lead to poor economic integration and exposure to violent lifestyles.

[13] Mathematica has produced evidence on the effectiveness of USAID reading programs in LAC with randomized control trials of *Amazonía Lee* Reading Program in Peru, the *Espacios para Crecer* (EpC) after school program in Nicaragua, the *EducAcción*-PRI Promising Reading Program in Honduras, and the *Leer Juntos, Aprender Juntos* (LJAJ) programs in Guatemala and Peru (Campuzano et al. 2018, Bagby et al. 2018, Mathematica 2019b, Lugo-Gil et al. 2018, Mathematica 2019a). Three of the programs used teacher training and in-class coaching as the principal means of influencing reading outcomes, and several deployed materials provision and community engagement mechanisms as well. The evaluations have produced mixed evidence. Forthcoming research from Mathematica on the LJAJ program suggests that in indigenous communities in Peru and Guatemala, in-school literacy components may have positive effects on early-grade reading skills (particularly for girls), but community action components do not. In Guatemala, LJAJ had positive effects on materials available to students, and on the overall classroom environment, but did not produce significant gains in reading outcomes. In Peru, children treated in the LJAJ program had statistically significant gains in basic reading comprehension over their non-treatment peers (equivalent to effect sizes of up to .20 for reading fluency accuracy). The *Amazonía Lee* program produced positive and substantial effects on students' reading outcomes compared to a business-as-usual control group. In the test region where control schools were exposed to a government-sponsored teacher training, materials, and tutoring program, the effects of *Amazonía Lee* were not significant (Campuzano et al. 2018). In Honduras, researchers tested multiple components of the EducAcción-PRI Promising Reading Program, including a program that trained teachers and helped them develop assessment-based action plans, and a version that included the training, action plans, materials, and formative assessments. The researchers found that the assessment-based action plan component significantly increased reading scores (mostly in urban schools), as did the additional formative assessment component (mostly in rural schools) (Mathematica 2019b).

Cost-effectiveness of literacy and numeracy programs

When cost-effectiveness calculations are included in LN program evaluations[14], they are typically presented in terms of reading assessment score improvement per dollar spent or dollars spent per 0.10 standard deviation gain in reading assessments. Piper et al. (2016), for example, calculated the cost effectiveness of three different ICT-based literacy programs in Kenya as a ratio of correct words per minute as read by study participants to the costs of the specific treatment per child (including training guides and the tablets themselves). Per one dollar spent, pupils' words read per minute ranged from 0.6 (where pupils had e-readers to themselves) and 11.6 (with tutor tablets), depending on language (English or Kiswahili).

Papers offering dollars per 0.10 standard deviation gain calculations are readily available. Abeberese et al. (2011), in their RCT of the SAS reading program in the Philippines, show the program costs $8.52 per 0.10 standard deviation gain per child in reading tests. Bagby et al. (2017) showed that under the NECS program in Niger, achieving an additional student-year of enrollment cost $154 and a 0.10 standard deviation gain in language test scores cost $24 (2009 dollars). In Chile, a short-term tutoring program for fourth graders from low-income families required between $50.20 and $75.50 to produce a 0.10 standard deviation gain in reading comprehension (2010 dollars) (Cabezas et al. 2011). In Nicaragua, the *Espacios para Crecer* after-school reading program cost between $45 (if using administrative data aggregating actual costs) and $358 (if only using the first two cohorts, where program set-up costs were high) per 0.10 standard deviation improvement in literacy scores (Bagby et al., forthcoming). In the *Leer Juntos, Aprender Juntos* (LJAJ) programs in Guatemala and Peru, researchers calculated a cost effectiveness rate of $136 per 0.10 standard deviation increase in reading comprehension (Mathematica 2019a).

One of the most cost-effective literacy development methods to date was the Balsakhi remedial tutoring program (at $2.25 per student/year, or $0.67 per 1 standard deviation gain in combined math and language test scores) (Banerjee et al. 2007).

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[14] Among early grade reading evaluations recently reviewed by the World Bank, only half reported cost effectiveness, and most of those only presented figures in terms of cost per student (not cost per cognitive or social-emotional outcome change) (Graham and Kelly 2018). Implementers of future literacy and numeracy programs can develop meaningful comparisons to other programs by tracking and calculating cost effectiveness. In fact, Hummel-Rossi and Ashdown (2010) provide background, instructions, and decision tools for funders and implementers looking to conduct cost effectiveness analyses (CEAs) in literacy initiatives, while Hollands et al. (2016) provide a demonstration of CEA for early reading programs and recommendations for further research.

Table F.1. Literacy and numeracy programs

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Non-violent crime	Violent crime
HICs													
Beckett et al. 2012	RCT	Helping Children Achieve (UK)[i]	At end of program 9–11 months after program	5–7	6–9	+ +	NS			+			
Lam et al. 2013	RCT	Paired reading program (Hong Kong)[ii]	At end of program	Mean 4.7	Mean 4.8	+	+						
Evangelou and Sylva 2003	QED	Peers Early Educational Partnership (UK)[iii]	1–2 years after implementation	3–4	4–5	+							
Tanner et al. 2011	QED	Every Child a Reader and Reading Recovery (UK)[iv]	During/at end of program	5–6	5–6	+							
Quick et al. 2012	Pre-post	Family Literacy Initiative (USA)[v]	At end of 7-month program	0–5	0–6		+						
LMICs													
Ome et al. 2018	RCT	Makhalidwe Athu, an ICT reading program (Zambia)[vi]	At end of 9-month program	9	9–10					NS			
Lai et al. 2015	RCT	Computer-assisted remedial math program (China)[vii]	End of program (approximately 4 months after program began)	9–10	9–11	+							
Mundy et al. 2014	QED	Child-to-child School Readiness Program (Ethiopia)viii	At end of program	5–10, Young Facilitators grades 5–8	5–11 and Young Facilitators grades 5–9	+							
Borisova et al. 2017	Correlation	Early Literacy and Math at Home (Ethiopia)[ix]	At end of 6-month program	Mean 5.9	Mean 6.1	+							

				Age range (years)		Correlated outcomes					Violence and crime		
Abridged citation	Research design	Program and description	Outcome follow-up period	Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Non-violent crime	Violent crime
Cheung et al. 2018	Structural equation modelling	No program (Philippines)[x]	NA	Mean 4.3	Mean 4.3	+							
LAC													
Bagby et al. (forthcoming)	RCT	Espacios para Crecer, an after-school reading program (Nicaragua)[xi]	At end of program	5–16 (mean 8.5)	6–18 (mean 10)	NS							

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; QED = quasi-experimental design; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i.] Beckett and coauthors (2012) used an RCT to examine several early reading and behavior programs under the Helping Children Achieve initiative. The three program arms were: (1) 12-week Supporting Parents on Kids Education in Schools (SPOKES) (a family literacy program with ten 2-hour sessions and a home visit and family literacy workshop), (2) 12-week The Incredible Years (IY) program (program to improve behavior and parent-child relationships through six weeks of curriculum on building positive relationships and good behavior through rewards, praise, and play, with the second six weeks emphasizing effective ways to handle misbehavior), (3) SPOKES and IY combined, or (4) a signposting telephone helpline (used as the control condition). The researchers hypothesized that the SPOKES program would produce significant gains in literacy indicators among the children, while the IY program would produce significant improvements in both positive parenting and children's behaviors. However, analysis of data collected 9–11 months after the end of treatment suggests that the SPOKES program (family literacy) had the largest effect on children's anti-social behaviors (effect size on PACS scores of 0.76 SD), even larger than the combined program that included IY. Also unpredicted, the IY program (targeted at relationships and behaviors) was the only treatment wing to produce significant change in literacy of children (effect size on BAS scores of 0.23). The authors show that IY also produced significant reductions in negative parenting behaviors, such as corporal punishment, and significant improvements in positive parenting behaviors, such as consistency of discipline (as measured by the APQ), while SPOKES did not produce significant effects in those dimensions. Finally, outcomes of children's problematic behaviors, as measured by the Eyberg and VAS scales) showed significant improvements across SPOKES, IY, and combined treatment arms (with effect sizes ranging from 0.60 to 1.00 SD). These results suggested that family literacy programs may have strong positive impacts on a child's behavioral issues, which, paired with parenting initiatives, can improve the quality of family environments. Child's anti-social behavior is measured with the Parental Account of Child Symptoms (PACS) tool, whereas other problem behaviors are measured through the Visual Analogue Scale (VAS) and Eyberg Child Behaviour Inventory. Children's reading ability was measured using the British Ability Scales (BAS), and parenting practices were assessed with the Alabama Parenting Questionnaire (APQ). Based on previous literature, Beckett and coauthors conducted power calculations premised on an effect size of 0.5 SD, allowed for treatment and control groups of 60 participants. Attrition issues led to group sizes of between 50 and 57 participants per group.

[ii.] Lam et al. (2013) used a randomized design to study the Paired Reading Program in Hong Kong. Treatment entailed a 7-week, 12-session caregiver training and coaching program, whereby teachers trained by school psychologists worked with children's caregivers (mostly mothers, but also fathers and grandparents) on how best to read with their children at home. Comparison dyads received no paired reading training. Both groups continued normal attendance at their preschools. Families varied widely in terms of income and sociodemographic characteristics, but those aspects were balanced across treatment and comparison groups. Data from post-program caregiver perception surveys suggests that experimental dyads built significantly stronger parent-child bonds than the comparison group. Similarly, caregivers in the treated group were significantly more likely to report that their child was motivated to read and interested in doing so. Authors also found significant impacts on reading fluency and word recognition.

[iii.] Evangelou and Sylva (2003) used a comparison group to estimate the effects of the Peers Early Education Partnership (PEEP), an early literacy program that uses parent engagement in home activities and multi-family group sessions. Children in the PEEP program had significantly higher literacy scores and numeracy scores than matched non-PEER receiving children. There were also social-emotional outcomes: After 1 year, the program appeared to improve children's self-esteem of children who started when 3 years old, and specifically, appeared to significantly improve the way that they perceived their mothers' attitudes toward them (the effect size on the maternal acceptance sub-indicator was 0.29). The program also appeared to have significant positive effects on children's views of their cognitive and physical competence after 1 year in PEEP for 4-year-old entrants (effect sizes of 0.20 and 0.18, respectively) and 2 years in PEEP for 3 and 4 year olds (0.20 and 0.18, respectively). These indicators of physical and cognitive competence, along with maternal and peer acceptance, were measured with the PSPCYC: Pictorial Scale of Perceived Competence for Young Children, Harter and Pike (1981) and comprise a measure self-esteem.

[iv.] Tanner et al. (2011) used a quasi-experimental design to examine the impact of the Reading Recovery (RR) treatment, a part of Wave 3 (the most intensive wave) of the Every Child a Reader (ECaR) program in the UK. RR is a 20-week intensive reading program, and participants were significantly more likely than their matched peers in non-ECaR schools to initiate their own activities and ideas in school (18 percentage points) and show confidence in beginning a new book according to reports of their teachers. However, authors found no significant on enjoying school (a form of school attachment, which is a protective behavior), having confidence in one's general abilities, being willing to participate in classroom activities, and being motivated and interested to learn. Additionally, parents of ECaR children were significantly more likely to express that encouraging their child to read was important.

[v.] Quick et al. (2012) examined the Family Literacy Initiative in the United States using a pre-post design. The program involved ECE, parent-child interactive literacy activities (PCILA), parenting education, and adult education. Participating parents reported modestly but significantly higher use of positive parenting tools at the end of the program year than at the beginning (76.1 to 81.7 percent for setting rules and consequences for their children, 81.0 to 85.4 percent for praising their children when they do something good). The authors performed significance testing on item means (page 71). This is observational, and internal validity was relatively weak. Further, the authors were not able to attribute any changes in the sample to specific program components, such as PCILA.

[vi.] Ome and coauthors (2018) conducted an experimental study that used a simplified Likert scale to examine the impact of a 9-month ICT-based literacy program on motivation and other outcomes of interest. Participant HHs received 3 text messages (SMS) each week, each with a short story of 160 characters, plus a question. HH could also call in and listen to a voice message that had more questions and a recording of the story. In addition, monthly meetings with parents for troubleshooting and guidance on how to engage with children around stories. No evidence of significant effects of the MA program on a child's likelihood of participating in out-of-school reading programs in the community, which would have been a protective behavior. No significant effect of child's changed enthusiasm about or interest in reading (which would have been similar to motivation/self-esteem). Cost-effectiveness calculations are offered only for standard outcomes, as measured by EGRA. Their figures indicate that USD 10 spent can produce significant gains in non-word reading, oral reading fluency, and reading comprehension (ES range from 0.09 to 0.13). Also, costs per student are between $20 and $22 USD per student for the 9-month program.

[vii.] Lai et al. (2015) used a cluster-randomized approach to estimate the impacts of a computer-assisted remedial math program among 2369 3rd grade students aged 9 and 10 (mostly from poor families) in 24 private for-profit migrant schools in Beijing. The computer-assisted learning treatment (CAL) was a semester-long remedial math program conducted outside of school hours using instructional videos and games (with students in pairs without working with other teams or the teacher/supervisor). At endline, treated students were significantly more likely to "like school" and may have also been more likely to report higher self-confidence (significant only at the 10 percent level) (measured by the Chinese version of the General Self-Efficacy Scale [Zhang and Schwarzer 1995]). In terms of cognitive outcomes, the CAL program had a significant and substantial effect on standardized math test scores among treated students (0.15 SD). However, these effects appeared by the mid-term data collection, and did not grow over the latter half of the semester. Possible reasons include falling excitement in the latter half (not substantiated by the non-cog evidence) or a lagged substitution of educational supports at the household level following unanticipated benefit through the CAL program (substantiated). Total per-student program cost is between $7.9 and $8.8. That implies $5.6 to $6.3 per 0.10 SD gain in test scores, not social-emotional outcomes. Our team calculated cost effectiveness for social-emotional outcomes (specifically, liking school) using the same computations. A 0.10 SD gain in "liking school" costs $2.5 to $2.8.

[viii.] Mundy and coauthors (2014) examined the Child-to-Child School Readiness Program (CtCSRP) using a quasi-experimental design. CtCSRP involves 5 activity sets, each with 7 group sessions. The treatment entailed weekly or club meetings at the primary school, over the course of a 35- or 36-week program. Literacy activities involved "singing songs, learning poems, making up stories, creating books and reading together, learning sight vocabulary, exploring sound-symbol relationships, and drawing and talking about ideas" (page 21). Numeracy activities involved counting, estimating sizes and shapes, exploring quantities and dealing with everyday objects through math. Young children were 5–10 years old, Young Facilitators were in grades 5–8, and the relationships and activities they shared were supposed to produce basic pre-literacy and numeracy competencies. Young facilitators were selected based on strong interpersonal skills and their existing LN competencies. Young children in need of support were identified by school directors and community leaders. Teachers received training, and program materials included guides for teachers and young facilitators, as well as the Young Child's Early Learning Pack. According to the researchers' analysis, task persistence and confidence were both significantly higher in the CtCSRP group than control (effect sizes of 0.14 and 0.13, respectively) (using ANCOVA with child's age, household assets and maternal education as covariates). For young facilitators, qualitative data (including self-reports, interviews with key stakeholders and parent surveys) indicate that the program increased their confidence and positivity about school, and leadership and belonging in the community. In terms of cost-effectiveness: estimates from other reports vary from $53.73 per child per year in 2009 to $12.01 in 2012. For comparison, zero class (preschool) is $28.55, but does not consider the capital costs of school construction. Of note is that neither young learners nor young facilitators were selected at random. The quasi-experimental design randomly selected 14 schools from the pool of all UNICEF-supported schools already implementing CtCSRP in 3 regions of Ethiopia. Then, 10 nearby schools that were not implementing CtCSRP were identified as control schools, for a total of 415 treatment and 300 control young children. An ANCOVA that included several possible confounders (child's age, household assets and maternal education) allowed authors to argue that significant differences in cognitive and social-emotional domains between treatment school children and comparison school children were due to the CtCSRP. However, within treated schools, community and school leaders had chosen young learners in need of extra support and young facilitators with strong social skills and literacy/numeracy competencies, meaning that a selection bias was likely. Also, the program was originally designed to recruit young learners ages 4–6, but community and school leaders identified the population of ages 5–10 as being in higher need of the program. A major limitation of this study was selection bias.

[ix.] In this study, Borisova and coauthors (2017) examine the Early Literacy and Math at Home (ELM) program through a non-experimental design. ELM includes ten 2-hour training session for parents, book exchange program, community level monitoring, and monthly supervision and support from trained community facilitators. There was no randomly-assigned control group; instead, the alternative treatment is government ECCD Grade 0, which included pre-service teacher training, district-level monitoring, and monthly supervision and support. Evidence from this study suggests that children who have finished the ELM at Home treatment have a social-emotional development score that is not significantly different from children in the government Grade 0 ECCD. Even family demographic characteristics did not predict SEL outcomes. SE development was measured by IDELA (including items in conflict resolution, empathy, peer relations, self-awareness, and emotional awareness).

x. Cheung et al. (2018) used structural equation modelling to examine the relationships between attitudes and practices in numeracy. Children of parents who showed better numeracy attitudes (for example, sensed self-efficacy in helping their child, perceived numeracy as important, and valued play) and numeracy practices (e.g. frequency of engaging their child with a book that has numbers) had more motivation in developing their numeracy. This significant relationship was not reflected between parent attitudes/practices and child competence.

xi. In this report submitted to USAID, Bagby and coauthors (2019) used a randomized design to estimate the impacts of Espacios para Crecer (EPC), a half-day after-school program (3 hours per day, 5 days per week, for 18 months) to develop literacy. EpC seeks to develop reading skills through new books, reading materials, and instruction materials, as well as EpC facilitator training on novel teaching techniques, recreational activities for a positive environment, collaborative academic levelling through group math and reading exercises, and formative assessments to better understand and respond to children's needs. In terms of risk behaviors, the program appears not to have produced significant impacts on moral disengagement (beliefs that justify unethical or unlawful behaviors), impulsive risk-taking, attitudes toward delinquency, or bullying or peer victimization (measures were drawn from Esbensen and Osgood [1999] and CASEL [2013]). However, these figures were already relatively low. Researchers did not detect significant program impacts on social-emotional skills: social competence (ability to establish and maintain healthy relationships), self-esteem, and intercultural competence. Finally, researchers computed cost-effectiveness in terms of dollar spent per literacy skills gain. The program cost between $45 (if using administrative data that disaggregates actual costs) and $358 (if only using the first two cohorts, where set-up costs were high) per 0.1 standard deviation improvement in literacy. This is mid-to-high-range in terms of literacy program expense.

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APPENDIX G:

TEACHING AT THE RIGHT LEVEL

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This appendix focuses on information from the foundational literature on the impact that programs intended to teach students at the right level have on academic achievement, and provides additional information on the studies summarized in Chapter VI. The specific programs covered are tracking, remedial education, computer-assisted instruction, and academic tutoring.

1. Impacts of tracking on standard education outcomes

HICs. **The literature from HICs on tracking is not conclusive. Most literature finds no impact or small impacts on overall levels of achievement (Betts 2011).** Early literature on the impacts of tracking found that tracking hurt low-ability students (Oakes 1985), but this was followed shortly thereafter by reviews showing that comprehensive (school-wide) tracking had little impact on learning overall or on inequality (Slavin 1987). This early work was later criticized, however, for failing to adequately control for endogenous placement into higher- or lower-performing tracks (Betts 2000; Betts 2011).

Some evidence suggests that tracking can exacerbate inequality in educational outcomes, especially when tracking occurs in early grades (Hanushek and Woessmann 2006; Piopiunik 2014, Krause and Schuller 2014, van Elk et al. 2011). A large body of evidence finds that tracking at early ages exacerbates inequality by bolstering the impact students' socioeconomic background has on test scores (Woessmann 2009; Pekkarinen et al. 2009), educational attainment (Brunello and Checchi 2007; van Elk et al. 2011), and earnings (Brunello and Checchi 2007). The literature is predominantly from European countries in which tracking is at the school level (Betts 2011).

However, other studies from the U.S. have found that tracking may help lagging students catch up. Figlio and Page (2002) estimated the impact of tracking using instrumental variables and comparing students with comparable ability levels in tracked or non-tracked schools, and found that low-ability students had stronger academic performance in low-track schools. Experiments on within-school tracking in the US had mixed results (Betts 2011), and a recent study on tracking math classes in Chicago found that tracking combined with additional instruction time for lower-achieving students helped those students catch up (Cortes and Goodman 2014).

Ability-grouping on specific subjects shows promise if instruction is adapted to learners' needs. An early review of the literature noted that the subset of studies on within-class ability grouping all found positive impacts on average achievement (Slavin 1987). However, a more recent review found that newer studies did find evidence that within-class ability grouping improved overall learning (Deunk et al. 2015). Deunk et al. hypothesize that what made ability grouping effective was when teachers adapted instruction to learners' needs.

LMICs. **Evidence on the impact of tracking is mixed, but mostly positive in LMICs. However, few studies estimate impacts rigorously, and context varies widely across studies.** Three rigorous studies find that tracking can improve learning. Duflo, Dupas, and Kremer (2011) evaluated an RCT in Kenya implemented by an NGO and found that tracking students into classrooms by ability level significantly raised scores for all students. In an experiment in India intended to be feasible at scale, teaching students according to their level for one hour a day led to significant improvements in language test scores of 0.15 standard deviations (Banerjee et al. 2016). Evaluating school-level tracking in Romania, Pop-Eleches and Urquiola (2013) used a

regression discontinuity design to estimate the impact of being tracked into a higher-performing secondary school. They found that students attending a school with higher-performing peers perform better on a high-stakes standardized test than similar students attending a school with students with lower-performing peers.

Appendix Table G.1. Tracking Studies

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective	School violence	Violent crime	Non-violent crime
HICs													
Salchegger 2016	Descriptive	Explicit (by school) and implicit (within school) tracking (41 countries)	1-2 years	Varied	Age 15-16	-[i]							
Siu and Tse 2012	Descriptive with controls	Tracking by classroom (Hong Kong)	Simultaneous	Primary grades 3-6	Primary grades 3-6	NS[ii]							
LMICs													
Beg et al. 2019	RCT	Ability grouping for one hour per day (Ghana)	Same year	Primary grades 4-6	Primary grades 4-6					+[iii]			
Pop-Eleches and Urquiola 2013	Regression discontinuity	School-level tracking among high schools based on test scores (Romania)	1-4 years	14-15	15-18	-[iv]							
Feng and Wang 2018	Regression discontinuity	Test-based placement into advanced or standard English tracks at a Chinese university (China)	Immediate	13-20	13-20	+[v]							
LAC (no evidence located on impacts of tracking on violence, crime, and correlated outcomes)													

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] Salchegger identified the effect of having higher- or lower-ability peers for equal-ability students to identify a "big-fish-little-pond effect" and found that this effect was larger in countries with earlier tracking.

[ii] Students in higher-ability classes had stronger self-esteem and better coping mechanisms, but the effect of track disappeared when controlling for academic performance.

[iii] Teachers in schools assigned to an program that involved ability grouping students within their class were more likely to be in their classroom for the duration of the class and engaged with students.

[iv] Students placed in higher-track schools are more likely to feel marginalized and consider themselves to have lower ability than their peers.

[v] Placement in the advanced track led to higher academic self-concept, higher self-expectation, and stronger academic interests.

2. Impacts of remedial education on standard education outcomes

HICs. **Emerging evidence from rigorous studies in HICs suggests that remedial education can improve educational outcomes.** A systematic review of 93 evaluations on the impact of summer school on academic achievement found that summer school, which is typically remedial in nature, increased academic achievement by 0.25 standard deviations on average. Two recent rigorous evaluations of the impact of summer school also found learning impacts. As discussed in the tracking section, Cortes and Goodman (2014) found that a policy that combined tracking with remedial education by requiring Chicago high school students with low achievement in math to spend twice as much time on math in ninth grade improved learning for those students. In a second study using data from Chicago Public Schools, Jacob and Lefgren (2006) used a regression discontinuity design and found that a policy that required students finishing grades 3 and 6 with standardized test scores below a cutoff to enroll in summer school and, if failing to pass the cutoff score after summer school, repeat the grade boosted academic achievement for third-grade students one and two years later, but had no benefit for sixth-grade students.

LMICs. **Consistent with findings on remedial education in HICs, recent RCTs from LMICs show that remedial education can be a low-cost, feasible way to generate large learning gains for lagging students**. Whereas most of the literature from HICs on remedial education relies on quasi- and non-experimental studies, the literature from LMICs includes several rigorous RCTs that suggest that remedial education could be a promising path toward improving learning outcomes. Three RCTs in India found large learning impacts from remedial education. Banerjee et al. (2007) found that 2-hour group lessons conducted during the school day by community volunteers with minimal training (balsakhis) increased test scores in treated schools by 0.28 standard deviations, driven by lower-achieving students. Test scores increased by twice as much (0.61-0.70 standard deviations) for students who participated in volunteer-led intensive learning sessions during 30 days during the school year (during the school day) and 10 days of summer vacation (Banerjee et al. 2010). Another RCT from India found results of a similar magnitude from providing remedial instruction for two hours a day after school in primary schools (Lakshminarayana 2013). In an example from South Africa, we identified one RCT that found remedial education to be ineffective (Fleisch et al. 2017), but authors suggest that even the curriculum for the remedial education program may have been too advanced for the lagging students recruited for the program, further indicating the potential importance of making remedial education available.

LAC. **As with from other parts of the world, emerging evidence from LAC suggests that remedial education can improve learning outcomes.** In Peru, Saavedra et al. (2019) found that remedial science lessons offered outside school time for students in the lower half of their school's science distribution improved test scores in science.

Appendix Table G.2. Remedial education

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
				Program	Outcome								
HICs													
National Council on Crime and Delinquency 2009	Correlation	Resettlement support for young offenders including remedial education and intensive vocational training (US)	Not described	Youth (not described specifically)	Youth (not described specifically)					+[i]			
LMICs													
UNICEF 2015	Comparison group design	Counseling and remedial education for Palestinian youth (Palestine)	End of 3-year program	Age 9-21	Age 12-21 (mostly 13-17)	+[ii]	+		+				
LAC													
Guerra et al. 2014	RCT and PSM	Remedial education program to prepare out of school youth to return to school (Jamaica)	Two samples: 1) currently enrolled 2) youth who completed the program in the last 5 years	Ages 14-17	Ages 14-22	+[iii]							+

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] Participants had reduced substance abuse, increased engagement with education and employment, and suitable housing.

[ii] Authors found that participants had an improved ability to listen and moderate feelings, fewer negative feelings toward their families, more interaction with their neighborhoods, and experienced lower levels of human insecurity.

[iii] Authors found that the program significantly reduced aggressive behavior for both samples and reduced the propensity for aggressive behavior in the graduate sample (the program did not have a significant impact on propensity for aggressive behavior for currently enrolled participants).

3. Impacts of computer-aided instruction on standard education outcomes

HICs. **Research in HICs has shown that computer-aided instruction can improve learning outcomes, but evidence is mixed.** A recent meta-analysis evaluated the impacts of software that provides feedback on students' work and found wide-ranging impacts with effect sizes from -0.78 to 2.29 standard deviations (Van der Kleij et al. 2015). In an experimental evaluation of ten software packages for math and reading, Campuzano et al. (2009) found that after two years, one of the software packages evaluated significantly improved student test scores, but nine did not.

CAI's impacts on learning depend on software characteristics. The review by Van der Kliej et al. (2015) assessed impacts of computer-assisted instruction by feedback type. The most effective programs delivered "elaborated feedback," or, feedback with explanations. This was more effective than either identifying incorrect answers or showing the correct answer. In their systematic review of computerized math instruction, Cheung and Slavin (2013) found that impacts were largest when offered in "medium intensity" compared to either low- or high-intensity instruction, that computer programs that were offered in addition to class time were more effective than those that replaced class time, and that computer instruction had larger impacts for higher socioeconomic status students. An experimental evaluation, including students in grades 3-6, found impacts on tests linked to the software, but not on more general tests of similar material, revealing how some software can cultivate narrowly defined skills (Rouse and Krueger 2004).

Impacts also depend on the context in which CAI is implemented. In a student-level RCT conducted in three U.S. states, Barrow et al. (2009) found that a software that taught pre-algebra and algebra skills significantly improved students' test scores. The authors argued that the software's individualized instruction may have been key to its effectiveness because the students who benefited most from the software were those in large, heterogeneous classes (in which it is more challenging for teachers to teach to students' levels) and students with high rates of absenteeism (who are likely to fall behind after missing material on days they are absent).

Improving general access to computers does not usually lead to learning gains. Several studies evaluating the impact of expanded access to computers at home or in schools found no learning impacts. Angrist and Lavy (2002) evaluated the impact of installing computers in elementary and middle schools in Israel and found that providing computers increased computer use, but did not lead to learning gains. Similarly, Vigdor et al. (2014) find that the introduction of home computers has negative impacts on student test scores in North Carolina.

LMICs. **In most studies, CAI has had significant positive impacts on learning outcomes in LMICs.** Damon et al. (2016) reviewed the evidence on the impact of CAI on test scores and time in school. They found that out of 21 separate estimates of the impacts of CAI from 10 RCTs and one non-experimental evaluation from LMICs, 13 estimates were positive and significant, 4 were positive by not significant, and 4 were negative and significant (though 3 of those were from one non-experimental study). In one example of an effective CAI program, Banerjee et al. (2007) found that fourth-grade students in India who had access to a computer-assisted math program with programs whose difficulty level adapted based on students' ability led to learning gains of 0.48 standard deviations. One year later, impacts were smaller, but still statistically

significant. In another experiment in India (Muralidharan et al. 2019), researchers found that middle schoolers who had access to CAI after school for 4.5 months had significantly higher scores in math (0.37 standard deviations) and Hindi (0.23 standard deviations).

While targeted CAI programs have shown positive impacts on test scores, programs in LMICs to expand access to computers in general have not (similar to what was described for HICs). Cristia et al. (2017) found that the large-scale roll-out of the One Laptop Per Child (OLPC) program in Peru did not improve learning outcomes. Malamud and Pop-Eleches evaluated the impact of a program that expanded access to home computers in Romania and found that receiving a voucher to buy a home computer led to improved computer skills, but lower grades in school (2011). Software with targeted learning goals that adapts to students' level appears most promising.

LAC. **Three RCTs from LAC show both the potential for CAI and for computer-based programs that did not lead to learning impacts.** Araya et al. (2019) evaluated the impacts of a computer-assisted instruction program for low-performing primary students in Chile. Students used the software in two sessions per week for eight months. The program boosted math learning by 0.27 standard deviations, but had no significant impact on language. Two other randomized evaluations of computer-based programs did not find impacts on learning. In the case of the rollout of the OLPC program in Peru (Cristia et al. 2017), the authors explained that the introduction of the laptops did not modify instruction and that students spent most of their laptop time on activities that were unlikely to lead to learning impacts on their own, such as word processing and the calculator applications. Barrera-Osorio and Linden (2009) evaluated an program that distributed refurbished computers to primary and secondary school students to support in language instruction. The authors found little impact on student test scores, which they believe to be because teachers did not incorporate the computers into their instruction, similar to the OLPC experience in Peru.

Appendix Table G.3. Computer-assisted instruction (CAI) studies

| Abridged citation | Research design | Program and description | Outcome follow-up period | Age range (years) | | Correlated outcomes | | | | | Violence and crime | | |
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
HICs (no evidence located on impacts of school infrastructure and security measures on violence, crime, and correlated outcomes)													
LMICs (no evidence located on impacts of school infrastructure and security measures on violence, crime, and correlated outcomes)													
LAC													
Araya et al. 2019	RCT	Twice-weekly sessions with a math education software that encouraged competition among students as a motivator	Same school year	9-10 years old	9-10 years old	Mixed[i]		-					

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] Authors found a positive impact on students' growth mindset (they were more likely to believe that people could increase intelligence through hard work), but also increased math anxiety and decreased students' interest in working in teams. The program had no impact on intrinsic motivation in math or math self-efficacy. This program may have had a negative impact on the school environment by increasing competitiveness among students.

4. Impacts of academic tutoring on standard education outcomes

The evidence for academic tutoring programs, which are explicitly designed to improve student learning was somewhat mixed. Although most evidence we found suggests that tutoring can have positive impacts on reading and writing achievement, most of the evidence for math achievement and school attendance suggests that tutoring is likely to have no significant impact.

We found a strong evidence base of benefits of PAL programs for academic outcomes, with moderate evidence of positive impacts of PAL programs on risk and protective behaviors and social-emotional skills but little or no evidence of the impact of PAL programs on outcomes correlated with outcomes other than risk and protective behaviors. Our search did not produce relevant studies of violence, crime, and correlated outcomes from LMICs and LAC, so the evidence base relies entirely on evaluations of academic tutoring programs in HICs.

HICs. **We found strong evidence from HICs that academic tutoring can improve academic achievement, particularly tutoring provided by adult volunteers, but evidence of the impact of tutoring provided by teachers or other program staff is relatively weak.** A meta-analysis of 23 experimental and non-experimental studies conducted by Cohen et al. (1982) found modest positive impacts of supplemental tutoring on the academic achievement of youth receiving school-based tutoring (mean effect size of 0.31). The authors also estimated positive impacts of tutoring provided by both trained and untrained tutors, as well as tutoring provided by both peers and older tutors. However, 29 of the 52 studies used in those sub-group analyses evaluated tutoring programs that substituted for normal class time, so we cannot be certain that focusing on tutoring programs provided outside of school time alone (the focus of this review) would produce similar results by training and age.

Some of the strongest evidence comes from a more recent meta-analysis conducted by Ritter et al. (2009) of 21 experimental studies published between 1985 and 2008, which found that regular tutoring of elementary and middle school students by adult volunteers in predominantly English-speaking countries improved overall reading ability, on average.[15] The authors also found a positive impact on writing ability (across 6 studies) and on mathematics ability (across 5 studies), although the impact on math was not statistically significant. Similarly, a review of studies examining out of school activities conducted by the What Works Clearinghouse identified three experimental studies of one-on-one tutoring conducted by volunteers that found evidence of improvements in reading, spelling, and literacy, as well as one less rigorous quasi-experimental study that found no evidence of impacts on state achievement tests (Beckett et al. 2009).

A systematic review conducted by Neild et al. (2019) identified 6 quasi-experimental evaluations of the impact of one-on-one academic tutoring and support programs on reading and/or math achievement. Most of these programs (4 of 6) used teachers and program staff to provide tutoring, and the estimated impacts were mixed for both reading and math. (The other two studies did not specify tutors' background and found no impacts on reading.) However, the quasi-experimental design of the evaluations suggests that more rigorous evaluations are needed

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[15] The authors also found improvements in measures of global reading (across 13 studies), reading letters and words (across 15 studies), and reading oral fluency (across 12 studies). They did not find a statistically significant improvement in reading comprehension (across 8 studies).

before drawing strong conclusions about the efficacy of teacher- or staff-based tutoring. The reviewers also found mixed results from an additional 16 studies that evaluated one-on-one tutoring programs paired with group tutoring (most of which found no significant impacts), but the combination of both individual and group tutoring makes it impossible to determine the specific role of one-on-one tutoring in those impacts.

LMICs/LAC. **The evidence base from LMICs and LAC of the impact of tutoring on academic outcomes is smaller but also suggests positive impacts. Banerjee et al. (2007) conducted an experimental evaluation of a tutoring program in India and found evidence that the program improved combined test scores for literacy and numeracy.** We also identified a second study, which evaluated the USAID School Dropout Prevention Pilot in Tajikistan (see Chapter XI, Dropout and Expulsion Prevention for more details) and found evidence of improvements in school attendance and math performance but no improvements in school dropout, language performance, or grade progression (Creative Associates International 2015). However, the tutoring activity was paired with an early warning system to identify at-risk youth and other after-school activities like sports, games, and recreational reading, so we cannot identify the impact of the tutoring activities alone.

A third study conducted by Cabezas et al. (2011), which used an experimental design to evaluate a three month college-student volunteer tutoring program for fourth grade students in Chile that focused on improving reading outcomes found no impacts on multiple measures of reading ability but some evidence of positive impacts among participants in poor-performing schools in "areas in which the program was implemented well". However, these findings have limited value to this review because the program conducted tutoring with small groups of students (5 to 6 students) instead of with individual students.

We also found moderate evidence that PAL programs in HICs can improve academic outcomes, but the small evidence base from LMICs suggests little to no impacts. A meta-analysis conducted by Rohrbeck et al. (2003) identified 90 experimental or quasi-experimental studies of PAL programs and found that PAL programs improved a large number of academic outcomes, including reading, math, social studies, science, spelling, writing, language, and literacy. [16] These results were particularly strong among younger students, students in urban areas, minority students, and students from low-income households. However, a meta-analysis of 6 studies evaluating PAL programs in LMICs (4 experimental and 2 quasi-experimental) conducted by Spier et al. (2016) found no significant impacts of the programs on literacy or reading in both one and two year follow-ups. They also found positive but small impacts on writing in the first year post-program, but they found no impacts in the second year.

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[16] The authors do not provide the geographic locations of the studies included in the meta-analyses, but they are all likely HICs. They also do not state how many of the 90 studies use experimental versus quasi-experimental designs.

Appendix Table G.4. Academic tutoring (AT) studies

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
HICs													
Ginsburg-Block et al. 2006	Meta-analysis of 36 experimental and quasi-experimental evaluations	Peer-assisted learning (PAL) programs in HICs[i]	Varied	Primary grades 1-6	Varied	+[ii]				+			
Cook et al. 2015[iii]	RCT	One-year PAL program (USA)	At end of program	Grades 9 and 10	End of year, grades 9 and 10	NS			+				
Leung et al. 2013	RCT	Nine-week PAL program (Hong Kong)	At end of program	12–14 years	12–14 years	NS[iv]	NS	NS					
LMICs													
Creative Associates International 2015	RCT	After-school tutoring in (Tajikistan)	At end of program[v]	9th grade students (approximately 14–15 years)	Approximately 15 years	Mixed[vi]							
LAC													
Cabezas et al. 2011	RCT	Volunteer university students provide small-group tutoring for 4th grade students (Chile)	At end of program	9–10 years	9–10 years	NS[vii]							

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] The study does not explicitly state that the review was limited to HICs, but the study does not mention countries that are not HICs.

[ii] A meta-analysis of 36 experimental and quasi-experimental studies found small to moderate effects of PAL programs on social-emotional skills and on risk and protective behaviors.

[iii] In this experimental evaluation, Chicago high school students who received 5 hours per week of tutoring had fewer arrests for violent crimes but there was no significant impact on disciplinary events or days absent from school.

[iv] In their experimental evaluation of a PAL program in Hong Kong, Leung et al. found no significant impact of PAL on social-emotional skills, family environment, or school environment.

[v] The study states that the program targeted 9th-grade students, but does not state their ages. Follow-up data collection took place "after the program," but it is not clear how long after the program data collection took place.

[vi] The evaluation found mixed impacts on students' attitudes toward school and behavior in school. However, impact estimates do not isolate the impact of tutoring because the program paired tutoring with other activities.

[vii] The evaluation found no significant impacts on participants' self-perception as readers.

APPENDIX H:

CLASSROOM-BASED SEL PROGRAMMING

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This appendix focuses on information from the foundational literature on the impact of classroom-based SEL programming on academic achievement and provides additional information on the studies summarized in Chapter VII.

Appendix Table H.1. Classroom-based SEL Programming

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
HICs													
Wilson and Lipsey 2007	Meta-analysis[a]	Multiple Programs (Varies)	Varies	K-12 (age unclear, albeit seems to be younger than 6 years – 14 or more years)	Varies	+				+			
Durlak et al. 2011	Meta-analysis	Multiple Programs (Varies)	Short, medium, long term (less than 24 weeks, studies with longer follow-ups had a max follow up period of 92 weeks)	K-12 (age unspecified)	Varies	+				+			
Taylor et al. 2017	Meta-analysis	Multiple Programs (Varies)	Short, medium, long term (at-least 6 months 24-780 weeks)	K-12 (5-18 years)	Varies	+				+			
Garrard and Lipsey 2007	Meta-analysis	Multiple Programs (United States)	Varies	K-12 (age 5-17)	Varies					+			
Hawkins et al. 1999[i] (Early Adulthood Outcomes)	Longitudinal, RCT	Seattle Social Development Project (SSDP) (United States)	Long term (multiple years)	Grade 1	Age 18			+		Mixed			Mixed

| Abridged citation | Research design | Program and description | Outcome follow-up period | Age range (years) | | Correlated outcomes | | | | | Violence and crime | | |
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
Algan et al. 2014[ii]	Longitudinal, RCT	Montreal Longitudinal Experimental Study (MLES) Program (Canada)	Long term (multiple years)	Grade 2 (age 7)	Multiple Measures (ages 10-13, 14-17, 18-27)	Mixed							+
Lewis et al. 2013, Lewis et al. 2016[iii] (Results reflect findings reported in Lewis et al. 2013)	RCT	Positive Action (United States)	Long term (6 years of observation and program delivery)	Grade 3 (unspecified age)	Grade 8 (unspecified age)	+				+	+		
Beets et al. 2009[iv]	RCT		Long term (5 year trial)	Grade 1 or 2 (unspecified age)	Grade 5 (10-11 years)					+	+		
Holsen et al. 2008	Correlational	Second Step (Norway, United States)	Short term (1 year)	Grades 5-7 (10-12 years)		+				NS			
Espelage et al. 2013[v]	RCT		Short term (1 year)	Grade 6 (11 years)	Grade 7 (unspecified age)						Mixed		
Upshur et al. 2017[vi]	RCT	Second Step Early Learning Curriculum (United States)	Short term (2 Years)	Pre-primary (4 years)	Unspecified	+							
Jones et al. 2011	RCT	Reading, Writing, Respect, and Resolution	Medium term (2 years of observation and assessment)	Grade 3 (8 years)	Grade 4 (unspecified)	+				+			

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
		(4Rs)vii (United States)											
Botvin et al. 2006viii	RCT	Life Skills Training (United States)	Short term (3 years)	Grade 6 (age unspecified)	Unspecified						Mixed		+
Botvin and Griffin 2004	Multiple		Short, medium, long term (post program, 1-6.5 years)	Multiple, 6 through 9th grades	Unspecified					+			
Heller et al. 2017ix	RCT	Becoming a Man (United States)	Short term (post-program and 1 year)	Grades 7-10 (average age 16)	Unspecified							Mixed	Mixed
Domitrovich et al. 2007	RCT	Promoting Alternative Thinking Strategies (PATHs) (United States)	Short term (1 school year)	Preprimary (3-4 years)	Unspecified	Mixed				NS			
OPRE 2014x	RCT		Short term (1 school year)	Preprimary (4 years)	Unspecified (5 years)	+		Mixed		Mixed			
Fishbein et al. 2016xi	RCT		Short term (6 Months-1 Year)	Kindergarten (unspecified)	Unspecified	Mixed				Mixed			
Faria et al. 2013	Correlational		Short term (2 years)	Pre-K-5 (various ages)	Unspecified	+				-			
Humphrey et al. 2010	Quasi-experimental	Social and Emotional Aspects of Learning Program (SEAL) (England)xiii	Short term (2 school years)	Grade 7	Unspecified	NS				NS			

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
Bettinger et al. 2018[xiii]	RCT	Web-based program designed to promote a growth mindset- i.e., manipulate students' beliefs in their ability to learn. (Norway)	Short term (in final session of the program)	First year high school students (various ages)	Unspecified	+							
Barnett et al. 2008	RCT	Tools of the Mind[xiv] (United States)	Short term (one school year)	Preprimary (3, 4 years)	Unspecified			+		+			
Farran et al. 2015	RCT		Short term (2 school years)	Preprimary (3 years)	Unspecified	NS							
Baron et al. 2017	Systematic Review		Short term	Preprimary	Unspecified	NS							
Webster-Stratton et al. 2008[xv]	RCT	Incredible Years Teacher and Child Training Programs (United States)	Short term (1 year)	Pre-primary (5 years)	Unspecified	Mixed		+		NS			
Schick and Cierpka 2005[xvi]	RCT	Faustlos (Germany)	Short term (1 year)	Grades 1-3 (unspecified)	Unspecified (Ages 5-8)	NS				NS			
LMICs													
Dang et al. 2017[xvii]	RCT	RECAP-VN (Vietnam)	Short term (one academic year, noncognitive skills assessed mid-year)	2nd grade (unspecified age)	Unspecified	Mixed							

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
Arda and Ocak 2012[xviii]	RCT	PATHS (see description above) (Turkey)	Short term (post-program, unspecified time)	Preprimary (6 years)	Unspecified	Mixed				+			
Bilir et al. 2017[xix]	Correlational		Short term (0 months post-program)	Preprimary (48-72 months)	Unspecified	+		Mixed					
Alan et al. 2016[xx]	RCT	Grit program (Turkey)	Short term (less than 6 months)	4th grade (ages 8-10)	Unspecified	+							
Stefan and Miclea (2012)[xxi]	RCT	Classroom-based behavioral management curriculum including teacher and parent training. (Romania)	Short term (less than 6 months)	Preprimary (ages 3-4)	Unspecified	Mixed				+			
Leventhal et al. (2015)[xxii]	RCT	Girls First Resilience Curriculum (India)	Short term (less than 6 months)	Grades 7-8 (age 13)	Unspecified	+							
LAC													
Berger, C. et al. 2014[xxiii]	RCT	Bienestar y Aprendizaje Socioemocional (BASE) (Chile)	Short term (post-program, unspecified time)	3rd-5th grade (8-10 years)	Unspecified	Mixed		Mixed					
Baker-Henningham et al. 2009[xxiv]	RCT	Incredible Years Teacher and Child Training (see above) (Jamaica)	Short term (post program, unspecified)	Preprimary (unspecified age)	Unspecified			Mixed		+			

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
Araya et al. 2013[xxv]	RCT	Yo Pienso, Siento, Actuo (Chile)	Short term (Less than 6 months and 1 year)	Secondary	Unspecified	NS							
Waldemar et al. 2016[xxvi]	Quasi-experimental	MSEL (Brazil)	Short term (post-program, unspecified time)	5th grade (10-14 years)	Unspecified	+				+			
Chaux, E. et al. 2017[xxvii]	Correlational	Aulas de Paz (Colombia)	Short term (exact time of first posttest unspecified (end of academic year of program), second posttest at end of following academic year.	2nd-5th grade (7-10 years, 5th graders' age unspecified)	Unspecified	Mixed				+	Mixed		
Clinton et al. 2015[xxviii]	Correlational	Segundo Paso (Guatemala)	Short term (post program, unspecified)	Pre-primary (3-6 years)	Unspecified	+							

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[a]All meta-analyses discussed in this chapter focused on evaluations of programs advancing one or more social emotional skill, with no preference for particular skills. Durlak et al. (2011) and Taylor et al. (2017) limit their assessments to universal SEL programs. These studies only consider evaluations that had a control group; the proportion randomized control trials included in each meta-analysis is 60%, 47%, 63%, respectably. Finally, all analyses assess research conducted over diverse grade levels and distinct follow-up periods. 8% of Wilson and Lipsey (2007)'s are focused on preprimary aged children, 43% on children ages 6-10, 29% on ages 11-13, remaining studies engage children 14 years and up. The authors do not specify the follow-up periods of their studies, hence we assume they include long and Short term follow-ups. Durlak et al. (2011) include studies of students attending grades K-5 (56%), 6-8 (31%), and 9-12 (13%). 15% of the evaluations included in this study had follow-up periods of at least six months. Finally, Taylor et al.'s (2017) studies included programs focused on grades K-5 (38%), 6-8 (45%), and 9-12 (13%). All of these studies have a minimum follow-up period of six months (median=52 weeks). Finally, all of these meta-analyses

present sub-group analyses, though these efforts rely on small sample size, have, missing data requiring imputation (e.g., missing data on students' demographic profiles), and other limitations.

[i.]SSDP provided a social competence promotion curriculum, teacher training in classroom management and instructional methods, and parental training designed to reinforce prosocial behavior and related competencies. Students also received social skills training using Interpersonal Cognitive Problem Solving Curricula. Results reported correspond to students who received SSDP for a 6 year period and were assessed over multiple years (to early adulthood). Hawkins et al. (1999) examine the following outcomes: school bonding (school commitment and attachment), school success/failure (school achievement, grade point average, repeated a grade, dropped out of schools , official achievement test), school misbehavior (cheated on tests, skipped school, sent from class for misbehavior, official disciplinary action, others), crime (lifetime violence, lifetime nonviolent crime, lifetime arrests, lifetime court charges), substance use (cigarette, alcohol, marijuana, drugs), sexual activity (sexually active, multiple partners, been pregnant). Measurement relies on student self-reports and/or administrative records.

[ii.]The MLES program was a two-year program (from grades 2-3) focused impulse control and emotional regulation. The program used social-behavioral training (peer groups comprised of students with low and high social skills), verbal instructions, coaching, behavior modeling and rehearsal and other tools to build skills for reacting to teasing, asking others to play, analyzing feelings, solving social problems among others. It also informed teachers and parents of students' progress through one page letters; letters encouraged parents and teachers to praise students for new skills. The MLES program was implemented in school by facilitators with special training. This study tracks students through early adulthood and yields positive findings on various measures of social-emotional skills (internalized and externalized self-control, trust, friends, self-esteem), education outcomes (held back, high school diploma, special education), crime (number of crimes, non-violent crimes, violent crime) and other indicators. These measures are collected from various sources including surveys, self-reports, and administrative records.

[iii.]Positive Action provides K-12 curricula promoting positive self-concept, responsible self-management, getting along with others, among others alongside teacher, parent, and counselor training and school-wide climate development activities. Lewis et al.'s studies followed grade 3 students through 6 years of program implementation. Data collection included student, parent surveys, and administrative data on disciplinary referrals and suspensions. Key outcomes include: bullying (teased, shoved, excluded others), disruptive behaviors (noises, took some without permission, bad behavior), violence (carried a knife, threated someone, and stabbed someone).

[iv.]This evaluation of Positive Action followed students present in Positive Action schools from grades 1,2- grade 5. It measured changes in substance abuse (alcohol, tobacco), violent behaviors (carried a knife, threatened someone), and voluntary sexual activity using teacher and student reports for the latter measures and student reports on sexual activity.

[v.]Second Step provides curricula centered on content related to bullying, problem solving skills, emotional management and empathy to grade six students. All lessons were delivered by local teachers. The authors measure the effects of a one year Second Step program over: bullying perpetration and peer victimization (name calling, social exclusion, or beating by self or others), physical aggression (fighting), homophobic perpetration and victimization (name calling by self or others).

[vi.]The Second Step Early Leaning Curriculum is a teacher-led SEL curricula. The curricula emphasizing the following social-emotional skills: empathy, skills for learning (listening, focusing, following directions, others), emotional management (understanding feelings), friendship and problem solving skills (how to join in play, invite friends to play, others). Teachers in program classroom received training on implementation, strategies for reinforcing skills, managing behavior, helping children pay attention, integrating social-emotional skill building throughout the day, among others. Classrooms involved in this study participated in the programs for two years and were assessed post-program. The author's primary measure of impact on social-emotional skills is based on two measures of such skills: an emotional matching scale (measures ability to recognize emotions) and the "Challenging Situations Task: which assesses how children integrate social-emotional skills into their responses to challenging social situations.

[vii.]4Rs is a curricular program that combines social emotional learning with the language arts education. The program also provides teacher training on program implementation.

[viii.]LST seeks to address factors correlated to drug use and violence. It is designed to strengthen several non cognitive skills -- e.g., decision-making and problem solving, managing stress, assertiveness -- through curricula focused on interactive teaching, group discussions, demonstration and other reinforcement techniques LST. LST also delivers complementary information about substance abuse and violence. All LST activities are led by local teachers. This study's post-program outcome measures were collected using self-reported questionnaires, they include: verbal aggression (student reported name calling, yelling cursing, saying mean things, others), physical aggression (shoved, tripped, or hit someone in past month), fighting (picked a fight, hit someone and seriously hurt them, beat someone, group fight), delinquency (destroyed property, threw objects at others, thievery, vandalism).

[ix.]An important premise of BAM helping youth "think about their thinking" in response to in high stake situations can lead to positive behavioral change (Beck 2011 cited in Heller et al. 2017, 7). It does this by providing cognitive behavioral therapy to male students in high-need schools during regular school hours. Heller et al.'s (2017) outcome measures include: school engagement (index of GPA, attendance, enrollment status at end of school year), electronic arrest records, and

administrative police records. They measure the impacts of a one and two year program. One and two years post program (one year program only). We consider all arrest indicators except "Violent Arrests" to be non-violent crime.

[x.]PATHS (Promoting Alternative Thinking Strategies) seeks to bolster children's knowledge of emotions, self-control strategies, attention and communication strategies, and problem-solving skills. It is implemented by teachers trained on implementation and extension activities that weaves PATHS principles into classroom activities. Domitrovich et al. (2007) assess impact over a single school year. Their primary outcome indicators are: social-emotional skills (recognition of emotional concepts, emotional expression knowledge, affective perspective-taking, inhibitory control, others) measured via direct child assessments, teacher reported measures of social skills (cooperative, self-control, follows directions) and problem behavior (tantrums, will not share, physically aggressive), and parent reported Head Start Competence Scale, which provides an overall measure of social-emotional skills. The authors' findings indicate that PATHs generated significant improvements in 3 of 4 social-emotional skill measures captured by direct child assessments, on teacher reported measures of social skills, one of two teacher-reported ratings of behaviors and on parent reported social skills. No effects were found for remaining outcomes or on parental measures of behavior. The OPRE evaluation of a one year PATHS evaluation conducted in the context of Head Start CARES used independent assessors and parent and teacher reports to measure the following outcomes related to social-emotional skills and protective/risky behaviors: behavior problems (acting out or aggressive behavior, anxiety, others), emotion knowledge (can recognize emotions), social problem solving skills (ability to cooperate with others, assets themselves to solve conflicts, regulate behaviors), and social behaviors (peer interaction, respect for others, resolving peer conflicts). In addition, the authors use direct assessments and parent and teacher reports to observe effects two cognitive and educational outcomes: executive function (ability to shift between pieces of information, ability to emit planned response, working memory) and learning behaviors (ability to engage learning tasks of school).

[xi.]This installment of PATHS was implemented in kindergartens serving low income families in Baltimore. It offered a Short term program (44 bi-weekly lessons) centered on curricula delivered by teachers trained on curricular implementation and strategies for reinforcing skills and behaviors taught by PATHS through practice and application to real-world situations. Teachers also benefited from weekly consultations during the implementation process. PATHS lessons prioritized: understanding and communicating emotions, positive social behaviors, and management and problem solving. One year post-program, Fishbein et al., use teacher reports to measure effects on social competence (including prosocial behavior and emotional regulation), behaviors (aggression, internalizing behaviors, and other problem behaviors), ADHD, student teacher relationships, and academic competence post-program. They also examine the quality of relationships between peers using teacher and peer reports and use tasks and tests to measure cognitive skills (e.g., intelligence, motor impulsivity, delay of gratification, behavioral inhibition).

[xii.]Seal promotes a whole-school approach to improving social emotional skills. SEAL does not provide a structured program package, rather it provides a framework for school improvement- social emotional skill development is a programmatic priority.

[xiii.]Betting et al. (2018) implement a web-based, "growth mindset" program designed to engage students' beliefs of their own learning abilities and potential to benefit from effort. They define the "growth mindset" in opposition to the "fixed mindset" which contends that intelligence and talent are fixed. The program delivered 3, 45 min sessions that taught students about the brain's potential to grow and change, strong brains' capacity to lead to improvements in wellbeing, and other messages. These sessions also provided activities designed to help students engage with this information. Immediately after the program, the authors used a student questionnaire to measure effects on "growth mindset." They use students' decisions to engage less hard, hard, or very hard math questions as a behavioral measure of "growth mindset."

[xiv.]Tools of the Mind is a play-based curriculum with an emphasis on self-regulation and emergent literacy. It also emphasizes teacher's roles in children development. Hence, teacher training is an important part of program implementation. Implementing and evaluating the program over a single school year, Barnett et al. use observation to measure changes in classroom environment, tests measure effects on a number of cognitive skills related to reading, and a teacher questionnaire to measure problem behaviors. Farran et al., conduct a 2 year evaluation over two cohorts.

[xv.]This version of "Incredible Years" delivered teacher training and SEL curricula (Dinosaur School). Teacher training efforts included instruction on implementation but also instruction on improve classroom management, proactive teaching methods, increasing parental involvement, use of praise and encouragement, and related skills supporting social emotional development. The Dina Dinosaur Social Skills and Problem Solving Curricula promotes social competence, self-regulation, and appropriate school behavior. The curricula is co-implemented by teachers and certified research staff. The authors implemented the program over four years, 4 cohorts- their effect measures capture post-program impact. Their key outcome variables are based on independent classroom observations and include: social skills, student teacher relationships, and school readiness (comprised of measures of emotional self-regulation (concentration, controls temper, expresses feelings, others), social sills (being friendly, helping others, giving complements, others), and conduct problems (aggression, noncompliance, teasing, destructive behavior).

[xvi.]Schick and Cierpka evaluate the German version of the Second Step program for elementary schools. This installment of the program focuses on reducing aggression in children while noting that aggressive children tend to have deficits in empathy, impulse control, and anger management. The program's 51 lessons

focused on these skills and were implemented by teachers who completed a 1-day training course. The program was delivered and assessed in grades 1-3 and evaluated after one year of implementation using a pre-post design and randomly selected control group. The authors measure impact over several indicators of social-emotional skills (peer-acceptance, self-confidence, self-control) and aggressive behavior. They assess aggression separately for boys and girls.

[xvii.]RECAP-VN delivered SEL curricula focused on social skills and adaptive problem solving to all 2nd grade children in program classrooms. The program's ultimate goal was to improve mental health outcomes, it considered that improvements in social-emotional skills was an intermediate outcome facilitating this objective. Curricular content was delivered by local teachers who received training in implementation, consultation, and coaching by a RECAP consultant. Teacher training also included contents designed to increase teachers' mental health literacy, response to home and school environments, and classroom management skills. Relevant program outcomes are centered on student-reported measures of the social skills rating system which measures cooperation, assertion, self-control, empathy. Dang et al. measured these outcomes mid-way through the program's one year implementation period and measured mental health post-program.

[xviii.]Like its US counterpart, this installment of PATHs sought to develop self-control, capacity to recognize emotions, problem solving skills, and other noncognitive competencies. The program was delivered over 9 weeks via thematic lessons imparted by local teachers. Post-program, Arda and Ocak (2012) assess: teacher-reported measures of aggression/disruptive behavior, a general measure of social emotional competence, receptive emotion vocabulary, interpersonal relationships and emotional regulation. The authors also conducted observations aimed at assessing classroom atmosphere and teachers' behavior and management techniques.

[xix.]Bilir et al.'s PATHs program was implemented by teachers that had received PATHs at some time proximate to the evaluation. For the evaluation, they delivered 33 lessons focused on problem solving, awareness and communication, self-control and arousal behavior, positive self-concept and peer relations, and other noncognitive skills. The authors assessed noncognitive skills post-program using multiple measurement techniques, key outcomes include: the Head Start Competence Scale (summary measure of social emotional competence) and the Classroom Atmosphere Rating Scale (an observational measure of children's level of compliance, cooperation, involvement, problem solving, emotional expression, others).

[xx.]This grit program sought to expose students to a "worldview in which any one of them can set their goals in an area of interest and can work towards these goals by exerting effort." It does this while teaching positive interpretations of failure and other skills and topics designed to promote "grit," a social-emotional skill which emphasizes "perseverance on a productive task" (2, 4). This program was apparently designed by the researchers in consultation with an interdisciplinary teach of education psychologists, teachers, story writers, and media animation artists. I was delivered by local teachers, trained on its contents, during school hours assigned to extra-curricular activities. The authors use games and behaviors to assess program impact on measures relating to grit, including: probability of engaging in more difficult, more rewarding task (vs. an easier, less rewarding task), engagement task at the onset of failure, goal setting behavior.

[xxi.]Stefan and Miclea (2012) design and evaluate a multicomponent program that provided SEL curricula, teacher training focused on helping teachers deal with disruptive behaviors, and parent training on child development and behavioral management. The program ran for 15 weeks; the authors assess its results 3 and 7 months post-program. The authors measure program effects using tests and tasks that assess children's emotional and social skills (prosocial behavior, emotion expression, others) and internalizing problems. They observe these indicators overs students with diverse risk of emotional and social competency deficits. They assign students to risk groups using teacher ratings of these competencies (The researchers also collected parent ratings, but they discarded these ratings because they were very different from teachers' ratings).

[xxii.]The Girls First Resilience Curricula (RC) was developed by a US-based non-profit and piloted in various sites in India prior to its evaluation. The program aims to improve psychological and social wellbeing by providing 23 weekly, in-school peer support sessions. Sessions are led by women facilitators drawn from local communities. RC curricular content emphasizes skill building in emotional resilience (coping skills, adaptability, persistence), self-efficacy, and other social emotional skills. Shortly after implementation, the authors use self-reported questionnaires to measure program effect on social-emotional skills (emotional resilience, self-efficacy, others) and psychological well-being.

[xxiii.]Berger et al. (2011) designed BASE (Bienestar y Aprendizaje Socioemocional) paying particular attention to the relational aspects of school bonding—i.e., student-teacher, peer relationships, relationship with the self – while also considering how broader aspects of school climate, including infrastructure. BASE's SEL curriculum was delivered as an in-class workshop (implemented over a seven-month period) conducted by local teachers who received training and distance monitoring. BASE prioritized: positive self-concept, self-regulation, communication and social skills, among others. The authors use a randomized design to measure its effects on: an index of "social emotional wellbeing" measuring non cognitive skills development, self-esteem, perceptions of school climate (teachers, peers, school environment), social integration, and academic performance (grade point average). Post-program measures comparing treatment and control students' change over time suggest BASE improves teacher-reported measures of students' self-esteem, social integration, measures of school climate pertaining to teachers, and academic performance. It does not change student reported measures of general social-emotional well-being, self-esteem or perceptions of school climate related to peers and infrastructure.

[xxiv.]This program provided teacher training and SEL curricula co-implemented by teachers and trained. The authors tailored Incredible Years to the Jamaican context by adding additional examples and role-playing exercises to teacher training, simplifying handouts used to train teachers and adding contextually relevant items to training materials. They also observed teacher workshops and consultations with the aim of identifying further contextual modifications. Teachers in treatment schools received 7 days of training, once a month, throughout the school year; teachers in control schools received 2 days of training and limited teaching materials. Program teachers co-implemented (with program staff) 14 social emotional learning lessons based on the Dina Dinosaur Class Curriculum. Outcomes observed by the authors post program include: structured observations of teacher behavior (positive and negative teacher behaviors, promotion of social-emotional skills, others), observation-based ratings of appropriate child behavior (no aggressive behavior, disruption, fighting), student interest and enthusiasm, and classroom environment (teacher warmth, provides opportunities for children to share, others), and teacher satisfaction with the program.

[xxv.]Yo Pienso, Siento, Actuo provided grade 9 students with 13 weekly CBT sessions. Sessions dealt with restructuring, emotions, and problem-solving strategies. Sessions were delivered by young facilitators (psychologists, therapists, social workers). The authors measure program effects on mental health outcomes and problem-solving skills 3 months and one year after program completion.

[xxvi.]The SEL component of M-SEL emphasized the 5 noncognitive skills included in the CASEL framework (self-awareness, self-management, social awareness, relationship skills, responsible decision-making), it designed prioritizing SAFE practices. M-SEL curricular sessions were delivered in class hours by an external team of specialists, sessions ended with a mindfulness exercise (e.g., breath exercise, listening to the heart, others). The program consisted of 12, 1-hour sessions and was evaluated shortly after completion. The authors' outcome measures include measures of "mental health" (emotional skills, conduct problems, hyperactivity, inter-personal relationships and prosocial behavior), ADHD symptoms, and quality of life (relational, environmental, personal, overall quality of life). For this chapter we considered the emotional, interpersonal and prosocial components of mental health as noncognitive skills and the conduct component of mental health as behavior.

[xxvii.]Aulas de Paz is a multicomponent program that delivered classroom curriculum, a parenting component, and group sessions. The curricular component featured the delivery of SEL classes, implemented by local teachers who received training and coaching, focused on strengthening empathy, anger management, assertiveness, active listening, creative generation of options, consideration of consequences, critical thinking. The parent component featured workshops for parents of all participating classes prioritizing positive behavior management strategies and complementary home visits for the parents of aggressive children. The group component offered assigned aggressive and prosocial children into structured groups that conducted several extracurricular activities complementing the SEL curricula. The program was implemented for the duration of one school year and assessed by posttests conducted one and two years after program completion Program outcome measures include teacher reported measures of physical, verbal, or relational aggressive behavior, prosocial behavior and student reported measures of physical, verbal, and relational victimization and aggression, empathy, and assertiveness.

[xxviii.]In Guatemala, Segundo Paso delivered SEL curricula prioritizing empathy, emotion management, and problem resolution. Prior to implementing Segundo Paso in Guatemala, the authors validated their adaption of the program in Venezuela, using participatory methods that engaged Venezuelan pre-primary teachers and parents, and by conducting fidelity assessments (Clinton and Amesty 2010). Segundo Paso was implemented by local teachers who received training prior to implementation. Teachers in low SES schools implemented the program in Spanish; teachers in high SES schools delivered content in Spanish and English. The authors assess pre-post change in no cognitive skills using an instrument called the "Second Step Interview." This instrument uses semi-structured interviews and photo images to produce a general measure of no cognitive skills.

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APPENDIX I:

INFRASTRUCTURE

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This appendix provides information from the foundational literature on the impacts of infrastructure on academic achievement and provides additional information on the studies summarized in Chapter VIII in Table VII.2.

Impacts of infrastructure on standard education outcomes

HICs. **The existing research presents consistent evidence that Indoor Environmental Quality (IEQ) factors in school significantly influence student learning (World Bank 2019)**. Of these, lighting, air quality, acoustics, and temperature appear to be most critical for academic achievement (Earthman 2004; World Bank 2019). These findings are based on studies conducted in laboratory settings and from surveys of students in the classroom. Research shows that inadequate lighting produces eyestrains and headaches when students read; additional research links lighting to mood, which may consequently affect performance (Knez, 1995). Poor air quality, as measured by high CO_2 levels, has been shown to interrupt concentration in school and reduce performance in tests (Shaughnessy et al. 2006; Wargocki and Wyon 2007). Noisy environments caused by traffic or nearby events create a distraction that impinges on learning (Lukas et al. 1981) while good acoustics enables clear communication between teacher and students. Further studies demonstrate that students learn better in comfortable temperatures (Goodman et al. 2018; Haverinen-Shaughnessy et al. 2015). This body of evidence however is drawn mainly from countries in the OECD; it is unclear how these insights extend to developing countries with different climates and cultures.

LMICs and LAC. **In the developing world, the evidence base supporting the causal impact of school infrastructure characteristics on student learning and attainment is weak.** Summarizing results from over forty articles, focusing especially in Latin America, a review by Cuesta et al. 2015 found rather ambiguous results on which physical infrastructure investments pay off for schools. Examining studies in developing countries, the review found evidence that school libraries and the availability of toilet facilities leads to student learning, and limited evidence that improved roofs, walls, and buildings provide the same benefits. School libraries, science laboratories, and drinking water facilities also appear to have a positive effect on student enrollment, but the impacts of other school features on academic outcomes is inconclusive. For studies in the LAC region, a study in Jamaica demonstrates that desks, tables, and chairs enhance student learning, while a pair of studies in Brazil and Columbia show that libraries can convey positive impacts. In addition, the availability of electricity appears conducive for learning, as well as the presence of sanitation facilities. It is unclear however why effects could vary considerably by study or by region.

Appendix Table I.1. Infrastructure

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
HICs													
Vagi et al. 2018	Correlational	CPTED in schools (USA)	n/a*	12-14	12-14						+		
LMICs													
Berk-Seligson et al. 2014	Quasi-experimental	Central America Regional Security Initiative (CARSI) (Honduras)	2 years after baseline	4-18	4-18							+	+
UNICEF 2009b	Descriptive	Child Friendly Schools (Guyana, Nicaragua, Nigeria, Philippines, South Africa, Thailand)	Varied by country (3-11 years after implementation)*	Over 11 years	Over 11 years			+					
USAID 2014	Descriptive	Ghana Transition and Persistence Project (Ghana)	0 years at completion	16-18	16-18				+				
USAID 2006	Descriptive	Middle Basic Education Program (Senegal)	Midterm, 3 years after implementation	11-15	11-15			+					
LAC (no evidence located on impacts of school infrastructure on violence, crime, and correlated outcomes)													

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

*This study collected data at one point in time in schools to measure their adherence to CPTED principles. There was no specific program in schools.

APPENDIX J:

SECURITY MEASURES AND ZERO TOLERANCE POLICIES

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This appendix section provides information from the foundational literature on the impacts of security measures and zero tolerance policies on academic achievement and provides additional information on the studies summarized in Chapter IX in Tables IX.2 and IX.3.

1. Impacts of security measures on standard education outcomes

Evidence suggests that security guards and surveillance cameras may compromise the academic outcomes of students. Weisburst (2019) additionally finds that students of schools receiving federal grants for police in schools were less likely to graduate from high school or enroll in college. A different study by Tanner-Smith and Fisher (2016) uses national cross sectional data on students to conclude that visible security measures did not convey any consistent benefits on academic outcomes; rather, findings revealed that there were modest detrimental impacts in heavy surveillance schools for students with disadvantaged backgrounds in particular.

Appendix Table J.1. Security Measures

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Non-cognitive skills	Family Environmental	School Environmental	Community Environmental	Risk and Protective Behaviors	School violence	Violent crime	Non-violent crime
HICs													
Hankin et al. 2011	Literature review of correlational studies	Metal detectors in schools (USA)	n/a[i]	12-19	12-19						Mixed[ii]		
NASP 2018	Literature review	Metal detectors, security cameras, and police in schools (USA)	Not reported[iii]	Not reported	Not reported			-			-		
NREPP 2015	Literature review	Police in schools (USA)	Not reported[iv]	Not reported	Not reported								-[v]
Esbensen et al. 2012a	RCT	Gang resistance and education program (GREAT)	1 year	11-13	12-14	+				+		+	
Esbensen et al. 2012b	RCT	by law enforcement agents (USA)	4 years	11-13	15-17	+				+		+	
Weisburst 2009	Difference-in-difference	Funding for police in schools (USA)	n/a[vi]	13-18	13-18					-[vii]			
LMICs (no evidence located on impacts of security measures on violence, crime, and correlated outcomes in LMIC countries)													
LAC (no evidence located on impacts of security measures on violence, crime, and correlated outcomes in LAC countries)													

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] Not applicable. The studies cited in this review are all correlational.

[ii] The review concludes that there is ultimately insufficient evidence supporting the beneficial effect of metal detector use in schools. Some of the research suggests that metal detectors heighten perceptions of danger amongst students while one study showed that they lowered rates of weapon carrying in schools.

[iii] Not reported. This literature review does not report on the follow-up period and age ranges of the studies that were reviewed.

[iv] Not reported. This literature review does not report on the follow-up period and age ranges of the studies that were reviewed.

[v] This literature review shows that schools employing police officers report more crimes and minor offenses.

[vi] Not applicable. The study examines effects after funding for police officers was awarded to schools using 9 years of panel data at the school level.

[vii] There was a rise in disciplinary sanctions among students who were in schools who received funding for police officers.

2.   Impacts of zero tolerance policies on standard education outcomes

Numerous studies point to the possible adverse impacts of zero tolerance policies on student achievement. Zero tolerance policies in schools have been shown to correlate with higher dropout rates (Balfanz and Boccanfuso 2007) and lower academic achievement (Davis and Jordan 1994; Mendez and Knofp 2003; Skiba and Rausch 2004, 2006, 2013). There is also a sense that exclusionary policies reinforce negative behavior by excluding offending students from opportunities to positively interact with their peers (Limber 2003). Although these studies are correlational, they suggest that the assumptions of zero tolerance policies might fail to hold. In Philadelphia, Lacoe and Steinberg 2019 use detailed administrative data for elementary and middle school students to demonstrate that suspensions mainly decrease math and reading achievement scores for suspended students while non-suspended peers appear to receive no benefit as measured by achievement scores or their absences in school.

Appendix Table J.2. Zero tolerance policies

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Non-cognitive skills	Family Environmental	School Environmental	Community Environmental	Risk and Protective Behaviors	School violence	Violent crime	Non-violent crime
HICs													
APA 2008	Literature review	Zero tolerance policies (USA)	Not reported[i]	Not reported	Not reported			-		-			
Curran 2016	Difference-in-difference	Zero tolerance policies (USA)	n/a[ii]	5-18	5-18					-			
Lacoe and Steinberg 2019	Difference in difference, Instrumental variables	Zero tolerance policies with a focus on suspensions (USA)	n/a	8-15	8-15			NS		-			
LMICs (no evidence located on impacts of security measures on violence, crime, and correlated outcomes in LAC countries)													
LAC (no evidence located on impacts of security measures on violence, crime, and correlated outcomes in LAC countries)													

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

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[i] Not reported. The literature review does not report on the follow-up period and age ranges of the studies that were reviewed.

[ii] Not applicable. The study examines effects in schools following state application of zero tolerance laws. The study uses over 16 years of panel data at the school level.

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APPENDIX K:

SCHOOL-WIDE POSITIVE BEHAVIORAL INTERVENTIONS AND SUPPORTS (SWPBIS) AND RESTORATIVE PRACTICES (RP)

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This appendix section provides information from the foundational literature on the impacts of school-wide positive behavior interventions and supports (SWPBIS) and restorative practices (RP) on academic achievement and provides additional information on the studies summarized in Chapter X in Tables X.2 and X.3.

1. Impacts of school-wide positive behavior interventions and supports (SWPBIS) on standard education outcomes

We found emerging evidence from HICs on the impact of SWPBIS on academic outcomes, but the evidence does not demonstrate consistent impacts. An experimental study of 37 elementary schools in Maryland found no impacts on math or reading scores (Bradshaw et al. 2010). A pre-post study in New Hampshire (Muscott et al. 2008) and a correlational study in Illinois (Simonsen et al. 2012) likewise found no association between SWPBIS and reading scores, but they both found a positive association with math scores. We did not identify any relevant studies from LMICs or LAC.

Appendix Table K.1. School-wide positive behavior supports and interventions (SWPBIS)

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Nonviolent crime
HICs													
Horner et al. 2009	RCT	*SWPBIS Tier 1 (USA)*[i]	2 years after implementation	Grades K–5	Grades K–5			+					
Waasdorp et al. 2012	RCT	*SWPBIS (USA)*[ii]	4 years after implementation	Grades K–2	Grades 3–5			+		+			
Farkas et al. 2012	Pre-post	*SWPBIS Tier 1 (USA)*[iii]	2 years after implementation	11–19	11–19					+			
Griffiths et al. 2019	Pre-post	*SWPBIS Tier 1 (USA)*[iv]	1 year after implementation	Grades 7–12	Grades 7–12			NS		Mixed	NS		
Sherrod et al. 2009	Pre-post	*SWPBIS Tiers 1 and 2 (USA)*v	1 year after implementation	Elementary school age	Elementary school age			+		+			
Simonsen et al. 2010	Pre-post	*SWPBIS Tier 1 (USA)*[vi]	2 years after implementation	3–22	3–22						+		
Nelson et al. 2002	Correlational	*SWPBIS (USA)*[viii]	2 years after implementation	Grades K–6	Grades K–6	+		NS					
LMICs													
Moubayed et al. 2014	Correlational; Qualitative	*Learning Environment Technical Support (Jordan)*[viii]	3 years after implementation	Primary and secondary students	Primary and secondary students			+		+	+		
LAC (no evidence located on impacts of mentoring programs on violence, crime, and correlated outcomes in LAC countries)													

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] Horner et al. (2009) used a randomized trial to examine the impacts of SWPBIS Tier 1 on school climate in elementary schools in Hawaii and Illinois. The Tier 1 activities included training all school staff on new practices, defining behavioral expectations and supports at the school level, and offering state-level technical assistance to teachers and administrators. After 2 years, School Safety Survey (SSS) scores, which includes measures of school climate and environmental factors, was significantly lower in treated schools than in control/delay schools (-0.078). Meanwhile, SSS scores increased between T1 and T2 in control schools. Immediately after treatment (for both original treatment and control/delay schools), random coefficients analysis revealed a significant decrease in SSS risk. The School Safety Survey was produced by Sprague, Colvin, & Irvin, 1996.

[ii] Waasdorp et al. (2012) used an RCT to examine the impacts of SWPBIS on reports of bullying and peer rejection among children in grades K-2 in elementary schools in Maryland. After an intensive initial SWPBIS staff training and booster trainings, the researchers collected data over the course of 4 years of program implementation. At endline, when the studied children were in grades 3-5, researchers found that while teacher reports of bullying and peer rejection increased in both treated and control schools, hierarchical linear modeling shows that students in treated schools had significantly less bullying behavior and experienced significantly less peer rejection than students in control schools. Measures included Teacher Observation of Classroom Adaptation – Checklist (TOCA-C) (Koth et al. 2009).

[iii] In this small pre-post study, Farkas and coauthors (2012) examined the association of SWPBIS Tier 1 in an alternative school with student behaviors after 2 years of exposure to the program. Tier 1 included teacher training, expectation setting for student behaviors, positive social recognition, and rewards for good behavior. Participants were teachers and students in an alternative middle/high school for students with emotional disturbance or other health issues. Students were 11 to 19 years old (M = 15 years, 6 months), and turnover in student body means that despite 2 year-program, age range stayed same in the post data collection. The authors found the program was implemented with fidelity, and showed social validity (validity within the social context of the alternative school). The proportion of behavior levels in the A and B status categories during the second (SWPBS-implementation) year were substantially higher than in the baseline year (59% vs 46%). There were also fewer office disciplinary referrals. Neither change was tested for statistical significance. Measures were the percentage of students meeting the A or B behavioral status, which was determined by how many of 15 points offered each class period for good behavior that the student retained. The authors recommend that schools implementing Tier 1 carefully monitor outcomes to inform modification to SWPBIS practices.

[iv] This pre-post study conducted by Griffiths et al. (2019) suggests that the introduction of SWPBIS Tier 1 activities in an alternative school for students with behavioral challenges may not produce consistent or desirable effects on student behavior. In this program, Tier 1 activities included teacher training on acknowledging desirable student behavior and a ticketing system to incentivize compliance with behavioral expectations. After 1 year, 1) there was a slight but non-significant increase in reports of physical threats and altercations, 2) delinquent behavior (drug-related issues, vandalism, theft, weapons) citations, while rare, increased significantly, 3) defiant behavior decreased significantly from 500 incidents to 451 incidents, and 4) there was no significant change between baseline and endline observations of positive teacher-student interactions. Outcome measures included the School-wide Evaluation Tool (SET) (Horner et al. 2004), Effective behavior support (EBS) survey (Sugai, Horner, & Todd, 2000), acknowledgement and incident reports, and classroom observation. This study should be interpreted with caution, as it is a pre-post design with a small sample and limited external validity.

[v] Sherrod et al. (2009) used pre-post design to suggest that positive behavioral interventions and supports deployed in a suburban elementary school in Georgia, USA reduced the rates of poor behavior and disciplinary referrals among students. Tier 1 programming included lessons taught in homerooms to establish behavior expectations, and targeted programming (Tier 2), entailed the Positive Results in Discipline Education (PRIDE) small group for children in 5th grade with higher rates of disciplinary referral, which included 8 lessons offered by counselors to the small group on how to address the problems that sparked poor behavior. After 1 year of Tier 1 programming across the school, reported referrals for physical aggression at school dropped 40%. While reported disruptive and disrespectful behaviors actually increased, inappropriate behaviors decreased. Finally, reported inappropriate behavior, bus referrals, and not following directions all diminished. Evidence from the targeted Tier 2 programming reflects the disciplinary experiences of only 5 participants but shows fewer referrals after the program than before for all of them. Data was collected via the Academic/Behavior Monitoring Form, Bailey (2004).

[vi] Simonson et al. (2010) conducted a small pre-post study of SWPBIS Tier 1 in an alternative school for children with a range of Individualized Education Plans (IEPs), including for emotional disturbance, in California. In this study, the authors examine what happens in a school where students already receiving Tier 2 and Tier 3 supports (baseline year) are then exposed to universal Tier 1 activities, such as teacher training and schoolwide behavior expectations (years 2 and 3). Following an increase in serious incidents during the baseline year, and an increase after the school moved to a new location, serious incidents appeared to decline in the second year of the SWPBIS implementation. The first year of SWPBIS saw an increase in serious incidents, after an initial decline, likely due to the school move in the fourth month of the school year. At the end of the second year of implementation, 83% of students received zero incident reports, whereas during the baseline and transition years, the percentages of zero-report students were 70 and 65%, respectively. Outcome data included climate data (observation of teachers providing students with opportunities to respond, positive feedback, or corrective feedback), indices of serious incidents (such as students leaving school grounds without permission or needing physical restraint because of physical aggression) per month, and distribution of incident reports per month.

[vii] Nelson et al. (2002) offer a pre-post comparison group view of the influence of SWPBIS on various outcomes in Washington state elementary schools, including perceived school climate and student social-emotional skills. This SWPBIS was implemented with 4 elements: 1) school-wide organization practices and 2) classroom management programs, 3) individualized, functional program plans, and a 4) program leadership team. After 2 years, treatment condition appeared to have significant positive effects on the social competence (measured by BERS) of students. The social competence scores of untreated students remained stable throughout the trial. There were no significant differences between participating and non-participating schools in terms of their students' responses on the SSS. Outcomes measures were the Student Safety Survey (SSS; Spokane Public School District, 1997), social competence: Behavioral and Emotional Rating Scale (BERS; Epstein & Sharma, 1998).

[viii] In this USAID-funded evaluation, Moubayed and coauthors (2014) examine the effects of the Learning Environment Technical Support (LETS) program on primary and secondary schools and their students in Jordan. This far-reaching program involves multiple components and targets. The first component focused on building school-level capacities through activities to build relationships, training around positive discipline, assessments, and community projects, and the second component focused on building MOE capacity to institutionalize best practices. The relationship-building activities deployed restorative practices, and the training around positive discipline used tools from PBIS. The evaluation was originally designed as a quasi-experimental study, but limitations and constraints forced the evaluators to use only correlational and qualitative methods that captured administrative records of disciplinary referrals and the perceptions of 469 principals, teachers, parents, and community members. After 3 years of program implementation, principals who had maintained logs of disciplinary referrals reported declines in citations of violence and bullying at school. Principals also reported that students showed greater engagement and leadership at school. Teacher-student and parent-school relationships improved in some cases, but the study offers no detail on to what degree or how often. The authors offered extensive recommendations on how to better implement the specific project at hand. The most generalizable recommendations were that staff training and application of new skills should be linked to incentives and that benchmark and measurement tools should be made more user-friendly and appropriate across different school environments.

2. Impacts of restorative practices (RP) on standard education outcomes

The evidence we found on the impact of restorative practices (RP) on academic outcomes is relatively weak and comes solely from HICs, but suggests a potential for improving academic achievement. An experimental study in Pittsburgh, PA conducted by Augustine and others (2018) found that treated middle schools showed lower academic achievement after two years than untreated schools. However, evidence from a qualitative study in Oakland, CA conducted by Jain et al. (2014) suggests that schools implementing restorative practices had higher attendance and graduation rates than non-implementing schools, and several pre-post studies show declines in suspensions, expulsions, and disciplinary referrals after RP was implemented (Baker 2008, Sumner et al. 2010, Riestenberg 2003, among others). We did not identify any relevant studies from LMICs or LAC.

Appendix Table K.2. Restorative practices

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Nonviolent crime
HICs													
Acosta et al. 2019	RCT	*Restorative Practices* (USA)[i]	2 years of exposure	Grades 6 and 7	Grades 6 and 7	NS		NS		NS			
Augustine et al. 2018	RCT	*SaferSanerSchools*: restorative suspension prevention (USA)[ii]	2 years after implementation	Grades K–12	Grades K–12			+		+	NS		NS
McMorris et al. 2013	Pre-post	*Restorative Conferences Program* (USA)[iii]	45 days after implementation	11–17	11–17		+	+		+	+		
Wong et al. 2011	Pre-post; correlational	*Restorative Whole-school Approach* (Hong Kong)[iv]	15 months after implementation	12–14	12–14	+		+			+		
Gregory et al. 2015	Correlational	*Restorative Practices* (USA)[v]	1 year after implementation	High school students	High school students			+		+			
Jain et al. 2014	Correlational	*Restorative Practices* (USA)[vi]	3–10 years after implementation	11–15	11–15	+	+	+		+			
McCold 2008	Correlational	*Restorative Practices* (USA)[vii]	Up to 3 years after discharge	11–19viii	11–19						+	+	+
LMICs													
Devries et al. 2015	RCT	*Good Schools Toolkit*: teacher violence prevention (Uganda)[ix]	18 months after implementation	11–14	12–16			+			+		
Nkuba et al. 2018	RCT	*Interaction Competencies with Children for Teachers* (Tanzania)[x]	3 months after implementation	13–17	13–18			+			+		

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Nonviolent crime
Moubayed et al. 2014	Correlational; Qualitative	*Learning Environment Technical Support (LETS)* (Jordan)[xi]	3 years after implementation	Primary and secondary students	Primary and secondary students			+		+	+		
Kyegombe et al. 2017	Qualitative	*Good Schools Toolkit*: teacher violence prevention (Uganda)[xii]	18 months after implementation	11–14	12–16			+			+		
LAC													
Grossi and Dos Santos 2012	Qualitative	Restorative practices (Brazil)[xiii]	Up to 6 years after initial implementation	Grades 4–8	Grades 4–8			+					

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] This randomized controlled trial, conducted by Acosta et al. (2019), shows non-significant impacts of a Restorative Practices Program (RPI) in middle schools in Maine on key student and school-level outcomes. Like most RP programs, this initiative trained educators on a number of practices, including affective statements, restorative questions, impromptu conferences, proactive circles, responsive circles, restorative conferences, fair process, reintegrative management of shame, restorative staff community, restorative approach with families, and the fundamental hypothesis of high behavioral expectations and appropriate responses. Control group schools did not receive any such training, but all were performing some version of those restorative practices already. After two years of exposure, the RPI did not appear to have significant impacts on school climate (including clarity of rules and expectations, teacher support, and positive peer interactions), school connectedness, peer attachment, social skills, or bullying victimization. However, student-reported experience with RPI (the degree to which they saw the practices applied in their classrooms and schools) significantly predicted outcomes in several of those areas, including peer attachment, reduced cyberbullying, school climate and connectedness, and social skills. This suggests that the degree of implementation by individual teachers may be the defining factor in the degree to which a restorative environment is created in the classroom.

[ii] Augustine et al. (2018) used a randomized controlled trial to examine a restorative practices program in Pittsburgh. *SaferSanerSchools* Whole-School Change program, from the International Institute for Restorative Practices (IIRP), was implemented as the Pursuing Equitable and Restorative Communities (PERC). PERC is a school-wide approach that uses informal, proactive practices, such as affective statements, and formal, reactive practices, such as restorative conferences in response to issues with students. School staff (teachers and administrators) were trained on the program elements and principles and supported by IIRP coaches throughout the 2-year program. There were also professional learning groups for staff, IIRP coach visits, restorative materials such as videos, and district supports. The idea was not to remove suspensions as a discretionary or required disciplinary tool, but rather provide supplementary or alternative means to resolve conflicts and reintegrate students into the school community. While days lost to suspension declined across the district during the trial, they declined significantly more in PERC schools (36% decline versus 18% decline in the control schools over 2 years). Further, a smaller percentage of students were suspended in the PERC schools than the control schools. The disparities in suspension rates between white and African American students also declined. Elementary schools drove the overall decline in suspensions, and also showed greater gains in attendance relative to middle and high schools. In fact, treated middle schools (grades 6-8) saw no reduction in suspensions, and a decline in academic outcomes, relative to control schools. Finally, male students and those with IEPs did not see lower suspension rates as a result of PERC. Arrests did not significantly decline as a result of PERC overall or across any subgroups (except students without IEPs, where a significant reduction of .42 percentage points, effect size of -0.033 was detected). However, given that overall arrest outcomes were not significantly affected by the program, the impact estimates for the non-IEP subgroup should be interpreted with caution. The evaluators did not detect a program impact on suspensions for violence or weapons infractions. Teachers in PERC schools rated teaching and learning conditions, school and teacher leadership, and conduct management significantly higher than control schools, and were significantly more likely to report feeling like the school was a safe working environment. The authors did not offer cost-effectiveness calculations but did recommend that practitioners implement something similar to PERC in elementary schools with suspension issues. The researchers also recommended that implementers focus on school leadership buy-in, mandatory PD for teachers, books and materials, low-cost classroom practices such as affective statements and individual student attention, coaching of teachers, regular staff meetings, district-level coordination, expectations-setting, and data collection systems growth.

[iii] McMorris et al. (2013) used a pre-post design to examine the *Restorative Conferences Program* (RCP), an program for students recommended for expulsion due to assault, weapons possession, or other offenses. Treatment involved application of restorative conferences with family, teachers to heal and build relationships. Most students reported high satisfaction with RCP, thought it made them more successful at school, would recommend it to a friend, and used new resources as a result of RCP. Most parents were satisfied with the program and would recommend it to a friend. Students were less likely to get in a fight in the past month after the conference than before (p<.10). Students post-conference were significantly more likely to state "I make good choices about how to act, even when I'm upset" than before (p<.05). According to available school records, youth also had higher attendance 1 year after the RCP than the year of the RCP (67 days vs 139 days), and lower number of suspensions (2.75, 1.38) and days suspended (11.53, 4.4). Parents were significantly more likely to report talking to their children about school, and more likely to report that they knew who to talk to at school about problems their child was experiencing (p<.05). Compared to before the conferences, students after were significantly more likely to report that they knew someone they could ask for help at school if they needed it (p<05). Data sourced from surveys of parent and child with Likert scales for behaviors and perspectives, with "Not at all"- "A lot" (4 items) and "Strongly agree" - "Strongly disagree" (4 items). Authors recommend more rigorous studies with actual counterfactuals and integrate family group conferences into public health models so as to expand and be able to calculate cost-benefit. See Lewis (2009) for weaker pre-post studies without explicit data collection and analysis notes.

[iv] Wong et al. (2011) seek to use degree of implementation of the Restorative Whole-School Approach (RWsA) to identify impacts of the program on bullying, social-emotional outcomes, and school climate in Hong Kong grades 7-9. Treatment entailed full or partial exposure to RWsA at the school level for 15 months. The programming involved bullies, victims, teachers, and family members in restorative circles, conferences, and goals, victim support, and bully reintegration. The authors studied 4 schools with 1480 students total, noting that "eventually, one school was assessed to have fully implemented RWsA, two schools had partially

implemented RWsA, and one school did not implement any of the RWsA activities." Treatment was thus not randomized, which could hide confounders and bias the estimates of the program impacts. That said, schools showed no significant differences between bullying rates at baseline, and the authors claim that "from the 1,480 participating students, 1,176 participants were successfully matched for within-subject pretest–posttest comparison." After 15 months of treatment, schools were surveyed again, and authors found that where physical bullying was significantly reduced in the full implementation school (ES .16), it rose in the non-RWsA school by nearly the same proportion. Self-esteem rose significantly (.21 ES) and lack of empathy dropped significantly (.12 ES) at the RWsA school, but there was no significant change in self-esteem, empathy, or behaviors that hurt others among students at the non-RWsA school. Finally, students' positive perceptions toward teachers remained unmoved in the RWsA school, but dropped significantly in the non-RWSA school, as did students' sense of belonging at school and a perceived level of school harmony. Measures included General Self subscale of the Chinese Adolescent Self-Esteem Scales (CASES; The Education and Manpower Bureau 2003; Cheng & Watkins 2000), The Inappropriate Assertiveness subscale of the Matson Evaluation of Social Skills for Youngsters (Matson et al. 1983), The Teacher Student Relationship and other subscales of the Quality of School Life scale (William & Battern 1981), The Level of School Harmony scale (Wong 2004), Life in School Checklist (Arora & Thompson 1987; Thompson et al. 2002).

[v] Gregory et al. (2015) use hierarchical linear modeling and other regression tools to examine how restorative practices in implemented in 2 East Coast high schools was related with student perceptions of respectful relationships and their disciplinary records. Higher levels of student-perceived RP implementation in the classroom (including Affective Statements, Restorative Questions, Proactive Circles, and Fair Process) was significantly associated with greater levels of perceived respect in the student-teacher relationship. Further, higher levels of student-reported RP implementation was associated with a significant decline in disciplinary referrals for African American / Latino students (and a reduction in the discipline disparity between White/Asian students and African American / Latino students). These results did not hold when examining teacher-reported RP implementation. This suggests that implementing RP with fidelity (with high-quality training and uptake) as perceived by students is essential to achieve desired impacts. Measures include surveys of teachers and students with Likert scales on RP implementation and relationships, including Belmont, Skinner, Wellborn, and Connell's (1992) teacher care and respect scales, plus discipline referral records. Limitations of the study include the fact that it only looks at outcomes after 1 year of implementation, though the RP program is designed to be fully rolled out over 2 years. Also, since it was students who reported on RP implementation levels and respect, there is a risk of rater bias. Finally, direct observations of RP implementation would offer a more valid view of actual RP use in the classroom. The authors suggest comparison studies of SWPBIS and RP and additional experimental RP studies.

[vi] Jain et al. (2014) sought to establish whether the degree to which schools implemented Restorative Justice (Practices) predicted student-level and school-wide outcomes. This 3-tier version of RP included Tier 1 as relationship and school-wide community-building through proactive classroom circles, Tier 2 as positive responses to harmful behavior, and Tier 3 as proactive reintegration of juvenile offenders. In this system, a Whole School Restorative Justice (WSRJ) system incorporates all three tiers and Peer RJ involves peer-led conflict resolution at Tier 2 and 3. Results were positive: 88% of teachers in RJ-implementing schools reported the practices were "very or somewhat helpful in managing difficult student behaviors in the classroom." Further, suspensions have declined substantially in the district overall (including non-RJ schools, though) and most staff at implementing schools believed that the programming was helping to reduce suspension rates. The discipline gap between African American and Whiste students narrowed. During the three-year study, the percent of students at WSRJ schools who received suspensions declined from 34% in the first year to 14% in the second and third years. This decline is significantly different from declines at the district level and among non-RJ schools. Finally, dropout declined by 56% in RJ high schools and only 17% in non-RJ schools, and high school completion was significantly stronger in RJ schools than in non-RJ schools. Reading levels and absenteeism also showed favorable impacts among RJ-implementing school students. Students in who participated in RJ circles reported greater ability to manage emotions, show empathy, and understand and connect positively with peers. Students who participated in RJ circles reported greater ability to resolve conflicts with their parents and noted improved home environments. 70% of school staff in RJ-implementing schools reported that the programming was improving the schools' climate. This is non-experimental, and in some cases, not even correlational (purely qualitative) paper, and these findings should be interpreted with caution. The original version of WSRJ, implemented in 2005 and then again in 2009-2010, cost $420 per participant. The authors provide extensive recommendations, including the expansion of restorative practices and additional research on the area with more rigorous designs.

[vii] McCold (2008) uses survival analysis and logistic regression to explore how RP may affect at-risk and adjudicated delinquent youth at non-secure alternative day-treatment schools. Some students also spend time in residential group homes, intensive supervision programs, and home and community programs. Multivariate survival analysis suggests that duration of exposure to the RP program significantly (and negatively) predicted recidivism at the $p<0.001$ level, taking age, race, priors, and other factors into account. The validity of this study is limited by the fact that the models were designed using data from only one school, and without any counterfactual.

[viii] The mean age in the follow-up sample was 15.5 years.

[ix] Devries et al. (2015) used a cluster randomized design to examine the impacts of the Good School Toolkit (GST) on teacher-perpetrated violence and student safety in upper primary schools in Uganda. GST is a comprehensive program that trains staff in alterative disciplinary measures and empowers students with committee membership for key activities. The goal was reducing staff-to-student violence, improving relationships, and changing the operational culture of the schools. After 18 months, students' educational achievement and mental health scores were not statistically different between treated and untreated schools However, in treatment schools, students reported significantly less past-week violence from teachers than students in comparison schools (31%, 49%), which corresponded to a 42% reduction in past-week violence, and teachers reported using violence significantly less as a disciplinary tool. Treated students also reported greater feelings of wellbeing and safety at school. Measures included the International Society for the Prevention of Child Abuse and Neglect Screening Tool—Child Institutional (ICAST-CI) and the Strengths and Difficulties Questionnaire.

[x] Nkuba et al. (2018) use a cluster randomized design to examine the impacts of Interaction Competencies with Children for Teachers (ICC-T) in public secondary schools in Tanzania. ICC-T is a teacher violence prevention program that seeks to build trust and supportive relationships between teachers and students (a core goal of restorative practices). The program entailed a 5.5 day training workshop with modules to help teachers improve in the areas of teacher-student relationships, maltreatment reduction, effective discipline strategies, identifying and supporting burdened students, and implementation of ICC-T in the classroom. 3 months after the training, teachers' self-reported use of physical violence and positive attitudes toward its use diminished significantly more in treated schools than in control schools, and their final scores were significantly lower than control schools at endline. Students in treated schools reported less physical violence at endline than students in the control schools, but the treated students had also reported significantly less violence at baseline. However, ANCOVA controlling for pre-assessment scores suggests that the groups did differ significantly in endline physical violence report scores. After 3 months, teachers' self-reported use of emotional violence and positive attitudes toward its use also diminished significantly more in treated schools than in control schools, and final scores were significantly lower than control schools at endline. Student reports of emotional violence in treated schools also declined significantly more than control schools, and final scores were significantly lower than control schools. Outcomes were measured with the parent-child version of the Conflict Tactics Scale (CTSPC) (Straus and Hamby 1997).

[xi] In this USAID-funded evaluation, Moubayed and coauthors (2014) examine the effects of the Learning Environment Technical Support (LETS) program on primary and secondary schools and their students in Jordan. This far-reaching program involves multiple components and targets. The first component focused on building school-level capacities through activities to build relationships, training around positive discipline, assessments, and community projects, and the second component focused on building MOE capacity to institutionalize best practices. The relationship-building activities deployed restorative practices, and the training around positive discipline used tools from PBIS. The evaluation was originally designed as a quasi-experimental study, but limitations and constraints forced the evaluators to use only qualitative methods that captured the perceptions of 469 principals, teachers, parents, and community members. After 3 years of program implementation, principals who had maintained logs of disciplinary referrals reported declines in citations of violence and bullying at school. Principals also reported that students showed greater engagement and leadership at school. Teacher-student and parent-school relationships improved in some cases, but the study offers no detail on to what degree or how often. The authors offered extensive recommendations on how to better implement the specific project at hand. The most generalizable recommendations were that staff training and application of new skills should be linked to incentives and that benchmark and measurement tools should be made more user-friendly and appropriate across different school environments.

[xii] Kyegombe et al. (2017) conducted a qualitative study of the same GST program as Devries et al. (2015) and found that reductions in student violence could be explained by improved student-teacher relationships, improved student voice, less student fear, clearer behavior expectations and encouragement through rewards and praise, and improved teacher knowledge of positive and alternative discipline. Note: evidence from the Philippines (Banzon-Librojo 2017) suggests that harsh teacher discipline is associated with greater bullying victimization among primary school students though the channels of low perceived support from teachers.

[xiii] Grossi and Dos Santos (2012), used qualitative methods to examine the influences of restorative practices on teachers and students' perceptions of bullying and school climate in Porto Alegre, Brazil. Interviews show that after a bullying incident, most teachers and students are satisfied with the following restorative circle and find that the restorative practices restore or maintain respect and peaceful relations between students, their peers, and their teachers. The researchers suggest that these outcomes in turn improve school climate. The authors also suggest that these restorative approaches also decrease suspensions and disciplinary referrals but do not provide evidence supporting this argument.

APPENDIX L:

CLASSROOM MANAGEMENT

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This appendix provides information from the foundational literature on the impacts of classroom management programs on academic achievement and provides additional information on the studies summarized in Chapter XI in Table XI.2.

Impacts of classroom management on standard education outcomes

Effective classroom management is critical for academic learning in formal school settings. In their meta-analysis of classroom management research, Korpershoek et al. (2016) suggest that "[effective] teaching and learning cannot take place in poorly managed classrooms" (p. 643). The authors found that programs focused on the student-teacher relationship had the largest impact on academic outcomes, followed by programs focused on teacher behavior. The connections between classroom management and academic outcomes are unsurprising, as the ultimate goal of classroom management is to create an environment in which learning can take place. In addition to making the environment more conducive to high-quality learning, it can also create more time for learning. As Klevens et al. (2009) note, prior literature has established that though classroom management requires time, it can ultimately increase teaching time by cutting down on disruptions, allowing for more time on task.

A sense of safety and wellbeing in the classroom is tied to academic achievement, underscoring the importance of classroom management measures that create a warm, safe classroom atmosphere. Examining survey data from the New York City Department of Education on middle schoolers' safety, engagement, and school climate, student absence records, and standardized test scores, Lacoe (2016) found that students who reported feeling unsafe in the classroom had lower test scores in English language arts and math. Feeling unsafe in the classroom was connected to a higher number of absences, helping to explain lower test scores. Lacoe's analysis also found that, beyond the indirect effect of higher absences, feeling unsafe in the classroom also had a direct effect on academic achievement, possibility explained by students who felt unsafe in the classroom feeling more distracted during learning or testing time. Such findings point to the need for safe, emotionally supportive classroom climates.

Programs often target classroom management in conjunction with social-emotional learning, and the academic benefits of social-emotional well-being often underpin these programs. In framing their evaluation of the first year of the Learning to Read in a Healing Classroom (LRHC) model in the DRC, for instance, Aber et al. (2017a) point to the prior body of literature connecting social-emotional learning and academic outcomes. LRHC, which will be discussed in more detail in the LMIC section below, is not explicitly a classroom management program, but does incorporate elements related to classroom management. Their evaluation found that the LRHC approach had marginal but significant improvements on students' reading and geometry skills. The authors conclude that if improving academic outcomes is the primary goal, literacy-oriented teacher training may be the most effective use of resources, while if supporting student well-being alongside academic outcomes is the intention, programs focused on school environment and student-teacher interactions may be most effective (Aber et al. 2017a). Many of the programs discussed below reflect this focus.

As with SEL programming, fidelity of implementation can vary widely and impacts the effectiveness of classroom management programs. A randomized controlled field trial of the impact of Responsive Classroom approach, which will be described in more detail in the

following section, on student achievement in reading and math found that treatment students did not outperform control students in math or reading, and that gains in student outcomes in these domains were largely tied to the fidelity of implementation of the Responsive Classroom program (Rimm-Kaufman et al. 2014). Fidelity of implementation, then, must be a major consideration for program planners, implementers, and evaluators.

Though programs can be resource-intensive, given the benefits of effective classroom management, evidence-based programs can be cost-effective. A systematic review of SEL programs in the United Kingdom noted that in the UK the Good Behavior Game was found to have a cost-benefit ratio of 1:26.9 and Incredible Years was reported to have a ratio of 1:1.4 (Dartington database as cited in Clarke et al. 2015). Cost-benefit analyses of Responsive Classroom model found strong benefits, with net present value of tests of Responsive Classroom per 100 students ranging from $450,000 to $2.1 million across ten tests, pointing to a high benefit from the program (Belfield et al. 2015).

Appendix Table L.1. Classroom Management

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
HICs													
Korpershoek et al. 2016[i]	Meta-analysis (54 studies)	Classroom management strategies (USA)	N/A	Primary	Primary	+							
Bowman-Perrott et al. 2016	Meta-analysis (21 studies)	Good Behavior Game (multiple countries)	N/A	Preprimary through Grade 12	Preprimary through Grade 12	+							
Morris et al. 2013[ii]	RCT	Foundations of Learning (USA)	10 months	Approximately 4 years old	Approximately 5 years old	+							
Morris et al. 2014	RCT	Incredible Years Teacher Training (USA)	2 academic years	Approximately 4 years old	Approximately 6 years old	+/NS[iii]		NS					
Kellam et al. 2008 Kellam et al. 2011[iv]	RCT	Good Behavior Game (two years exposure; USA)	Approximately 12 years	Approximately 7 years old	19-21 years old					+		+	
Pianta et al. 2008[v]	RCT	MyTeacherPartner – web-based coaching and online professional development resources (USA)	Throughout one academic year	Preprimary age	Preprimary age			+					
Rimm-Kaufman 2006[vi]	QED	Teacher training on Responsive Classroom approach (USA)	3 years	Primary age	Primary age	+		+					

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
LMICs													
Aber et al. 2017b	RCT	Learning to Read in a Healing Classroom: Professional development training on incorporating SEL into teaching reading (Democratic Republic of the Congo)	1 year	Primary age	Primary age	+		+					
Torrente et al 2015[vii]	RCT		1 year	Primary age	Primary age	NS		+/-					
LAC													
Yoshikawa et al. 2015	RCT	Professional development workshops and in-classroom coaching, provision of books, and coordination with other services (Chile)	2 years	Preprimary age	Preprimary age	NS/+		+					
Baker-Henningham et al. 2012	RCT	Incredible Years teacher training and coaching on classroom climate and behavior management (Jamaica)	8 months	3-5 years	4-6 years	+				+			

| Abridged citation | Research design | Program and description | Outcome follow-up period | Age range (years) | | Correlated outcomes | | | | | Violence and crime | | |
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
Klevens et al. 2009	RCT	Teacher workshops focused on classroom management and strategies for improving children's behavior (Colombia)	9 months	First and second grade	First and second grade	+				+			
Pérez et al. 2005	Pre/post	Good Behavior Game (Chile)	1.5 years	First grade	Second grade	+				+			

[1] These study design details refer to the methods used to test outcomes of interest.

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] Korpershoek, H., et al's (2016) meta-analysis of experimental and quasi-experimental controlled trials published between 2003 and 2013 on the effects of classroom management strategies on academic and social-emotional outcomes found that focusing on students' social-emotional development was more effective in improving students' emotional outcomes than programs focused on changing teachers' behavior, changing student behavior, or improving the student-teacher relationship.

[ii] Morris, et al. (2013) studied the Foundations of Learning (FOL) approach, developed based on the Incredible Years approach and implemented at preschools in Chicago and Newark. The study found improved positive classroom management, warmer classroom interactions, and reduced problem behaviors among children. The authors found statistically significant impacts on children's observed conflict and externalized behavior, behavior control, and positive engagement in Newark; the former was not studied in Chicago, and the latter two were not statistically significant in the Chicago study. Program students in Chicago demonstrated higher levels of executive functioning, which was not studied in Newark. The authors note that there was generally greater fidelity of implementation of the approach in the Newark schools, potentially explaining the difference in outcomes

[iii] Morris, et al (2014) study found small, statistically significant improvements to students' social-emotional skills but no impact on students' problem behaviors among the sample as a whole. Problem behaviors among students with the highest levels of problem behaviors, however, did experience statistically significant improvements in problem behaviors. For this reason, it was marked as significant (+) and not significant (NS) for non-cognitive outcomes.

[iv] In 1985, a large randomized field trial of the Good Behavior Game was implemented with first and second grade classrooms in Baltimore. Kellam, et al.'s follow-up with participants at ages 19 to 21 found that male students who participated in the GBG, particularly male students who had had higher rates of disruptive or aggressive behaviors in first grade, had fewer negative outcomes related to dependence disorders and substance abuse, violence and crime, antisocial personality disorder, and suicidal thoughts. There were fewer and weaker effects for female students, though suicidal thoughts, dependence disorders, and alcohol abuse were somewhat affected. Broadly, drug abuse, dependence disorders, antisocial behaviors, and incarceration related to violent behaviors were the areas of largest long-term impact of the program. A second cohort in the same study experienced similar but weaker benefits, with the largest benefits related dependence disorders and drug abuse

[v] MyTeachingPartner (MTP) is a professional development approach for prekindergarten that includes access to videos of high-quality teacher-student interactions and a web-based consultation process providing teachers feedback on their emotional, organizational, and instructional interactions with students based on teachers' videos of their teaching. The first year of Pianta, et al.'s (2008) controlled trial, randomized at the district level, found that teachers receiving online support *and* coaching through MTP had higher quality interactions with students than teachers who only had access to the online resources. The effects were particularly strong in classes with high proportions of low-income students.

[vi] Rimm-Kaufman's (2006) three-year, quasi-longitudinal study in six American schools found benefits for teachers and students. Teachers trained on Responsive Classroom felt more effective with discipline and more able to make a positive school climate. Responsive Classroom classes were found to be more emotionally supportive, and students in these classes had warmer relationships with their teachers than students in control schools. Students in Responsive Classroom schools experienced more growth in prosocial skills and less fear and anxiety. Notably, the study found that both "at risk" children and children who are not considered "at risk" benefitted from the Responsive Classroom approach

[vii] Using a cluster RCT design, Torrente, et al. (2015) found that, contrary to the researchers' hypotheses, the program resulted in negative impacts on students' sense of predictability and cooperativeness, but found positive impacts on their perceptions of schools' and teachers' supportiveness. No effects were found on students' well-being as measured by victimization and mental health.

APPENDIX M:

CLASS SIZE

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This appendix focuses on information from the foundational literature on the impact that programs featuring reduced class sizes have on academic achievement and provides additional information on the studies summarized in Chapter XII, Table XII.2.

Foundational literature on the impacts of class size reduction on academic achievement

HICs. The evidence base on the impacts of class size reduction on standard education outcomes is mixed, including among rigorous studies, but more studies point to positive impacts than to negative ones. Evaluating class size reductions is challenging given that experimental evaluations are costly to conduct, and quasi-experimental evaluations must confront threats to internal validity, including correlation between class size and school and student characteristics. Evidence indicates that the impact of class size is context-specific. In the United States, cost-effectiveness estimates of the long-run impacts of class size reduction based on the Tennessee STAR experiment, described below, suggest that reducing class sizes by 33 percent in kindergarten through grade 3 would raise students' earnings by age 27 by $368 per year, and that the class size reduction would have a net present value of $9,460 per student and $189,000 per classroom (Chetty et al. 2011).

There is little consensus on the impacts of class size reduction, which may be driven in part by challenges associated with conducting rigorous evaluations on class size. Experimental studies may face high expenses to cover hiring additional teachers, as well as logistical and political challenges associated with randomly assigning teachers and students to larger or smaller class sizes, measures taken to implement the Tennessee STAR experiment (Finn and Achilles 1999). Quasi-experimental studies must address potential correlation between class size and student characteristics, such as socioeconomic status, which are likely to be correlated with both class size and academic achievement, and may exaggerate potential benefits of reduced class sizes if disadvantaged students' schools have larger class sizes (Blatchford 2012). At a systemic level, efforts to reduce class sizes through hiring may be countered by having to hire inexperienced teachers, leading to an underestimate of the benefits of reduced class sizes (Jepsen and Rivkin 2009). Nonetheless, rigorous studies do exist (for example, the Tennessee STAR experiment, Angrist and Lavy 1999, and Duflo et al. 2015), and we found more rigorous studies that point to positive impacts on learning than to negative impacts.

Existing evidence shows that class size impacts vary by context, which may contribute to the lack of consensus on their impacts. Woessmann and West (2002) used an 18-country data set with results of the international TIMSS test to estimate the impacts of class size on test scores in math and science. The authors found large impacts for Iceland and Greece, ruled out even small benefits in Singapore and Japan, and ruled out large effects in the remaining countries. The authors note that in the countries where class size reduction had positive impacts, teachers were relatively poorly qualified and poorly paid compared to teachers in the countries where class size reduction had no impact; teachers in those countries were relatively well qualified and well paid. This result suggests that class size reduction could help in contexts in which teachers are struggling, but that high-capacity teachers are more likely to be able to teach large classes effectively.

Evidence from the large-scale randomized experiment, Tennessee STAR, shows that large reductions in class size in early grades can boost learning; however, some researchers urge caution in interpreting these results. In the well-known Tennessee STAR experiment, students and teachers were randomly assigned to small classes (13-17 students), to large classes (22-26 students), or to a large class with a full-time teacher's aide from kindergarten through third grade. Studies have found that being assigned to the small class group led to persistent learning impacts, which were greatest for minority students and students in inner-city schools (Krueger 1999; Finn and Achilles 1999). The program also led to longer-run impacts, increasing students' likelihood of taking the SAT or ACT (Krueger and Whitmore 2001) and of being enrolled in college at age 20 (Chetty et al. 2011). Using data from the experiment, Krueger (2003) estimated the internal rate of return of reducing class sizes from 22 to 15 students as 6 percent. Adding a teacher's aide to randomly selected large class sizes did not have an impact on learning (Finn and Achilles 1999).

Some authors have urged caution in interpreting these results for two reasons. First, roughly half the students in the initial sample were no longer in the same school by the fourth year of the study, and these students are different from those who stayed (Hanushek 1999), which would bias the results. Second, study teachers' knowledge of the study could affect their behavior in ways that might bias impacts (Hoxby 2000).

However, rigorous quasi-experimental studies from the US also have mostly shown positive results for class size reductions. Of four rigorous quasi-experimental evaluations of the impact of class size reduction in the US, three found significant positive impacts. Hoxby's 2000 study was the exception: in a quasi-experimental study that—unlike the Tennessee STAR experiment—did not have a potential Hawthorne effect because it relied on administrative data, the author took advantage of maximum class size rules to evaluate the impact of small class sizes on students in grades 4 and 6 in Connecticut and found no impact of reduced class sizes. Using similar methods, Cho et al. (2012) used administrative data from Minnesota and found that reducing class size by 10 students led to significant increases in test scores of 0.04 and 0.05 standard deviations in grades 3 and 5 respectively. Rivkin, Hanushek, and Kain (2005) use a large administrative data set from Texas and control for student fixed effects and grade by year fixed effects and find significant impacts on learning in 4th through 6th grades with impacts smaller for fifth and sixth grades than for fourth grade and no impact in later grades. Finally, Molnar et al. (1999) evaluated the impacts of a policy to support small class sizes in high-poverty schools in Wisconsin and found impacts on test scores of approximately 0.2 standard deviations.

LMICs. **Studies from LMICs show mixed results.** Four LMIC studies found positive results on learning. In a randomized experiment in India, Muralidharan and Sundararaman (2013) evaluated the impact of adding a contract teacher in primary schools and found small positive impacts on learning. Also in India, Chin (2005) used a difference in difference approach to study a national initiative to shifted teachers from larger schools toward schools that previously had only one or two teachers, reducing multigrade teaching. The reform improved primary school completion, especially for girls and students in small schools, possibly benefiting more disadvantaged students. In an observational study in Turkey, Ozberk et al. found that smaller class sizes were associated with higher test scores for secondary school students on the PISA math test in Turkey (2017). In a quasi-experimental study in South Africa, Case and

Deaton (1999) found that large class sizes had significant negative impacts on educational achievement as well as enrollment and educational attainment. Three other studies in LMICs found that class size reduction did not improve learning. Asadullah (2005) used regression discontinuity analysis based on a maximum classroom size to estimate the impacts of class size reduction in secondary schools in Bangladesh and found that class size reductions *decreased* achievement. After implementing an RCT to evaluate the impact of hiring additional contract teachers in Kenya, Duflo, Dupas, and Kremer found no learning impacts for students of tenured teachers when class sizes fell from 82 to 44 (2015). Bold et al. (2013) implemented an RCT to estimate the impacts of scaling up the contract teacher program nationwide in Kenya and found learning impacts only when implemented by an NGO, but not when implemented by the government.

LAC. **There is little evidence from LAC countries, but the two rigorous studies we identified show positive impacts on learning.** In Bolivia, Urquiola (2006) used instrumental variables analysis to estimate the impacts of smaller class sizes in small schools with no more than one teacher per grade and for larger schools that gain a teacher when cohorts exceed a maximum class size. With both estimates, Urquiola found that larger class sizes led to lower test scores but cautioned that some of the learning gains associated with additional teachers could be due to schools' ability to track students by ability. In Chile, Urquiola and Verhoogen (2009) used a regression discontinuity analysis and found that reducing class sizes in private schools improved math and language test scores.

Appendix Table M.1. Class size

				Age range (years)		Correlated outcomes					Violence and crime		
Abridged citation	Research design	Program and description	Outcome follow-up period	Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
HICs													
Finn and Achilles 1999 Chetty et al. 2011	RCT	Students and teachers were randomly assigned to small classes, large classes, or large classes with an aide in the Tennessee STAR experiment (US)	Longitudinal into adulthood	K through 3rd grade	7th grade	+[i]							
					4th and 8th grade	+[ii]							
Dee and West 2011	QED (same-subject comparisons)	No program; observational study using National Education Longitudinal Study of 1988 data (US)	2-year follow-up	8th grade	10th grade	+[iii]							
Frederiksson et al. 2012	Variation from maximum class size rule	Small class size rule triggers the hiring of an additional teacher when class size exceeds established limit (Sweden)	2-year follow-up	Ages 10 through 13	Ages 13 and 16	+[iv]							
LMICs (no evidence located on impacts of class size on violence, crime, and correlated outcomes in LMIC countries)													
LAC (no evidence located on impacts of class size on violence, crime, and correlated outcomes in LAC countries)													

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] Finn and Achilles found that students in the small class size group exhibited less disruptive behavior, superior engagement in class, and better study skills than students in large classes.

[ii] Chetty et al. found that the small class size students had stronger social-emotional skills in grades 4 and 8 and that these social-emotional skills were correlated with improved earnings in adulthood.

[iii] Dee and West found that small class sizes in 8th grade led to improved social-emotional skills, including school engagement, in 8th grade and persisting into 10th grade (though smaller).

[iv] Fredericksson et al. found that students in smaller classes in the last three years of primary school (ages 10 through 13) led to improved cognitive and social-emotional skills at age 13, but that at age 16, only the impacts on cognitive skills persisted.

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APPENDIX N:

SCHOOL-BASED BULLYING AND SCHOOL-RELATED GENDER-BASED VIOLENCE PREVENTION

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This appendix provides additional information on the school-based bullying and school-related gender-based violence prevention studies summarized in Chapter XIII in Tables XIII.2 and XIII.3.

Table N.1. School-based bullying prevention

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years) Program	Age range (years) Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Nonviolent crime
HICs													
Gaffney et al. 2019	Meta-analysis	Anti-bullying programs (100 studies)	Not specified	6–18	Not specified						+		
Wong 2009	Meta-analysis	Anti-bullying programs (23 studies)	Not specified	5–18	Not specified						+		
Ttofi and Farrington 2011	Meta-analysis	Anti-bullying programs (41 studies)	Not specified	Not specified	Not specified						+		
Olweus 1991	QED	Olweus Bullying Prevention Program (Norway)	One year; two years	10–15	12–17						+		
LMICs													
Meyer and Lesch 2000	RCT	Behavioral sessions aimed at reinforcing positive behaviors (South Africa)	Immediately; three months	12–16	12–16						NS		
Naidoo et al. 2015	RCT	Weekly modules on bullying delivered to students (South Africa)	Four months	17	17						Mixed		
Şahin 2012	RCT	Empathy training (Turkey)	Immediately; two months	12	12	+					+		
Trip et al. 2015	RCT	Viennese Social Competence (ViSC) and	Six months; nine months	12	12	Mixed					NS		

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime			
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Nonviolent crime
Albayrak et al. 2016	QED	Rational Emotive Behavioral Education (REBE) (Romania) Bullying prevention using strategies from the Neuman Systems Model and Behavioral-Ecological Model (Turkey)	Five months	12–15	12–15						+		
Dogan et al. 2015	QED	ViSC Social Competence Program (Turkey)	Seven months; one year	10	10						+		
LAC													
Guiterrez et al. 2018	RCT	Awareness-raising efforts and an online platform, where students can report incidents of violence (Peru)	Two months	13	13						NS		
da Silva et al. 2015	QED	Workshops and dramatization of bullying based on the Theatre of the Oppressed (Brazil)	Six months	14–18	14–18						+		

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

Table N.2. School-related gender-based violence prevention programs

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Nonviolent crime
HICs													
Arango et al. 2014	Systematic literature review[i]	Non-partner sexual assault programs (58 studies)	Not specified	14–21	Not specified							NS	
Ellsberg et al. 2015[ii]	Systematic literature review[iii]	Non-partner sexual assault and intimate partner violence programs (>100 studies)	Not specified	Not specified	Not specified							NS	
Lester et al. 2017	Systematic literature review[1]	Intimate partner violence programs (36 studies)	Up to three years	12–18	12–18							NS[iv]	
LMICs													
Baiocchi et al. 2017	RCT	Empowerment and self-defense training sessions for girls and gender sessions for boys	Nine months	10–16	10–16							+	
ICRW 2012	Difference in difference	Gender Equity Movement in Schools (GEMS)—group education activities and a school campaign (India)	Six months	12–14	12–14						Mixed		
Keller et al. 2017	QED	Your Moment of Truth (YMOT)— an education curriculum promoting	Nine months	15–22	15–22							+	

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Nonviolent crime
		bystanders to intervene when witnessing GBV (Kenya)											
Sarnquist et al. 2014	Difference in difference	Empowerment and self-defense training sessions (Kenya)	Eleven months	13–20	13–20							+	
USAID 2009[v]	Pre-post	Safe Schools program (Malawi and Ghana)	Not specified	10–14	Not specified			+					
LAC													
Bustamante et al. 2019	RCT	Child sexual abuse (CSA) program that teaches self-protection strategies	Six months	7–12	7–12					+			
USAID 2015	Qualitative	Safe Schools program (Dominican Republic)	Two months	11–14	11–14						+		

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] These studies consist of a narrative literature review of reviews.
[ii] Some of the articles covered in this review overlap with studies included in Arango and colleagues (2014) and Lester and colleagues (2017).
[iii] Ellsberg and colleagues (2015) is a narrative literature review of studies.
[iv] Many of the studies included in this review found no impact on sexual violence, although the review noted three programs that consistently demonstrated positive impacts on sexual violence.
[v] We could not verify certain information for this study because we were only able to obtain an executive summary, not the full report.

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APPENDIX O:

DROPOUT AND EXPULSION PREVENTION PROGRAMS

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This appendix provides information from the foundational literature on the theory of change and the impact of dropout and expulsion prevention programs on academic achievement and provides additional information on the studies summarized in Chapter XIV, Tables XIV.2 and XIV.3. The diagram below shows the overall theory of change that applies to both dropout and expulsion prevention programs (Figure O.1).

A. Theory of change for dropout and expulsion prevention programs on different outcomes

Figure O.1. Dropout and expulsion prevention (DEP) program theory of change

DEP Program	Immediate outcomes	DEP Outcomes	Long-term impacts
• PROGRAMS & ACTIVITIES • EWS and monitoring • Family supports • Academic and enrichment activities • Counselling and mentoring • Teacher training • POLICY CHANGES • Exclusionary discipline alternatives	• Reduced risky behaviors • Improved protective behaviors • Stronger social-emotional skills • Lower school violence and crime • Improved academic performance • Improved school climate	• Reduced absenteeism • Reduced dropout rates • Reduced disciplinary referrals • Reduced suspension rates • Reduced expulsion rates	• Improved graduation rates • Improved re-enrollment and higher education matriculation • Improved employability and earnings • Reduced likelihood of crime and violence

1. Theory of change for dropout prevention programs

There are several different predictors of dropout across countries. High levels of dropout occur when children or youth exhibit low achievement, low motivation to learn, poor attendance and chronic absenteeism, and problematic behavior (Creative 2011). Family poverty status is an important predictor as well (Creative 2011). In addition, in LMICs (including LAC) studies have found that dropout is caused primarily by family and individual financial limitations, as well as by school quality and student achievement (de Hoyos et al. 2016; Josephson et al. 2018).[17] Josephson et al. (2018) identify several additional causes of dropout in LAC including a low relevance of education, student disengagement with school, teen pregnancy and parenthood, early marriage, race or ethnic identity, exposure to violence, and challenging geographies.[18,19] Additional research from LMICs and LAC shows that missing out on pre-primary education,

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[17] The Regional Education Laboratory (REL-Pacific) also synthesized studies examining non-enrollment, absenteeism, and truancy in Pacific LMICs (Black et al. 2014). In that region, school separations are caused by (1) student-specific factors, such as teen pregnancy or negative peer influences; (2) family-specific factors, such as low parent income and involvement; (3) school-specific factors, such as poor facilities and low teacher readiness; and (4) community-specific factors, such as job opportunities that do not require schooling and unsafe neighborhoods.

[18] Indigenous children in rural areas of Honduras and Guatemala, for example, are significantly more likely to drop out than are their urban and non-indigenous peers (Adelman et al 2017).

[19] As indicated by the proliferation of conditional cash transfer policies (CCTs), policymakers in LAC and LMICs understand that children often drop out because of exogenous constraints such as low household income and cultural expectations of early labor or marriage (Creative 2011). We review Transfers programs in Chapter X.

attending rural school, experiencing negative peer influences, and being over-age for one's grade all predict school disengagement and dropout (Adelman et al. 2017, Adam et al. 2016, Animashun 2009, Chukwourji et al. 2018, Datu et al. 2018, King 2016, Sabates et al. 2010, UNESCO 2014). High rates of violence, such as that experienced by youth in the Northern Triangle of Central America, also drives dropout and irregular migration (Fiszbein and Stanton 2018).

As laid out in school climate chapters of this report (Chapter VIII-XII), a healthy school environment may produce conditions for good attendance and positive academic and behavioral outcomes. For example, data collected from school personnel in the state of Georgia revealed that teachers saw school connectedness and positive school climate (when students feel safe and cared for at school) as critical conditions for reducing both dropout and school violence (Hunt et al. 2000). The reverse may also be true: selective teacher attention may also put neglected children in the classroom at higher risk of academic failure and dropout (Abadzi and Llambiri 2011). School engagement among adolescent Central American immigrants living in the United States strongly predicted their outcomes in externalizing psychopathology (aggression), prosocial behavior, and resilience, which are in turn indicators related to violence and crime (Venta et al. 2018).

Parent and community support for a child's education are also critical elements for absenteeism and dropout prevention. For example, social bonds between students, their parents, and teachers predicted students' absenteeism in late elementary and early secondary school in the Netherlands (Veenstra et al. 2010). Connecting parents to schools through information, trainings, and meetings may stimulate them to engage fully with their child's education, thereby improving academic attainment and performance (Gonzales et al. 2014, J-PAL 2018, Veenstra et al. 2010, Sheldon and Epstein 2004, Rogers et al. 2017).

2. Theory of change for expulsion prevention programs

Suspension, expulsion, and zero-tolerance policies draw their justification from evidence showing that grouping students with behavior challenges together can socially reinforce criminal behaviors. Billings et al. (2018) showed that grouping disadvantaged students in the same school increased total crime in smaller neighborhoods and that those students were significantly more likely to commit crimes together, according to arrest data. Imberman et al. (2012) showed that students who had evacuated from Katrina to new schools in Houston increased the rate of their local classmates' behavioral infractions through peer effects. Finally, evidence from Philadelphia suggests that closing underperforming schools with high student misconduct rates can dramatically reduce crime, suggesting that grouping students with behavioral issues together may increase rates of crime in the surrounding neighborhood (Steinberg et al. 2019). However, evidence from a CBT-based after-school program in public schools in El Salvador suggests that integrating students with higher and lower propensity for violence may produce better academic, behavioral, and social-emotional outcomes for both groups than in scenarios where the groups are treated separately (Dinarte 2018, Dinarte and Egana-delSol 2019).[20]

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[20] See the extracurricular programs chapter (Chapter XXII), for more detail on this and other after-school programs and their impacts.

In contrast to zero-tolerance policies, expulsion and suspension prevention programs are implemented in response to a strong research base that shows exclusionary discipline 1) disproportionately affects children of color and children from poor families and 2) increases the likelihood of subsequent exclusion, school dropout, and brushes with the criminal justice system (APA Zero Tolerance Task Force 2008, Meek and Gilliam, 2016, Koon 2013, Skiba and Losen 2015). Even short out-of-school suspensions can produce the same long-term negative effects for adolescents (Hemphill et al. 2014) and reduce their math and reading achievement (Lacoe and Steinberg 2019). Law enforcement approaches to discipline may also generate long-term problems: posting police or school resource officers (SROs) can reduce school violence, but also increases the likelihood of adolescents acquiring a criminal record (Owens 2017). In Texas, federal funding for SROs increased student discipline rates (driven by low-level offenses), especially among black students, and was associated with lower graduation and college enrollment rates (Weisburst 2019). Given the impacts of these more traditional approaches, education policymakers in HICs are actively seeking ways to reduce exclusionary and punitive discipline.[21]

B. Foundational literature on the impacts of dropout and expulsion prevention programs on academic achievement

The evidence base of the impact of dropout and expulsion prevention programs on academic outcomes and outcomes related to dropout and expulsion is generally strong in HICs. Early warning systems (EWS) help educators and school administrators identify children at risk of dropout, while behavioral programs, career training, family engagement, and literacy supports appear to produce significant reductions in dropout.

In implementing EWS, implementers train teachers and school administrators to identify students at risk of dropping out and take specific academic and behavioral support actions with those students (Gallup-Black and Sackman 2015). Warning signs that a student is at risk of dropout include high absenteeism, behavioral issues, and poor course performance (known as ABCs of dropout). (Rafa 2017, Frazelle and Nagel 2015, WWC 2018). In Arkansas and Washington, for example, school administrators worked with researchers to build EWS that predict school failure using data collected daily. This rapid reporting allows teachers and school staff to offer youth greater-intensity programs in a timely manner (Morgan et al. 2014).[22] These programs, in turn, are tiered to address the level of dropout risk that a child or youth presents (Gallup-Black and Sackman 2015). Extensive resources exist on developing and implementing EWS, including troubleshooting guides from the American Institutes of Research (O'Cummings and Thierrault 2015). Practitioners often tie academic performance programs to EWS, and deploy simultaneous supports such as teacher referrals, one-on-one tutoring, or after-school homework clubs (WWC 2017). In addition to the early warning indicators listed above, educators in LMICs and LAC may use sociodemographic characteristics to both identify students at risk of dropout and target them with supportive school- and community-based programs before students abandon formal education permanently (UNESCO 2015). In both dropout and

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[21] See California's SB 419, an effort to ban suspensions, discussed in *EdSource* (https://edsource.org/2019/california-bill-would-ban-suspensions-in-all-grades/609207).

[22] As Deussen and coauthors (2017) note, commonly used EWS indicators may be poor predictors of dropout in specific subgroups, such as English language learners. Alternative models to predict school failure may be necessary for different groups.

expulsion prevention programs, activities may include pre-service and in-service teacher training. For example, programs involving EWS require teachers to become familiar with data entry procedures and the use of automatic student supports.

In addition to reducing dropout and expulsion, dropout and expulsion prevention programs may also improve academic performance (for example, testing, GPA, and graduation rates). In LMICs and LAC, sparser evidence suggests that cash transfers and direct supports to students' families (discussed more detail in the transfers section of Chapter X), along with psychosocial supports, are generally effective in preventing dropout.

1. Impacts of dropout prevention programs on academic outcomes

We found strong evidence of positive impacts of dropout prevention programs on academic outcomes, but findings differ across varying types of programs.

HICs. **Various programs show promise in reducing dropout in HICs.** A meta-analysis of such programs in the United States shows that behavioral programs, career training, family engagement, and literacy development appear to have the strongest effects on dropout reduction (with effect sizes greater than 0.15) (Chappell et al. 2015).[23] With a variety of dropout-prevention program options, educators in HICs have access to databases where they can compare the estimated impacts and costs of programs (Myint-U et al. 2012, WWC 2019). These databases show that accelerated middle schools, for instance, significantly increase students' likelihood of staying in school and progressing from grade to grade, while dual enrollment programs, which allow high school students to access college-level courses, significantly improve students' academic performance and graduation rates. Other programs, such as vocational activities and social and emotional learning initiatives, also show promising impacts on high school completion outcomes (Hahn et al. 2015, Wilson et al. 2011, Kennelly and Monrad 2007).

Early warning system (EWS) programs show promise in reducing absenteeism, but program implementation is challenging. A randomized controlled trial of an EWS program in 73 schools in the Midwest showed the program reduced chronic absenteeism by 29 percent and course failure by 19 percent but did not significantly affect GPAs or rates of suspension (Faria et al. 2017). This program, called the Early Warning Program and Monitoring System (EWIMS), also did not appear to affect the use of data in the school or the rate at which students earned credits. These shortcomings could be explained by the low-fidelity implementation of EWIMS. For example, treatment schools did not report reviewing key data more often than control schools, nor did the number and type of supportive programs vary between the two groups.[24]

Building relationships and social skills may also reduce dropout. The Check & Connect program, which used paid "monitor" staff to track and engage at-risk youth, demonstrated that programs to improve teacher-student relationships can significantly reduce absenteeism and

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[23] These impacts are promising, given that early dropout prevention programs were unsuccessful in reducing school abandonment and risky behaviors such as pregnancy and arrest (Dynarski et al. 1998a, 1998b). These papers were not included in the review, given that they took place prior to 2000.

[24] The literature suggests that absenteeism and dropout are correlates, and dropout prevention programs often use absenteeism as a measure of program success. However, a meta-analysis of dropout prevention programs shows that programs which successfully reduce dropout do not necessarily reduce absenteeism, which suggests that the two indicators may not be as closely linked as previously theorized (Tanner-Smith and Wilson 2013).

dropout (Anderson et al. 2004). These findings are in line with research that suggests social-emotional skills are critical to career readiness (Welch et al. 2017).

Education leaders in HICs also use compulsory attendance policy as a lever to reduce dropout. However, recent reports from REL noted that while eleven U.S. states increased the compulsory school attendance age between 2002 and 2011, no rigorous evaluations provide a clear view of the policy changes' impacts on dropout and truancy (Mackey and Duncan 2013).

Parent and community support may also produce strong impacts on absenteeism and dropout. Gonzales et al. (2014) showed that programs for Mexican American adolescents involving child coping skills, parent practices, family cohesion, and school engagement reduced dropout, substance abuse, and "internalizing symptoms"—the social-emotional issues that may lead adolescents to lose faith in value of education and their own achievement. In France, parents engaged by schools in informational meetings were 42 percent less likely to see their children drop out before high school than parents who were in a no-meeting comparison group (J-PAL 2018). A US-based program with parenting practice workshops, absenteeism information, and community mentoring significantly reduced chronic elementary and high school absenteeism (Sheldon and Epstein 2004). Another US program used postcards to "nudge" parents toward improving their child's attendance, which significantly reduced absenteeism for students in grades 1-9 (Rogers et al. 2017).

LMICs/LAC. **In LMICs and LAC, the most effective programs to improve enrollment and reduce dropout were focused on economic supports, infrastructure development, health and nutrition, educational practice, information, and training** (Petrosino et al. 2013).[25] A 2011 literature review from the USAID School Dropout Prevention Pilot (SDPP) (Creative 2011) found that financial and material supports to the family are the most common tool used by policymakers to reduce dropout. In 12 of the 13 studies that evaluated material supports to the family (for example, cash transfers, food, or school supplies), researchers found significant impacts in terms of increased attendance, reduced dropout rates, and improved student promotion from grade to grade. Health programs did not produce the same consistent impacts.[26]

Performance, enrichment, and attachment activities may also help prevent dropout in LMICs, but effects are not consistent across evaluations. For example, dropout rates in Honduran lower secondary schools range from 25 percent to over 50 percent, but school inputs such as university-educated teachers can reduce dropout because by offering higher-quality academic activities (Marshall et al. 2014). However, the effects of enrichment efforts on students' attitudes toward school depends on the type of enrichment program and the community context in which it takes place (See Box L.1) (Alvares de Acevedo 2018, Murray et al. 2015). For example,

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[25] Improving school facilities can reduce dropout, as indicated by such programs as the school construction component (SCC) of the UNICEF Child-Friendly Schools (CFS) program (Tolani and Davis, 2017). The SCC entailed the construction of hundreds of new classrooms in Malawian schools, which significantly decreased dropout rates. While building new classrooms and schools may improve attendance and reenrollment, this chapter focuses on non-infrastructure programs. For infrastructure investments, see Chapter VII.

[26] See the section on Transfers in Chapter X for more information. Note also that dropout prevention programs can produce heterogeneous effects. Tanner-Smith and Wilson (2013) report that such programs appear to produce larger reductions in absenteeism among male students those in a younger age bracket.

programs to introduce information and communications technology (ICT) in schools may not increase students' school attachment or completion. Cristia et al. (2010) showed that the availability of computers for educational purposes in Peruvian secondary schools did not significantly or consistently affect dropout rates, initial enrollment rates, or grade repetition. Sharma (2014) found similar results in Nepal, where the One Laptop per Child program appeared to yield null or negative effects on test scores and attendance.[27]

Like we observe in HICs, information and support to families in LMICs and LAC can lead to positive outcomes for children at risk of separation from the education system. In Sierra Leone, Zuilkowski and Betancourt (2014) showed that war-affected children and youth had lower dropout rates when their families offered higher levels of financial support and when the aspiring students perceived greater social support in their communities for their educational

USAID funded the School Dropout Prevention Program (SDPP) in Cambodia, India, Tajikistan, and Timor-Leste. To evaluate the program impacts, research partners Creative Associates International and Mathematica Policy Research conducted four randomized controlled trials. The programs of the SDPP varied slightly across the four pilot countries, but all programs included an EWS component customized for the locality. The programs operated on the theory that improved behaviors, including reduced absenteeism and increased student motivation, could substantially reduce dropout rates. The EWS included components to 1) identify warning signs, including the ABC signals and other context-specific triggers; 2) track at-risk students and take immediate action to give the child more support and the parents more information; and 3) raise community awareness and outreach activities. EWS were complemented with country-specific activities, including computer labs (Cambodia), an in-school enrichment program (India), after-school programs (Tajikistan), and extracurricular activities (Timor-Leste). These paired activities aimed to increase school attachment or performance. Overall, the SDPP program showed modest but significant gains in most outcome domains, including supportive teacher behaviors, student attendance, student attitudes toward school, and lower dropout rates (Murray et al. 2015).

reintegration. Chen (2017) found that Chinese high school students who had stronger bonds with their parents had both higher self-worth and better academic engagement. Finally, in the Dominican Republic, Jensen (2010) found that providing earnings information to eighth-grade boys and their parents significantly improved educational attainment (0.2 additional years of schooling).

Cost analyses. Cost-effectiveness analyses of dropout prevention prevention programs are sparse and limited to studies of programs in HICs. In HICs, dropout prevention programs have costs ranging from approximately $1,000 to $13,000 per participant per year (WWC 2008, Creative 2011). For example, the Check & Connect program cost approximately $1,400 per student per year in 2001–2002 (Tyler and Lofstrom 2009). Using rigorous evaluations reviewed by What Works Clearinghouse, Hollands et al. (2014) found that dropout prevention programs appear to be much more cost-effective in achieving school completion than programs to serve youth who have already dropped out. The researchers showed that an in-school dropout

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[27] Numerous programs to reduce dropout have promising program structures but lack rigorous evaluations. For example, the *Centros de Actividades Juveniles* (CAJ, Youth Activity Centers) in Cordoba, Argentina, are designed to address academic failure, dropout, delinquency, and violence (Alterman and Foglino 2005). No documents detailing rigorous evaluations could be located, though broad discussions of education policy mention CAJ.

prevention program (Talent Search) cost $30,520 per additional graduate, whereas programs for youth who had already dropped out cost between $69,510 and $131,140 per additional high school graduation or diploma.

2. Impacts of dropout and expulsion prevention programs on suspension and expulsion

We found strong evidence of positive impacts of dropout and expulsion programs in HICs on suspension and expulsion, but evidence in LMICs and LAC is weaker, consisting of qualitative and correlational studies.

HICs. The Campbell Collaboration recently conducted a global systematic evaluation of programs to reduce school exclusion (including suspension and expulsion). The 37 studies that met criteria for rigor were all from the US and the UK, despite the authors' efforts to search the international literature and Latin American scholarship. The review showed that school-based programs in the UK and US reduced exclusion of students (especially expulsion), although effect sizes were relatively small. The most effective programs involved counselling, mentoring and monitoring, teacher skills growth, and academic supports (Valdebenito et al. 2018).

Changing exclusionary discipline policy may produce unintended consequences. The Philadelphia Police School Diversion Program substitutes arrest for summary or misdemeanor offenses with community-based services and a social worker (Goldstein et al. 2019), and schools in Philadelphia are now rolling back their zero-tolerance policies (Lacoe and Steinberg, 2018). However, schools that limited the application of out-of-school suspensions saw truancy rise and academic achievement fall in target schools following the reform. Critically, the attendance and math scores of the *peers* of previously-suspended youth remained unaffected by the policy change, but schools that did not fully implement the reform saw both of those indicators fall (Steinberg and Lacoe 2018).

Other programs that have been shown to be effective in reducing exclusionary discipline in the US are social and emotional learning (SEL) initiatives, school development programs (SDP), and positive youth development (PYD). These programs focus on non-cognitive skills gains, school climate, and self-concept, respectively, as means to reduce behavioral issues and expulsion (EDC 2012, Morgan et al. 2014).

LMICs/LAC. Our search did not locate conclusive evidence from LMICs and LAC on the effect of expulsion prevention programs. However, qualitative and correlational evidence on exclusionary discipline in Central America is available. In El Salvador, academic and behavioral challenges produce high rates of expulsion, which in turn contribute to youth violence and delinquency (Olate et al. 2012). According to evaluation documents from the Central America Regional Security Initiative (CARSI), Salvadoran education regulations prohibit expulsions, but interviewees at the school level noted that administrators informally expel youth with problematic behaviors by transferring them to other schools. These transfers present unintended challenges when parents at the new school become frightened of the new arrivals and withdraw or transfer their own children (CARSI 2014b). At the same time, when children and youth whose behaviors school officials define as problematic are transferred to other schools, distance can exacerbate issues associated with poor family engagement (CARSI 2014a, CARSI 2014b).

USAID recently invested in violence prevention programming in Central America by granting the CUNY John Jay College of Criminal Justice nearly $5 million to establish the Academy for Security Analysis (ASA). Researchers from the ASA are partner with institutions such as the Honduran Secretariat of Security to evaluate the impact of various violence prevention programs, including a school-based prevention program in Comayagua, Honduras. This prevention program aims to reduce behavioral problems, dropout, and expulsion through mentoring and non-cognitive skills-building (John Jay 2018).

Appendix Table O.1. Dropout prevention programs

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
HICs													
Corrin et al. 2016	RCT	*Diplomas Now*: dropout prevention with EWS (USA)[i]	1-year interim results	Grades 6 and 9	Grades 6 and 9	NS		+[ii]		Mixed			
Heller et al. 2017	RCT	*Becoming a Man*: school violence and dropout prevention (USA)[iii]	1 year and 2 years after implementation	15–16	17						+	+	+
Parise et al. 2017	RCT	*Communities in Schools*: case management component for dropout prevention (USA)[iv]	2 years after implementation	Middle and high school students	Middle and high school students	NS	+	+		NS			
LMICs													
Betancourt et al. 2014	RCT	*Youth Readiness Program* and educational subsidy to reduce dropout (Sierra Leone)[v]	At end of program	15–24	15–25	+							
			6 months after program ended	15–24	15–25	NS				+			
Preda et al. 2014	Weak QED	*School Attendance Initiative*: dropout-prevention initiative (Romania)[vi]	Interim evaluation	NA	NA			NS					
Opre et al. 2016	Pre-post	*ToolKit*: dropout-prevention initiative (Romania)[vii]	Completion of 3-month program	7–18[8]	7–19[viii]	+							
LAC													
Ganimian et al. 2018	RCT	*Scholarship and Mentoring Program* (Argentina)[ix]	3 years after program rollout	Mean age 12.5	Mean age 15.5	NS							

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
Josephson et al. 2018[x]	QED	*Construye T:* risk prevention and supports to students' SE skills (Mexico)	2 years after program rollout	15-17	15-17 (repeated cross section)					Mixed	+		
	Correlational	*Yo No Abandono:* anti-dropout supports for school directors (Mexico)	2 years after program rollout	15-17	15-17 (point in time)					+			

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] Corrin and coauthors (2016) provided interim impact estimates of the Diplomas Now (DN) dropout prevention program. Diplomas Now is designed to address the ABCs of dropout: poor attendance, behavioral problems, and poor course performance. To do so, it uses small teacher teams to support students, curriculum improvements and teacher professional development, tiered programs to support students (entire school, targeted for at-risk, and highest risk, identified by admin and teachers after an EWS signal), and school culture development. This RCT examined the effects of the program on 6th and 9th graders after one year of implementation in 32 schools (62 schools total, with 30 randomly assigned to the control, business-as-usual condition).

[ii] After one year of implementation, the program had produced statistically significant increase in the proportion of students without any early warning indicators (indicators include less than 85 percent attendance, 3 or more days suspensions, and failing grades in English and or math). Students in DN schools were significantly more likely to report having a positive relationship with a non-teacher adult at the school (ES = 0.11). They were also significantly more likely to be participating in after-school activities (ES = 0.20) However, there were no statistically significant effects of the program on attendance and days disciplined, nor course passing rates. After one year, students' reported perceptions did not suggest any significant difference between the treatment and control groups in terms of confidence and self-worth, engagement, tenacity, or study habits. Teachers at DN schools reported a more positive school climate (weakly significant).

[iii] Heller et al. (2017) report impact estimates at the 1-year and 2-year marks after schools rolled out the Becoming a Man (BAM) school violence and dropout prevention program. Treatment involved exposure to BAM, a behavioral activities approach, combined in some cases with a sport program. BAM entails 27 one hour, once-a-week sessions over the course of a year in small groups. BAM uses tools from cognitive behavioral therapy (CBT) to get youth to step back and recognize and question their thoughts, feelings, and behaviors. There are also role-playing, introspective, experiential, skill-building, and discussion elements. Using the IV approach and the control complier mean (given high noncompliance), the authors estimate that program participation reduces total arrests, violent crime arrests, and arrests for other offenses significantly, by 28 percent, 45 percent, and 37 percent, respectively. However, only the violent crime arrest estimates are significant at the p-value < 0.05 level, total and other arrests are at the p-value < 0.10 level. These results fade away after the program ends. In the second experiment, the IV approach shows the program had no significant effect in the first year, but in the second year, it reduced total arrests, violent crime arrests, and arrests for other offenses significantly (by 35 percent, 50 percent, and 43 percent, respectively). Only the total arrests estimate is significant at the p-value < 0.05 level; violent and other arrests are at the p-value < 0.10 level. School engagement (GPA, days present, and enrollment status) among treated youth in both studies was significantly higher than among control group youth at the end of the program and remained significantly different at one year past the program in the first experiment. High school graduation rates were also 12 to 19 percent higher among treated youth than untreated youth. While social-emotional channels are theoretically explored, there was no quantitative assessment of impact. The authors argue that the BAM activities likely produced violence, crime, and behavioral changes through effects on automaticity, self-control/grit, social skills, and social values. Measurements include arrest records, graduation rates, school performance indicators, and Consortium on Chicago School Research surveys (for SEL). Heller and coauthors suggest that benefit-cost figures are between 5 to 1 and 30 to 1, considering crime and graduation outcomes. Costs are $1,100 and $1,850 per participant year.

[iv] In this randomized controlled trial, Parise and coauthors (2017) examine the effects of Communities in Schools case management on dropout and other outcomes. After two years of programming, there were no significant differences between case-managed and non-case-managed students' participation in extracurricular activities nor in students' educational self-perception and effort (related to confidence and perseverance). However, students receiving case management to prevent dropout were significantly more likely to report they had a caring adult at home (effect size of .15), had a caring adult at school (effect size of 0.14), had quality friendships (0.15 ES), and were engaged at school (0.11 ES) than their non-case-managed peers.

[v] Betancourt and coauthors (2014) used an RCT to evaluate the impacts of programs to improve educational attainment and reduce dropout for war-affected youth, comparing (1) the Youth Readiness Program (YRI, a 10 week CBT-based group mental health program with group interpersonal therapy—IPT—elements and community and family meetings) with (2) a subsidy for an alternative education program (EducAid), (3) a combination of the two, and (4) no program. EducAid involves small group study, textbooks, support at the individual level to achieve grade-level competencies, and grade completion exams (equivalency). Immediately following the YRI program, treated youth reported significantly greater gains in prosocial attitudes and behaviors, social support, emotional regulation, as well as significantly greater reductions in functional impairment, than their control group peers. However, these significant differences did not persist after 6 months, as the control group outcomes improved over time. YRI participants were more likely to pursue educational opportunities after the program than their control group peers, and teachers reported that YRI participants had significantly better classroom behavior than their only subsidized peers. Of interest for this program area, the youth who only received the subsidy had significantly better attendance than non-subsidized youth but showed no significant improvements in classroom behaviors. Outcome measures included Oxford Measure for Psychosocial Adjustment, Difficulties in Emotion Regulation Scale, WHO Disability Adjustment Scale, Inventory of Socially Supportive Behaviors, UCLA PTSD Reaction Index, Classroom Performance Scale, attendance. No cost-effectiveness figures were reported, but the authors recommended replication in other locations, testing boosted (more intensive) versions of the program, exploring long-term employment outcomes, and conducting research to establish which areas of the YRI are responsible for positive effects on educational engagement.

[vi] Preda and coauthors (2014) deployed a weak quasi-experimental design (using non-matched, purposively selected "similar schools" as a counterfactual) to study the School Attendance Initiative (SAI) in Romania. SAI was a 5-component program to reduce absenteeism and dropout, including community networks, future visualizations, and parenting education. The total study sample consisted of 943 children and their families from 55 schools. The authors write that "in a multivariate model, the total number of SAI components is a marginally significant (*p*-value = 0.056) predictor of pupils' increase or decrease in absenteeism." Of interest for our study, the parenting program was not significantly associated with the rate at which parents reported beating their children. Domestic violence, the authors note, is correlated with academic difficulties and school dropout. The authors suggest that the program costs $16 per child per year (in 2012–2013), or in terms of cost-effectiveness, $3.16 per extra hour of attendance per child.

[vii] In Romania, Opre et al. (2016) examined the Toolkit program with a pre-post design. The program (implemented for 3 months) is a 7-module dropout prevention and school engagement program involving career counseling, parent counseling and awareness-raising, school-parent-community partnership building, diversity and opportunity equality workshops, environmental (pollution) education, entrepreneurship skills, and "Choose the school" remedial education access program. Pre-post analysis showed participants significantly improved in self-efficacy and expectations for success, perceived usefulness, motivation/desirability, values (personal and family), models and valorization, religiosity, and educational identity. Children with parents working abroad, or with mothers who had lower levels of education, benefitted more from the program. This is a weaker paper but suggests that preventative programs may have some impact on socioemotional outcomes. Measure include Attitudes toward School and Religion (ASR; Opre, Macavei, Pintea, & Buzgar, 2016), the Educational Identity Questionnaire (EIQ; Negru, Pop, & Opre, 2013), and the Behavior Assessment System for Children (BASC-2; Reynolds & Kamphaus, 2004).

[viii] Mean age is 12 years.

[ix] Ganimian and coauthors (2018) used a randomized design to study the impacts of the Scholarship and Mentoring Program (SMP) in Argentina. SMP is a need-based program to prevent dropout, and is conditioned on students not repeating grades, not being suspended, and staying enrolled in a program-affiliated school. This program is implemented at the beginning of secondary and may last for up to 4 years. A monthly scholarship (10 disbursements per year) of about $40 USD is deposited to students' accounts, which can be used for any purpose. Mentoring includes monthly non-academic sessions (10 per year) with university-educated paid mentors hired by the non-profit. These mentors have training in developmental psychology, teaching, social work, or similar fields and receive pre-and in-service training. Monthly mentoring sessions may be group or individual, and parents/guardians may be present. Mentors are given wide latitude in planning sessions to address the individual needs of their charges. Mentors also have power to subjectively determine whether a student should be expelled or suspended from the program. Impacts on standard outcomes include improved preventive and corrective academic behaviors, but there was little to no impact of the program on academic mindsets, perseverance, learning strategies, school performance (attendance, grade repetition), and student achievement (test scores). The SMP did not have significant impacts on the Big 5 social-emotional traits (John et al. 2008; John and Srivastava 1999), except for conscientiousness, which showed a small but significant negative impact. However, this difference is partially due to better performance in the control group. The null hypothesis (that SMP will have no effect on critical social-emotional skills) cannot be rejected. Intent-to-treat and treatment-on-the-treated specifications yield the nearly the same results. Program cost is estimated at 733 USD/Year. Authors do not offer concrete policy or research recommendations. This paper is also reviewed in the Transfers section of Chapter X.

[x] Josephson et al. (2018) present evidence from four dropout prevention programs in Mexico and Chile. The 4 programs reviewed include:

(A) Construye T (Mexico): a program to improve school environments and reduce challenges to completion of secondary education. Activities were designed on the local level by school committees; later, the program became a socioemotional curriculum campaign; both versions had low-fidelity implementation. In the Construye T quasi-experimental design, suspensions and missing class increased across all schools, but to a lesser degree at treated federal schools. However, gender equality attitudes in federal schools did not progress as quickly as in state schools, contraceptive use decreased in federal schools (where it increased in state schools), and failure and dropout rates increased in federal schools where it decreased in state schools. In Construye T, treated schools (federal) saw slower increases in school violence than comparison schools (state schools).

(B) Yo No Abandono (Mexico): an anti-dropout program including attendance, behaviors, and course performance elements [ABC], welcoming new students, study habits, peer tutoring, student decision-making, life planning, guidance counselling, parent communication, tutoring, social networks, developing socioemotional skills, and participatory dropout cause identification. According to evidence from a correlational study, students in schools that received and implemented the program manuals were 38 percent less likely than students in schools without manuals to have dropped out in the previous year. Students in attending institutions where school directors reported parent engagement, EWS, coexistence activities, workshops on decision-making, peer tutoring, and socioemotional skills development program were 81 percent less likely to have dropped out. However, the comparison group was small and weak, and for the latter figure (school director activities implementation), was self-selected. Also, the figures were reported by school directors who may have had an interest in reporting positive outcomes. Problematically, gender-equality rhetoric did not translate into gender-transformative approaches. For example, the pull and push factors for dropout are different between adolescent boys and girls (e.g. academic failure vs household task obligations), but the program approaches were the same.

Appendix Table O.2. Expulsion prevention programs

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
HICs													
Institute of Education 2014	Correlational	*Alternative Provision*: flexible funding for schools to devise exclusion prevention activities (UK)[i]	2 years of programming	Secondary school students	Secondary school students					NS			
LMICs (no evidence located on impacts of mentoring programs on violence, crime, and correlated outcomes in LMICs)													
LAC (no evidence located on impacts of mentoring programs on violence, crime, and correlated outcomes in LAC countries)													

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] In this non-experimental School Exclusion Trial, researchers with the Institute of Education (2014) in the UK used multilevel modeling to examine associations between a school receiving financial resources under the Alternative Provision (AP) and academic and behavioral outcomes. After two years of programming, there were no significant differences between teacher reports of disruptive behavior among AP-supported students and non-supported students.

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APPENDIX P:

CLASS TIME

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This appendix provides information from the foundational literature on the impacts of infrastructure on academic achievement and provides additional information on the studies summarized in Chapter XV in Table XV.2.

Foundational literature on the impacts of class time on academic achievement

Systematic reviews and multi-country studies have found evidence that increasing class time can increase learning in many, but not all settings. Five high quality multi-country studies contained analyses of data on test scores and class time, and all but one found that increased class time was associated with increased learning (Lee and Barro 2001; Woessmann 2003, Lavy 2010; Rivkin and Schiman 2015; Patall et al. 2010). Only Lee and Barro (2001) found a negative association between class time and reading test scores (but also found a positive association between class time and math test scores). After their review of the class time literature from 1985 to 2009, Patall et al. (2010) concluded that increased class time can support student learning, especially for students at risk of failing out of school, and especially when considering how the time is used.

Most country-specific studies from HICs have shown that increasing class time has positive impacts on learning. Studies from Germany and Israel found that policies lengthening the school day increased learning (Huebener et al. 2017; Lavy 2016). Two studies from the United States found that the number of days school is held affects student test scores: Fitzpatrick et al. (2011) used exogenous variation in the timing of a standardized test in the school year to estimate the impact of additional school days on learning, and found a positive effect for more days of school. Marcotte (2007) found that learning decreased when weather-related school closures reduced the number of days in school. Sims (2008) found that a Wisconsin state law that shortened the school year by banning early starts was associated with lower 4th grade math test scores, but had no impact on reading or language scores.

However, the impact findings of longer school days in LMICs outside LAC have been mixed. In Ethiopia, Orkin (2013) used difference-in-differences analysis of a policy that extended the short school day to a full day and found significant improvements in math and reading test scores. In Vietnam, Tran and Pasquier-Doumer (2019) took advantage of the rollout of full-day schooling to estimate the impacts of a longer school day on learning, and found that moving from shift-based to full-day schooling had no effect on learning.[28]

Impacts of longer school days in LAC have been mostly positive, but mixed. Most of the evidence comes from quasi-experimental evaluations of the impact of policies that require schools to move from traditional shift-based teaching—in which students attend school for a half day—to full-day schedules. In Chile, the full-day policy has been rolled out almost universally, adding 10 hours per week to the school schedule (Alfaro et al. 2015). Most evaluations of the policy in Chile (Bellei 2009; Valenzuela 2005; Arzola and Paz 2011; García Marín 2006; Pires and Urzua 2015) found positive impacts on learning in language and math (although Valenzuela found positive math impacts in voucher schools only). Colombia also moved to full-day schooling, and both of the evaluations we identified found positive impacts on math and language using school fixed effects (Hincapie 2016) and instrumental variables approaches

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[28] We have included this recent paper, although we did not have access to the entire paper.

(Bonilla 2014). Evaluations of a full-day policy in Uruguay found both positive (Cerdan-Infantes and Vermeersch 2007) and negative impacts on learning (Llambí 2013). Both used propensity score matching, suggesting that the difference in findings might have been due to differences in the evaluation methods that were used.

However, multiple studies of a program to extend the school day in Brazil have found negative impacts on math, and positive or no impact on Portuguese. In 2008, Brazil implemented a nationwide policy to extend the school day on some but not all days of the week in a program known as *Mais Educação* (Alfaro et al. 2015). Four studies used propensity score matching to estimate the impact of the policy change on learning. Three of those found significant negative impacts on math scores (Almeida et al. 2016; Dias Mendes 2011; Xerxenevsky 2012), and one did not find significant results (DeAquino 2011). However, impacts on Portuguese included positive (DeAquino 2011 and Xerxenevsky 2012) and non-significant results (Almeida et al. 2016). Almeida et al. noted that the schools with the largest negative impacts on math were those that began the full-day schedule earliest, suggesting that the negative impacts were the result of implementation challenges as teachers adjusted to a new schedule, and the curriculum and the time students may have used for studying were displaced. This finding suggests that because longer school days displace time that some students might have been using for studying, it could be important to incorporate study time into the longer school day. Failing to do so could contribute to the sometimes-negative impacts on learning observed in the longer school days.

An evaluation of the long-term impacts of full-day schooling in Argentina found positive results on educational attainment, but no lasting impact on labor market outcomes. Llach et al.'s (2009) evaluation of the impact of moving from shift-based schedules to full-day school days in Buenos Aires, Argentina, is unique in that the authors evaluated the impact of additional class time on long-term outcomes, finding mostly positive impacts. Adults who attended full-day primary school had significantly higher rates of high school completion, but did not have longer-term impacts on income, employment, or socioeconomic status. Impacts on high school completion were higher for students with lower socioeconomic status.

Most studies evaluating the impact of additional days in the school year in LMICs and LAC found positive effects. In Mexico, Aguero and Beleche (2013) estimated the impact of additional days in school by exploiting exogenous variation in the timing of the administration of standardized tests. They found small, but significant impacts of additional days of school on test scores in math and reading, although impacts on reading were smaller than impacts on math. In Indonesia, Samarakoon and Parinduri (2015) found that students who benefited from an extra six months in one school year in 1978 were more likely to complete high school and experience other benefits in adulthood (see the study discussed further in Chapter X).[29]

Increasing class time can, however, either reduce or exacerbate existing disparities in academic achievement, depending on how the additional class time is used and what activities are displaced. In some countries, increasing class time benefited lower-achieving students, either by improving their test scores or reducing the rates of grade repetition. These

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[29] Before 1978, the school year went from January to December. To allow for shifting the start of the school year from January to July, the 1978 academic year was extended by six months to go from January 1978 through June 1979. Cohorts enrolled in school during this academic year received six months of additional schooling.

countries were Israel (Lavy 2010 and 2012), China (Eble and Hu 2019), and Brazil (Dias Mendes 2011). However, studies from other countries have found that increased class time does not necessarily benefit lower-achieving students (Tran and Pasquier-Doumer 2019), and can benefit students who are already high achievers (Orkin 2013; Huebener et al. 2017), or who come from families with higher socioeconomic status (Aguero and Beleche 2013). The difference in impacts is likely to be a result of how the additional class time is used (Rivkin and Schiman 2015) and which activities it displaces. If class time was ineffective for lower-achieving students, adding more of it might not help them catch up. However, if additional class time is used to provide remedial classes, for example, or offer something different than what is offered in the normal school day, it can reduce disparities in learning outcomes. At the same time, if increasing class time reduces the time students might spend engaging in risky behaviors outside of class, this could reduce disparities in academic and other outcomes for the most at-risk students. In Ethiopia, Orkin (2013) found that extended class time reduced the disparity in boys' and girls' test scores by reducing the difference between boys' and girls' study time. Extended class time was more likely to displace study time for boys than for girls, and was more likely to displace time spent on household chores for girls.

Evidence from LMICs shows that impacts on educational outcomes can vary by rural or urban residence and socioeconomic status, but the direction of impacts is mixed. Hincapie's (2016) and Llach et al.'s (2009) studies of extending the school day from a half to a full day in Colombia and Argentina, respectively, found larger impacts for students with low socioeconomic status, and Bellei (2009) found larger impacts of the same policy change for students enrolled in public schools in Chile, suggesting that additional school time might be most important for disadvantaged students. However, Orkin (2013) found that impacts of extending the school day from a half to a full day were greater for higher SES students in Ethiopia. Further complicating the picture, although Bellei (2009) found that impacts were greater for students enrolled in public schools, he also found greater impacts for students on the higher end of the achievement distribution. Orkin looked at impacts by gender and found stronger impacts for girls. She suggests that because girls are expected to spend their time outside school on domestic work, whereas boys are more likely to spend that time on schoolwork, extra time in school would have more impact on girls. Evaluating the impacts of additional school days by comparing test scores for students who took a standardized test later in the school year to those who took the same test earlier in the school year, Aguero and Beleche (2012) found that additional days benefited higher SES students, similar to Orkin's (2013) finding on extending the school day in Ethiopia.

Appendix Table P.1. Studies of increased class time

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years) Program	Age range (years) Outcome	Social-emotional skills	Family environment	School environment	Community Environment	Risky and protective behaviors	Violence and crime School violence	Violent crime	Nonviolent crime
HICs													
Lavy (2016)	School fixed effects, instrumental variables, and cross-subject (same-student) comparisons	Variation in hours of instruction per week based on change in school funding formula (Israel)	Short-term	Primary school	Primary school			NS			NS[i]		
LMICs													
Samarakoon and Parinduri (2015)	Regression discontinuity design	School year with 6 extra months (Indonesia)	Long-term	Ages 7-18	30s					+[ii]			
LAC													
Pires and Urzua (2015)	Difference–in-difference with propensity score matching (student-level)	Education reform extended high school day from half day to full day (Chile)	7 to 12 years after graduation	Ages 15-18	7-12 years after high school	NS				+[iii]		NS	NS
Berthelon and Kruger (2011)	OLS with municipality fixed effects	Move from half-day to full-day schooling (Chile)	Concurrent	15-19	15-19					+[iv]		+	+

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] Lavy (2016) found that increasing school hours had no impact on school violence, fear of bullying, fear of violence, school satisfaction, or social satisfaction.
[ii] Samarakoon and Parinduri (2015) found that females who had been exposed to one school year that was unusually long had higher rates of contraceptive use and fewer live births by their 30s.
[iii] Pires and Urzua (2015) used difference-in-difference analysis with propensity score matching to compare differences in outcomes for similar-age students who participated in full-day high school with similar students who did not, and found that full-day high school led to lower rates of adolescent motherhood. This was bordering on significant for the full sample (p = 0.106) and significant for students whose mothers had less education ($p < 0.05$). The authors found no impact on social-emotional skills or arrest rates in the full sample or in subgroups.
[iv] Berthelon and Kruger (2011) found that extending the school day from a half day to a full day decreased the incidence of adolescent motherhood and juvenile crime.

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APPENDIX Q:

TRANSFERS

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This appendix provides information from the foundational literature on the impacts of transfers on academic achievement and provides additional information on the studies summarized in Chapter XVI in Tables XVI.2 to XVI.4. Results in this appendix are presented separately for cash transfers, scholarships and school feeding programs.

Foundational literature on the impacts of transfers on academic achievement

Drawing principally from studies in LMICs and LAC, we found emerging to strong evidence of the positive impacts of transfer programs on academic outcomes, such as attendance and achievement. Evaluations and meta-analyses of cash transfers show that the programs positively affect academic and livelihood outcomes, including attendance, enrollment, and in some cases, future employment and earnings. However, conditional cash transfers (CCTs) were not consistently associated with improved cognitive outcomes, as measured by test scores. We found emerging evidence that unconditional cash transfers (UCTs) also have positive effects on student attendance and household consumption, but there is little evidence of positive impacts of UCTs on cognitive outcomes. For scholarships, a moderate evidence base showed mixed effects and indicated that certain merit-based programs may improve test scores and student academic engagement, but only in certain contexts (see section 2 below). Finally, a moderately strong body of evidence indicated that school feeding programs and take-home rations appear to improve student enrollment, attendance, attainment, and calorie intake, but positive effects on student physical growth and cognitive outcomes were inconsistent.

1.   Impacts of cash transfers on standard education outcomes

A strong literature base on cash transfers shows that the programs increase school enrollment and attainment, while moderate evidence suggests the programs have limited effects on cognitive gains and health outcomes, with limited effects on labor market indicators[30]. Baird and coauthors (2013, 2014) conducted a systematic review of conditional and unconditional cash transfer studies (75 studies of 35 programs) and found that across various settings, education-conditioned CCTs significantly increased school enrollment and attendance among recipients.[31] UCTs also increased enrollment and attendance, but effect sizes were consistently smaller than those produced by conditional programs. CCTs with explicit and strictly enforced conditions appeared to have the strongest effects on enrollment. However, for both types of transfers, impacts on test scores were small to none.

In terms of labor market outcomes, evidence suggests that CCTs and UCTs may produce small positive effects on parents' self-employment in the short term, and, in the case of CCTs, mixed impacts on the long term labor outcomes of targeted children (Baird et al. 2018). Evidence of the long-term effects of the Progresa CCT in Mexico suggests that children whose families

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[30] Owusu-Addo et al. (2018) note that while many evaluations of cash transfer programs in sub-Saharan Africa are rigorous in terms of randomization and estimation of impact, they often lack sufficient exploration of the mechanisms through which the programs are generating effects. In the *Evidence of the effect of transfers on violence, crime, and associated domains* section below, we discuss channels of impact as reported by the authors of included papers.

[31] New research suggests that information, not cash, may be the primary mechanism through which CCTs increase attendance; experimental evidence from Mozambique indicates that merely providing information on a child's attendance with no financial benefit to their parents produces up to 75% of the positive attendance effects observed under conditional cash scheme (de Walque and Valente 2019).

receive the benefit have greater educational attainment and eventually, improved labor market participation (Parker and Vogl 2018). Among women exposed to the benefit as children, the CCT significantly improved both their income (by $30-40 per month) and their labor force participation rate (by 6-11 percentage points). These long-term effects support the theory that early investments in human capital formation and family poverty reduction will improve the stability and prosperity of recipient families for generations.[32] However, evidence from South Africa suggests that unconditional transfers may not yield the same results (Eyal et al 2018). Researchers examining the child support grant (CSG) find that while the benefit produces significant positive effects among current recipient teens, it does not lead to additional years of schooling among older teens or greater human capital accumulation in adolescents in general.

CCTs are a prolific social support in Latin America and the Caribbean, and evidence suggests that the programs have long-term positive impacts on educational attainment (Molina-Millán et al. 2016). Program impacts on other long-term indicators, such as cognitive skills, employment, and income are also often positive, though results are not consistent. In Honduras, researchers used a longitudinal randomized design to evaluate the impact of the *Programa de Asignación Familiar* (PRAF II) CCT. Eight years after the end of the benefit, recipient youth were significantly more likely to have completed secondary school and enrolled in university studies than their non-recipient peers (Molina-Millán et al. 2018). However, the program also produced unintended consequences, and the positive schooling effects were not evenly distributed among all sociodemographic groups. For example, exposure to the program also nearly doubled the likelihood of international migration among male youth, and the program produced few long-term benefits among young female indigenous recipients.

Additional evidence from Honduras suggests that CCTs for children and their families may produce greater human capital accumulation over the long run when accompanied with supply-side programs (such as subsidies to schools and clinics to improve the quality of their services) (Ham and Michelson, 2018).

The timing of cash transfers impacts the decisions a family may take relative to their child's education, according to evidence from a three-treatment randomized trial in Colombia (Barrera-Osorio et al. 2017). Standard bi-monthly transfers had positive effects on enrollment and graduation, but no further long-term education effects. A treatment that delayed (saved) transfers until key re-enrollment periods reduced dropout, improved re-enrollment, and in the long term, even boosted tertiary enrollment and completion. Finally, a distribution structure where lump sums were transferred only upon graduation and tertiary enrollment had positive effects on both of those indicators, but the higher education institutions families chose were of lower quality.

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[32] Amarante and Brun (2016, 2018) show that while cash transfers can make up a substantial portion of household income for lower-income families, their effects on reducing the intensity, severity, and incidence of poverty in their target populations is limited. The redistributive effects of the CTs are also less powerful than one might expect. This is likely due to the scarcity of program resources to treat every eligible family. Evidence from Bolivia (Bauchet et al. 2018) shows that CCT coverage can also be uneven based on ethnicity. In the Beni department, eligible children in families from the ethnic group least exposed to Westerners were 18-22 pp less likely to be enrolled in the *Bono Juancito Pinto* CCT than children from more nationally-incorporated ethnic groups. The authors argue this disparity is due to the less-exposed group's lower expected returns to schooling.

Evidence from Mexico suggests that family networks influence whether CCTs achieve the goal of increasing enrollment and attendance (Angelucci et al. 2009). Students receiving the *Progresa* CCT with geographically proximate extended family had significantly higher (9%) secondary school enrollment than non-recipients, whereas recipients without extended family nearby did not experience any significant impact on secondary school enrollment. Researchers theorize that family networks redistribute the cash benefit from households where primary-level attendance is already guaranteed (and thus the CCT is *de facto* unconditional) to households with high need who are on the verge of enrolling a member in secondary school.

Policymakers also offer conditional and unconditional cash transfers to families in emergencies to support household consumption, protect health and food security, and continue students' school engagement (Cristescu 2019). For example, after an economic crisis in Indonesia, a conditional transfer program significantly improved student enrollment and smoothed household consumption (Sparrow 2007)[33], just as an earlier scholarship program in Indonesia had reduced dropout among lower secondary school (Cameron 2000). Researchers with the Cochrane Collaboration reviewed the evidence on UCTs as they affect health outcomes in LMICs, and found that the programs have mixed effects (positive or non-significant) on various health outcomes, including the likelihood of having an illness and the level of dietary diversity (Pega et al. 2015, 2017). In humanitarian crises, however, evidence on the health impacts of UCTs is weak. In sub-Saharan Africa, a review of evidence suggests that cash transfers can have positive and consistent effects on the quantity and quality of food that recipient households consume, but only if the transfers are regular, predictable, and adequately large (Tiwari et al. 2016). Finally, evidence from a randomized longitudinal evaluation of an unconditional cash transfer in Malawi suggests that the positive income shock can improve the life satisfaction and future outlook of caregivers in poor, labor-constrained families (Kilburn et al. 2016).

In sub-Saharan Africa, policymakers and NGOs also use CCTs as a tool to reduce the incidence of HIV/AIDS (Taaffe et al. 2016). While some CCTs with HIV-prevention effects are traditional education-conditioned benefits, others are conditioned directly on continued HIV-negative status. Studies of CCTs with effects on risky sexual behavior are reviewed in greater detail in section XX below.

2. Impacts of scholarships on standard education outcomes

Emerging evidence suggests merit-based scholarships and pay-for-performance initiatives may increase students' incentives to stay in school and perform well in the classroom (Damon et al. 2016).[34] In Benin, Blimpo (2014) found that individual, team-level, and tournament-style merit-based scholarships all increased significantly increased test scores among 10th graders.

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[33] This initiative was called a need-based scholarship, but would be more accurately described as a CCT, as the continued disbursement of the transfers was conditional upon enrollment and passing grades.

[34] While the literature suggests that need-based scholarships do not have consistent effects on cognitive and attainment outcomes (Damon et al. 2016), Barrera-Osorio and coauthors (2016, 2019) have shown that such programs may produce limited impacts on attainment. Their evaluation of need and merit-based scholarship programs in Cambodia demonstrated that **both** program types increased enrollment and attendance, but only merit-based transfers improved test scores, self-reported well-being, and employability. Of interest for our paper, neither treatment type improved socioemotional outcomes.

The team treatment (where high-performing students were matched with lower-performing ones) was the most effective of the three program types in raising test scores. In China, Li et al (2014) provide additional evidence that programs using peer interaction (i.e. matching low- and high-achieving classmates) along with group incentives can produce significant gains in test scores. However, incentives offered to low achievers without peer matching did not produce improvements in test scores. Berry et al. (2017) offered evidence that standard merit-based scholarships in Malawi (awarded to only to students with the highest test scores) may decrease academic motivation among students who consider themselves less likely achieve top marks, producing unintended negative consequences for schools offering the program. Relative merit-based scholarships (transfers offered to students who showed the greatest gains over a certain period) produced no significant impacts on cognitive outcomes. Sharma (2014) offers evidence from Nepal that incentives alone may not produce significant impacts on academic achievement; cash offered to 8th grades for performance did not improve their test scores at the 5% significance level relative to students who were offered no financial reward. In Mexico, the Aligning Learning Incentives (ALI) program offered cash for performance to high schoolers significantly improved test scores (by .17 sd) but did not affect dropout rates (Behrman et al. 2015). Another high school scholarship program in Mexico, for which eligibility was based on family income but disbursement level was based on academic scores, did not have significant effects on math or Spanish scores (De Hoyos et al. 2019).

In the US, non-experimental evidence from charter schools suggests that various incentive programs may improve student reading scores on state standardized tests, but not math scores (Raymond 2008). Experimental evidence from a cash incentive program in Ohio shows the opposite: treated students in grades 3-6 had no better reading, social science, or science scores than their untreated peers, but demonstrated significantly higher math scores (.15 standard deviations) (Bettinger 2010). In Dallas, a program to financially reward high school students (and their teachers) for high Advanced Placement (AP) exam scores improved AP class enrollment, SAT and ACT scores, and college matriculation (Jackson 2008). In contrast to this promising evidence, Fryer (2010) examined data from randomized trials and showed that in general, pay-for-performance did not have significant impacts on test scores when students were *paid* for those test scores. Instead, paying students for educational inputs, such as attendance, reading, and homework completion produced positive and significant impacts on test scores. This suggests that students may not fully understand or trust that their inputs of time would result in outputs of higher test scores. Paying students merely to increase effort required less trust on their part in the learning process, yet afforded the benefits of improvement. A more recent study showed that both financial and non-financial incentives have significant positive impacts on test scores, with non-financial incentives particularly powerful among younger students (Levitt et al. 2016).

The evidence base on the impact of reducing school fees and providing uniforms to improve educational attainment of children from low-income families is still emerging. Damon et al. (2016) and McEwan (2015) indicate that these programs, which are similar in their theory of change to need-based scholarships, do not have significant or consistent effects on cognitive or attainment outcomes. However, a previous systematic review conducted by Morgan et al. (2012) identified limited evidence that providing school uniforms can significantly reduce absenteeism (as shown in Evans et al. 2009) and may also affect test scores and the likelihood of teen pregnancy (Duflo et al. 2006, Kremer et al. 2003). Non-experimental research examining tuition

policy changes across sub-Saharan Africa suggested that removing tuition fees was associated with reduced child marriage in Ethiopia and Rwanda, but not in Cameroon or Malawi. Primary school completion was not consistently associated with reductions in child marriage (Koski 2018). Hoogeveen and Rossi (2013) used a difference-in-difference methodology to examine the effects of policy reforms in Tanzania to remove school fees, finding that the change improved enrollment among girls, but reduced grade completion among children from rural, poor households.

3.   Impacts of school feeding on standard education outcomes

A moderate body of evidence suggests school feeding programs and take-home rations (sometimes referred to as food-for-education initiatives)[35] appear to improve enrollment, attendance, attainment, and calorie intake, but positive effects on physical growth and cognitive outcomes are inconsistent (Adelman et al. 2008, Jomaa et al. 2011, Bundy et al. 2012, Damon et al. 2016). School feeding programs are common in HICs, and in middle-income countries such as Mexico and Brazil, such programs are paired with the national CCT as a bundle of social supports (Bundy et al. 2012). In some cases, school feeding is implemented as a response to food crises or price shocks, as was the case in Togo in 2008 (Andrews et al. 2011).[36] Education practitioners value school health and feeding programs highly for their positive impacts on both students and communities, as recent qualitative research in Nepal suggests (Shrestha et al. 2019).

School feeding generally has positive impacts on attendance, enrollment, and test scores. In Peru, an RCT of a school breakfast program showed positive impacts on attendance among fourth and fifth graders (Jacoby et al. 1996). Powell and coauthors (1998) found similar effects in an RCT in Jamaica, with rural primary school students who received the breakfast treatment demonstrating better weight, height, and attendance than the control group. Younger children in the treatment group also had significantly higher arithmetic scores. A quasi-experimental design in Senegal likewise found that students in schools where food was offered increased their test scores in mathematics and French, with the biggest effects observed among younger children and girls in the fourth grade (Diagne et al. 2014). In Guyana, the School Feeding Programme (SFP) appeared to improve treated students' attendance, classroom behaviors, and math and English scores (Ismail et al. 2012).[37] In India, a recent quasi-experimental evaluation showed that the national school lunch program in primary schools has significant positive effects on reading and math scores (Chakraborty and Jayaraman 2019). A recent randomized controlled trial in Ghana showed that a nationwide school feeding program significantly improved test scores (.12-.16 SD), and effects were substantially larger among poorer children and girls (Aurino et al. 2018). While the program had no significant effect on anthropometry indicators for all children (ages 5-

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[35] Deworming, which one could argue is a similar program, is not included here because it is not a type of transfer that has been shown to consistently impact enrollment and attendance (Damon et al. 2016).

[36] Providing vitamins to students can also produce positive physical and cognitive impacts: in rural China, students who received a daily multivitamin at school had significantly higher hemoglobin levels and math test scores than their peers who received a daily egg (the standard government policy to tackle anemia in northwestern China) (Kleiman-Weiner et al. 2013).

[37] This study did not randomly assign schools to treatment and control condition, and the propensity score matching process may have been insufficient for rigorous comparisons between groups.

15), feeding significantly increased height-for-age among 5 to 8 year-olds, particularly among girls in northern Ghana and poorer children (.22 standard deviations) (Gelli et al. 2019).

However, not all feeding programs demonstrate positive effects. In Chile, McEwan uses a regression discontinuity design to assess the impact of the national school feeding program (which targets poor schools with high-calorie meals) (2013). He finds no evidence that the program has significant effects on enrollment, attendance, test scores, or grade repetition. Crea and coauthors (2017) examined community violence, child literacy, and a USDA-supported school feeding program in Honduras, Food for Education (FFE). FFE included both free school meals for primary students and take-home rations for parents who volunteered to cook and serve on school committees. Correlational analysis suggested that teachers' perception of high community violence was associated with lower literacy scores among their students, but parents' perceptions that the FFE reduced community violence was strongly associated with lower literacy scores among their children (violence was likely high enough to be cited by parents and was still affecting learning environment). Parents believing that the FFE strengthened their relationships with other parents was significantly associated with higher literacy scores.

Take-home rations also show promising impacts on child health and cognitive outcomes, but evidence is sparse and impacts are mixed (Damon et al. 2016). These programs are designed to simultaneously transfer value to households (offsetting opportunity costs of schooling), increase the attractiveness of attending school, and improve nutrition consumed by children. In Burkina Faso, Kazianga and coauthors (2012) found that both school meals and take-home rations conditional on high attendance improved enrollment and mathematics scores. The programs also changed the composition of child labor, with girls who received the take-home rations more likely to stop working on farm and productive tasks that might have conflicted with school attendance. Researchers in Bangladesh found the Food for Education (FFE) program—which regularly distributed staple grains to low-income families of children attending primary school—increased class sizes in treated areas and improved the attendance and test scores of recipient children (Ahmed and Arends-Kuenning, 2006). However, children who were FFE-ineligible (either because their families were benefitting from another government program or because their head of household was not working in a low-income occupation) experienced reduced test scores, which may have resulted from peer effects as the percentage of students in the classroom with lower ability (FFE recipient children) increased.

4.   Cost-effectiveness of transfers programs on education, employment, and health

Cost-effectiveness analysis (CEA) of feeding and scholarship programs is not common, but reviews of cash transfer literature do sometimes offer CEA calculations (Glewwe and Muralidharan 2015). A review of the evidence on programs to reduce school abandonment from suggested that CCTs are the most effective tools available to policymakers for reducing dropout in LMICs (Brush et al, 2011). However, CCTs are also significant public expenditures, which may reduce their appeal as a tool for dropout reduction when compared to other initiatives.[38] In systematic review of CCT studies (94 studies of 47 programs), García and Saavedra (2017) find

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[38] Evidence from Nepal suggests that transfers such as scholarships must be size-calibrated for impact: small scholarships had no effect on girls' child labor outcomes, while substantial transfers did have desirable effects (Datt and Uhe 2019). This supports the logic that to be effective, transfers must be substantial enough to alter family behavior. It also means that effective transfers may constitute large public expenditures.

highly variable cost-effectiveness estimates for the programs, which is partially due to variable administrative costs. For example, in Ecuador, the *Bono de Desarollo Humano* (BDH) costs 4 cents to disburse 1 dollar to beneficiaries, whereas the *Programa de Asignación Familiar* (PRAF II) in Honduras required 50 cents to deliver 1 dollar. In terms of impacts on enrollment, it appears that BDH and Primary Education Stipend Program (Bangladesh) are the most cost effective CCTs for primary school enrollment, given that they produce 1.3 and 13 percentage point increases in enrollment per dollar of administrative costs per year. Major CCTs in Latin America, such as *Progresa* in Mexico and *Bolsa Familia* in Brazil, produce .4 and .5 percentage point increases in enrollment for the same cost. At the secondary level, *Progresa* is more effective at increasing enrollment (0.21 percentage points per administrative dollar spent) than *Bolsa Familia* (0.04 percentage point increase) or Colombia's *Familias en Acción* (0.12 percentage point increase).

In HICs, student incentives may provide an inexpensive way to boost academic achievement. Jackson (2008) estimated that a program in the US to provide financial incentives to students and teachers for high AP exam scores cost between $100,000 and $200,000 per high school, with average per-student costs of $100 to $300. However, the author provides no estimates of cost-effectiveness related to scores, graduation rates, or tertiary matriculation.

Table Q.1. Cash transfers programs

Abridged citation	Research design[i]	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
HICs													
Morris et al. 2012	RCT	CCT: Opportunities NYC – Family Rewards, conditioned on student attendance and behaviors (USA)[ii]	3 years after implementation	9th grade	11th grade	NS	NS			+			NS
LMICs													
Alam et al. 2011	RCT	CCT: Female School Stipend Program (Pakistan)[iii]	3 years after implementation	12–16	15–19					+			
Baird et al. 2010	RCTiv	*Zomba Girls Cash Transfer Program (CCT and UCT),* Cash benefits to girls and families, tested both with and without attendance conditions (Malawi)	1 year after implementation	13–22	14–25					+			
Baird et al. 2011	RCTv		At end of program (2 years after implementation)	13–22	15–24	Mixed				Mixed			
Baird et al. 2013						+				+			
Baird et al. 2019	RCTvi		2 years after end of program	13–22	17–26	NS				Mixed			
Dake et al. 2018	RCT	UCTs: Multiple Categorical Targeted Grant, Zambia; and Social Cash Transfer Program (Malawi)[vii]	2-3 years after implementation	14–21	17–24					NS			
Evans et al. 2019	RCT	Tanzanian Social Action Fund Pilot CCT, family benefit conditioned on child	2.5 years after implementation	Parents in targeted families	Parents in targeted families				+	+			

Abridged citation	Research design[i]	Program and description	Outcome follow-up period	Age range (years)		Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
				Program	Outcome							Violence and crime	
		school attendance and child and elderly health checkups (Tanzania)[viii]											
Haushofer et al. 2019	RCT	UCT: Give Directly (Kenya)[ix]	2 years after implementation	Unspecified	Unspecified		+					+	
UNICEF 2018b	RCT	U/CCT: Productive Social Safety Net (Tanzania)[x]	19 months after implementation	14–28	15–30				NS	NS		NS	
Handa et al. 2015	QED	UCT: Cash Transfer for Orphans and Vulnerable Children (Kenya)[xi]	4 years after implementation	12–24	16–28					+			
Cluver et al. 2014 Cluver et al. 2016	Correlational	Multiple social programs, including cash and feeding programs (South Africa)[xii]	Varied	10–19	10–19					+			
Yildirim et al. 2014	Qualitative	CCT: Social Risk Mitigation Project, family benefit conditioned on child and adolescent school attendance and child and mother health checkups (Turkey)[xiii]	10 years after implementation	Mothers (range of ages)	Mothers (range of ages)	+	+					+	
LAC													
Fernald et al. 2009	RCT	CCT: *Oportunidades*, family benefit conditioned on child	10 years after implementation	0–2	8–10	+							

Abridged citation	Research design[i]	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
		and adolescent school attendance and health checkups (Mexico)[xiv]											
Hidrobo and Fernald 2013	RCT	UCT: *Bono de Desarrollo Humano,* CCT with education, health conditions not enforced (Ecuador)[xv]	2 years after program	24	26		Mixed					Mixed	
Alcazar et al. 2016	QED[xvi]	CCT: *Juntos,* family benefit conditioned on child and adolescent school attendance and child and mother health checkups (Peru)	4 years after implementation	0–8 (children), mothers' ages not specified	4–15 (children), mothers' ages not specified		+						
Burga 2014	QED[xvii]		6 years after implementation	Mothers' mean age 29	Mothers' mean age 35		+					+	
Escobal and Benites 2012	QED[xviii]		6 years after implementation	6–18 months	7–8 (mothers 28)					-			
Perova and Vakis 2013	QED[xiv]		4 years after implementation	Unknown (mothers)	Unknown (mothers)		+					+	
Sviatschi 2017	Correlational[xx]		Up to 26 years after implementation	14 and younger	18–40							+	+
Borraz and Munyo 2015	QED	CCT: *Ingreso Ciudadano / Plan de Equidad*, family benefit conditioned on child and adolescent school	2 years after CCT expansion	NA	NA								-

Abridged citation	Research design[i]	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
		attendance and health checkups (Uruguay)[xxi]											
Camacho et al. 2012	QED[xxii]	CCT: *Familias en Acción (FAS)*, family benefit conditioned on child and adolescent school attendance and child and mother health checkups, and *Subsidio Escolar (SE)*, high school scholarship conditional on performance, attendance (Colombia)	Immediately after implementation	High school	High school								+
Cortes et al. 2016	QED[xxiii]		After 6 years of FAS and 2 years of SE eligibility	Girls in grades 9–11 (15–19)	Women 19–32					+			
Moreira et al. 2016	QED[xxiv]	CCT: *Bolsa Familia*, family benefit conditioned on child and adolescent school attendance and child and mother health checkups (Brazil)	7 years after implementation	Mothers 16 and older of children 0–17	Mothers 16 and older of children 0–17		-					-	
Chioda et al. 2016	QED[xxv]		1 year after expansion of the subsidy to cover ages 16–17	16–17	16–17							+	+
Machado et al. 2018	Correlational[xxvi]		1 to 9 years after implementation	n/a	n/a							+	
Bobonis et al. 2013	Correlational	CCT: *Oportunidades,* family benefit conditioned on child	6 years after implementation	19+	25+		Mixed					+	

Abridged citation	Research design[i]	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
		and adolescent school attendance and health checkups (Mexico)[xxvii]											

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; QED = quasiexperimental design; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] These study design details refer to the methods used to test outcomes of interest.

[ii] The Opportunities NYC – Family Rewards program, a cash transfer conditioned on student attendance and behaviors, showed promising effects on teenage aggressive behaviors and substance abuse in a randomized evaluation conducted by Morris and coauthors (2012). Specifically, the 3-year program appeared to significantly increase the proportion of academically proficient teenagers who spent time on academic activities over social activities (compared to peers in the control group). It also significantly reduced aggressive behaviors (-9.9 percentage points), substance abuse (-15.2 percentage points), and the number of friends that treated teenagers reported to have used substances in the last month (0.19 fewer substance-abusing friends). However, results did not suggest any program impacts on delinquent behaviors. Further, there was no evidence of program effects on teenage depression or anxiety, nor on students' intrinsic motivation (responding to concerns that CCTs replace intrinsic motivation with cash incentives). Finally, the treatment did not appear to affect parents' engagement in their child's activities, nor did it change reported rates of parent-child conflict (an important family environmental factor).

[iii] In Pakistan, Alam et al. (2011) used quasi-experimental methods, including difference in difference and regression discontinuity design, to evaluate the impacts of a conditional cash transfer focused on high school girls' educational attainment. The researchers found that the program produced marginally significant effects on risky sexual behaviors, delaying marriage and reducing teenage childbearing among participants (1.4 years delayed, and 0.3 fewer children). The authors did not provide cost-effectiveness figures but did suggest that schooling costs are $9 per quarter, with a disbursement of $10 per quarter. Alam and coauthors also suggested that additional research should be conducted on the interaction of school attainment and learning, fertility, labor productivity and wages.

[iv] Baird and coauthors produced several papers on the Zomba Cash Transfer Program in Malawi, which included both CCT and UCT arms. In the CCT, both girls and their families received transfers to promote girls' attendance at school. The program targeted both girls who had already dropped out (called baseline dropouts) and girls who were in school but at an age where dropout is a high risk (called baseline schoolgirls). The CCT arm (the only treatment considered in the first study) brought dropouts back to school over 3 times more than the control group (61 percent of treated baseline dropouts were attending school at endline versus 17.2 percent of untreated baseline dropouts). Further, girls who were in school at the beginning of the program and were treated were enrolled at 93 percent at endline, whereas control group girls who had been in school at baseline were in school at 89.1 percent at endline. The program also reduced early marriage among girls in the dropout group (16.4 percent vs 27.7 percent among dropout control), although both treatment and control schoolgirls had a marriage rate of 4.7 percent. Similarly, treated dropout girls became pregnant at a significantly lower rate than their untreated peers (30 percentage points less). No significant difference was detected between treated and control schoolgirls. Treated initial dropouts were significantly less likely than their untreated peers to begin

sexual activity, and the same treated girls had 25 percentage points fewer sexual partners to date (a significant figure) than their untreated peers. Treated schoolgirls were less likely to be having sex at least once a week, and less likely to have an older sexual partner, than their untreated peers. No change was observed in those variables with the baseline dropouts group.

[v] Baird and coauthors evaluate the Zomba Cash Transfer Program with both UCT and CCT arms. Test scores (English, math, and cognitive ability) significantly improved in the CCT group, but not in the UCT arm. The UCT, however, had significant impacts on delaying marriage (47 percentage points) and childbearing (27 percentage points) after the 2 year program (there was no significant impact after 1 year), whereas the CCT program had no significant effect compared to the control group. The desirable effects of the UCT in terms of reducing early marriage and childbearing are driven by girls who dropped out after the program began, indicating that it was the non-conditionality that allowed the participants to leave school and maintain financial independence. As Baird and coauthors indicate: "the success of the [CCT's] conditionality in promoting the formation of human capital among the compliers appears to be achieved at the cost of denying transfers to non-compliers who are shown to be particularly "at risk" for early marriage and teenage pregnancy." Dropout rates were significantly lower in both UCT and CCT arms, though when self-reported accounts of UCT enrollment are checked with teacher reports, the impact of the UCT on enrollment is revealed to be smaller than the impact of CCTs. Finally, attendance is significantly improved by the CCT (10 days per year over the control group), but not by the UCT, suggesting that the UCT does not change the families' calculus that they need additional help at home during the lean season. Authors claim that CCT program is more cost effective than the UCT program, given that the monitoring and administrative costs are marginal, and the UCT transfers would have to be significantly larger to achieve the same impact on attendance and dropout. However, the UCT is more cost-effective regarding reduction of teen pregnancy and marriage. Baird and colleagues also recommend additional research on the channels by which UCTs and CCTs produce effects. According to the 2019 Baird paper cited in the following endnote, after 1 year, baseline schoolgirls were significantly (17 percentage points) less likely than control group girls to experience psychological distress. Larger transfers to families appeared to increase girls' distress (likely because it made their school attendance the main source of income for the family). In addition, after one year, UCT baseline schoolgirls were significantly less likely to experience psychological distress than either control group girls or CCT baseline schoolgirls. After 2 years (at program completion) the significant effects had disappeared.

[vi] This longitudinal follow-up study of the Zomba program by Baird and company found that the effects of the UCT on baseline schoolgirls' childbearing, delayed marriage, psychological distress, disappeared soon after the disbursements ended. Similarly, CCT effects on risky sexual behavior and psychological distress faded out, but reductions in early marriage and childbearing remained. The longitudinal view also allowed the researchers to identify that the young children of UCT beneficiaries had higher height-for-age than their untreated peers, which indicates the unconditional benefit may have positive intergenerational effects on nutrition and avoiding stunting. After 4 years, the initial positive effects on psychological distress remained non-significant.

[vii] In cluster randomized trials, Dake et al. (2018) evaluated the impacts of two similar unconditional cash transfer in Malawi and Zambia. These programs target poor, labor-constrained, female or elderly-headed households with orphans. After 2 to 3 years of transfers, the cash programs appeared to have significant impacts on youth educational attainment and reductions in family poverty. However, estimates of impact on early marriage and pregnancy were not significant.

[viii] Evans and coauthors (2019) used a randomized design with fixed effects, PCA, and robustness checks to evaluate the impact of a pilot CCT implemented by Tanzanian Social Action Fund (TASAF). The CCT was conditional on enrollment of children 5-17 in school and regular checkups for all children and elderly people in the family. The CCT was disbursed either through community management committees (CMCs) or the central government, and researchers evaluated the effects of these disbursement options on parents' trust in local government (protective factors) and citizen engagement (community environmental factors). Villages with CCTs disbursed through the central government saw trust in leaders decline between baseline and endline assessments (a 6.5 percentage points drop), whereas trust in community leaders increased slightly (0.003 percentage points) in treatment villages, which means at endline treatment villages had 26 percentage points higher trust in their CMCs than control villages. Treatment (CMC) villages also were 10 percentage points more likely to report being very satisfied with the honesty and responsiveness of village councils. However, treatment did not appear to have an impact on engagement in local government or voting behavior, except for voting for CMC members (who had control over CCT disbursement). These effects were generally more pronounced in villages that had more village meetings at baseline, which implies that they had greater access to information and transparency from local government. In terms of community environment outcomes, treatment villages were more likely to report willingness to contribute to community development through both time and money (5 and 6 percentage points above control, respectively), but that willingness was not manifested in any increased engagement.

[ix] Using data from a randomized trial in Kenya, Haushofer et al. (2019) found that the UCT disbursements significantly reduced physical violence by 0.21 SD and sexual violence by 0.16 SD. In households where women were the UCT recipients, female empowerment (a composite variable) increased 0.29 SD. Female empowerment in male-recipient households was not significantly different from zero, and only physical violence (not sexual violence) was reduced. The positive spillover of these impacts was significant: untreated households neighboring treated households experienced significant reductions in physical violence (0.16 SD) and a significant increase in female empowerment (0.19 SD) over the pure control group.

[x] In Tanzania, a UNICEF (2018b) cluster-randomized trial of the Productive Social Safety Net (PSSN) cash transfer showed that the program did not affect rates of sexual, physical, or emotional violence experienced by girls and women, nor did it produce measurable effects on depression, stress, or hope among recipients. The program appeared to increase knowledge of contraceptive use among girls and women, but not among male recipients. This knowledge, however, did not translate into greater contraceptive use. Fertility, risky sexual behaviors, transactional sex and HIV risk were also unaffected by the program. Finally, the program did not appear to improve social supports or the community networks of beneficiaries.

[xi] In this near-RCT QED (since treatment communities were not fully treated--budget restrictions prevented treatment of every eligible HH), Handa and coauthors (2015) examine the effects of a UCT to support vulnerable children 4 years after initial disbursements. The target population was girls 12–24 from low-income families where their parent was deceased or chronically ill. The UCT significantly reduced the likelihood that girls and women 12–24 (who had never been pregnant at baseline) would become pregnant (5 percentage points or 34 percent). The effect is twice as larger for girls not in school. However, school enrollment was a protective factor in predicting / preventing a first pregnancy. Early marriage was not significantly impacted by the treatment. Authors recommend more longitudinal evaluations and examinations of boys' behaviors.

[xii] Cluver and coauthors conducted two studies of various social protection programs in South Africa, including CTs and school feeding programs. In the 2014 paper, using PCA, the authors showed that adolescents who received cash-type supports (child grants, school feeding, and food gardens) had significantly fewer risky sexual behaviors than adolescents who did not receive those supports. Adolescents who had both cash and care (positive parenting and teacher support) saw an even greater reduction in the odds of risky sexual behaviors (approximately half the rate of their non-cash and care peers). The 2016 paper broke down the effects of the different social protection programs and showed that child-focused grants (such as transfers) and school feeding reduced risky sexual behaviors. Transactional sex was 2 percent among young women who received free schooling and child grants, whereas it was 10 percent in among young women who did not receive such supports. School feeding also appeared to have a negative relationship with "incautious" sex: students who received school meals had rates of 10 percent (versus 15 percent among the non-recipient students), and 7 percent if they were also exposed to good parental monitoring.

[xiii] In Turkey, Yildirim and coauthors (2014) examined effects of the Social Risk Mitigation Project (SRMP) CCT with qualitative methods. The study involved multistage cluster sampling and 397 interviews with (mostly) beneficiary mothers, school administrators, teachers, and health care providers. The aim was to collect data on the perspectives of recipient mothers regarding the CCT's efficacy in terms of their child's education and health outcomes, as well as their own well-being as mothers. Beneficiaries (mothers) reported that their children are more enthusiastic and happier about school since the family began receiving the CCT, and that the children show stronger self-confidence and self-esteem. Beneficiaries who had experienced intimate partner violence (IPV) before the CCT reported that since they started receiving the CCT, the violence had decreased or ended. Also, women reported stronger voices in the family regarding financial decision-making, nutrition, and consumption. To confirm or reject these qualitative findings, the authors recommended a quantitative impact evaluation.

[xiv] In Mexico, Fernald et al. (2009) found that children whose families were randomly assigned to start the Oportunidades CCT earlier than other families (and thus had 10 years of exposure, instead of 8.5 years) had significantly lower behavior problem scores on the Strengths and Weaknesses Questionnaire (-0.09 versus 0.13 for the late-starting peers).

[xv] Hidrobo and Fernald (2013) examine the Ecuadorian Bono de Desarrollo Humano (BDH), which was designed as a CCT with child schooling and health care conditions. However, the conditions were never enforced, making the program a UCT with education and health goals. This unconditional benefit was $15/month, targeted at women in the lowest 2 quintiles of family income in Ecuador. Data was sourced from a randomized design that involved 118 parishes and 1250 mothers. Attrition was high from the baseline sample but was uncorrelated with treatment status. Further, the authors checked and bounded their estimates using Lee trimming and other tools. The study yielded the following findings: Overall, treated women had the same likelihood of reporting emotional violence (yelling, insulting, threats of abandonment) and physical violence as their untreated peers, but were significantly less likely to report controlling behaviors from the husband. However, the effects are heterogeneous by indigenous status and education. Indigenous women were significantly more likely to report controlling behaviors and physical violence than non-indigenous peers (10 and 16 percent more likely, respectively). However, indigenous women constituted only 5 percent of the sample, so the effects of their indigenous status should be interpreted with caution. Being a younger mother, having many children younger than 5, and sleeping in the kitchen area of the home were also significantly associated with higher rates of domestic violence. However, women with more than 6 years of education were significantly less likely to report emotional violence (-8 percentage points) and controlling behaviors (-14 percentage points) exhibited by their partners. In contrast, the authors point out that BDH significantly increases (by 9 percentage points) emotional violence by partners against women with 6 or fewer years of education and more schooling than their partners. Authors recommend that policymakers might explore ways to help groups where BDH could increase (or at least does not reduce) rates of IPV, specifically: indigenous women, younger women with many children, and women with less than 6 years of education but more schooling than their partners.

[xvi] The Juntos CCT in Peru targets rural low-income families with at least one child or a pregnancy. Cash disbursements are offered to mothers conditioned on child school attendance and health checkups. In this paper, Sviatschi (2017) uses various non-experimental methods (including linear probability models with fixed

effects with time series data) to show that an exogenous price shock (increase) in the illegal coca market in Peru (during the coca eradication of Plan Colombia) had significant current and future effects on child labor (higher), schooling attainment (lower), and future earnings (lower) in coca-producing regions. Further, youth who were exposed to high-price coca markets at age 11–14 are later less likely to trust government (including police, regional government, and the legislature). Youth who were exposed to high-price illegal coca markets were significantly more likely (30 percent) to later be incarcerated as adults (mostly for drug-related crime, but also violent crime), increases which were driven by greater child labor in coca cultivation and processing. Adults who were 11–14 when the prices increased were most affected, because it is at that age when children transition from primary to secondary (and commonly drop out). Critically for our review, these effects are mitigated by families' receipt of the Juntos CCT (conditional on 85 percent attendance, vaccinations, and pre and post-natal care). Specifically, the CCT reduced child labor at the time of the price shock, increased schooling, and reduced drug production. Sviatschi estimates that coca production during the high-price period was 34 percent lower as a result of labor-constraining effects of the CCT. The program also appears to have mitigated the elevated risk of future incarceration due to coca prices among recipient youth. These changes appear to be due to a schooling-work substitution effect, not an income effect. Finally, the author offers cost-benefit calculations. In 2012, the annual cost of the CCT per recipient household was $340. The annual cost to provide the benefit to all HH in an average coca-producing district would be $1.4 million. According to the coca reduction estimates in the paper, $1.4 million in CCT disbursements could reduce production by 100 hectares, which is substantially cheaper than eradication programs costing between $20 and $27 million per 800 hectares (the CCT could do that with $11 million). Sviatschi recommends that CCTs should be targeted to ecologically suitable coca production zones (those adjacent to unsuitable coca districts, because the spillover of production will be low).

[xvii] Alcazar and coauthors (2016) used Young Lives Survey and Peruvian Demographic and Family Health Survey data with principal component analysis and propensity score matching to capture empowerment outcomes for recipient mothers. Outcome measures include household decision-making, gender ideology, autonomy, and mothers' perception of life, self-esteem, and agency (as structured by Malhotra [2002], Cacique [2005, 2008, and 2010] and Vera Tudela [2010]). The researchers used propensity score matching to compare Juntos recipients with those who were similar eligible but did not receive the program. Recipient mothers, compared to non-recipients, experienced significant positive impacts on household decision-making power, self-esteem indicators, and perceptions of quality of life, but authors did not detect any impact on agency, freedom of movement, changes in gender ideology (e.g., whether violence committed husband is acceptable). No cost-effectiveness figures were available, but the authors offered the following recommendations: reinforce the program's effect on women's decision-making empowerment with additional programming, take care to mitigate existing reputations of women as passive recipients, and take advantage of the fact that CCTs offer a space to convene targeted families and offer allied services, such as productive skills training.

[xviii] In this difference-in-difference design, Burga (2014) shows that receiving Juntos is significantly associated with reductions in emotional violence (14 pp) perpetrated against receiving mothers, but these reductions fade over time. In contrast, Juntos recipients reported larger reductions in physical violence over time (changes which were non-significant at 6 months became significant at the p-value < 0.05 level after approximately 6 years, equivalent to a 9-percentage-point reduction (-56%)). The benefit also appears increase the frequency of women reporting they participate in household decision-making (8 percentage point, 11 percent).

[xiv] In this quasi-experimental design, Escobal and Benites (2012) showed that: children whose families received the Juntos CCT were significantly less likely (at the p-value < 0.05 level) than matched non-recipients (1) to report that they thought the government did the right thing to support children (54 percent vs 74 percent) and (2) to show risk aversion (5 percent vs 6 percent). Finally, mothers were significantly less likely to report satisfaction with their life achievement (a 30-percentage point difference, significant at the p-value < 0.01 level) and to report satisfaction with their quality of life (significant at the p-value <0 .05). Authors theorize that these negative associations are due to children who receive the transfer are still obligated to do housework (which in fact appears to have increased over untreated children), but must also meet attendance goals, which adds stress to the child's life. Meanwhile, the perception of the mother may be that she is burdened with additional obligations in terms of her child's attendance and health. At the p-value < 0.10 level, the treated children were significantly less likely to express self-efficacy, pride in their school uniforms, and a perception that community members treated them well. Finally, the program also does not appear to increase recipients' test scores significantly. The authors recommend (1) examining ways to reduce the child labor in Juntos households and (2) designing complementary programs to improve school quality, so that increased attendance translates into improved cognitive development.

[xx] Perova and Vakis (2013) used difference-in-difference (for receiving and non-receiving districts) and matching methods (for later survey edition with specific Juntos-receiving questions at HH level) and the National Health Survey to assess the CCT's influence on domestic violence. Authors found that in districts where Juntos had been rolled out, women were significantly less likely to report that they had suffered physical or emotional violent at the hands of their partner in the last 12 months (9 and 11 percentage points, respectively [a decline of over 50 percent from pretreatment levels and compared with untreated districts]). In the matching model, where individual women receiving Juntos in targeted districts are matched to eligible-but-not-yet-receiving women in targeted districts, estimates of program impact are similar.

[xxi] Borraz and Munyo (2015) use the expansion of Ingreso Ciudadano/Plan de Equidad, a major Uruguayan CCT, to examine the effects of the disbursements on property crime. They find significant increases in property crime (theft/robbery) after the CCT was expanded in both coverage and size. Transfers were paid out in checks which were immediately cashed, rather than distributed to electronic accounts. The authors argue that this cash-rich environment increased the appeal of street-level theft and robbery. They suggest that the program led to 3.5 new property crimes per 1000 beneficiaries, or a 1.4 percent increase, significant at the 1 percent confidence level. To avoid this undesirable effect, the Borraz and Munyo recommend switching the CCT disbursement to a debit card or electronic transfer.

[xxii] Camacho and coauthors (2012) used a regression discontinuity design to examine the associations of cash transfer disbursements and crime in beneficiary-dense neighborhoods of Bogotá, Colombia. Immediately following the disbursement of payments, personal crime (meaning theft from individuals) falls significantly (by about 0.42 standard deviations). Using this estimate, authors suggest that a 10 percent increase in CCT coverage leads to a 6.2 to 7.1 percent reduction in personal crime. This reduction is even larger in rich neighborhoods adjacent to high-disbursement neighborhoods (7.7 to 12 percent decrease per 10 percent increase in the number of beneficiaries). Vehicle theft reductions are significant under some model specifications, but not others. Effects on homicide and household robbery are not significant. This supports the income effect theory. No results support the incapacitation effect theory, which would show a relationship between attendance times in CCT-beneficiary-dense areas and lower crime. To augment the potential effect of transfers on crime reduction, the authors recommend more frequent and staggered disbursements to support families in smoothing their income and consumption.

[xxiii] This study examines the impact of two different CCTS, Familias en Acción (FA) and Subsidio Escolar (SE), on teenage pregnancy in Bogotá, Colombia. Cortes and coauthors (2016) find that the FA CCT does not have significant impacts on the teen pregnancy rates of girls after one year of program exposure, but the SE CCT does. Authors indicate that this difference is due to the design of the programs: FA conditioned only on attendance and can be reacquired if lost due to noncompliance. However, SE is conditioned on both attendance and performance and cannot be regained if lost due to low attendance or poor performance. Therefore, the incentive to avoid pregnancy is higher with the program that would be irreversibly interrupted by a teenage pregnancy.

[xxiv] Chioda et al. (2016) estimate the impact of extending Bolsa Familia to 16- and 17-year-olds with an instrumental variable approach. The authors find that the expansion of the program to older youth caused a 6.5% reduction in crime. This corresponds to "2.1 fewer crimes per year per additional student covered." Property crimes are most significantly affected by the expansion, particularly robberies. Violent crime rates also decline significantly. The authors take pains to note that the financial support has a negative and significant effect on crime in neighborhoods around schools on non-school days in the evening and at night, with the rate of all crimes negatively (but not significantly) affected at other times of day and during the school week. This suggests the incapacitation effect is not the channel of impact (otherwise crimes would go up during days off). Channels of impact could include household income effects, peer group effects, and altered household routines. Data sourced from reports of crime from state-level database, INFOCRIM. The authors recommend additional research on how CCTs actually affect crime (the causal mechanisms).

[xxv] In this study, Moreira et al. (2016) used a quasi-experimental design with propensity score matching to compare the domestic violence outcomes of women who received Programa Bolsa Familia to non-recipient women from families with a similar background. To be eligible, all the mothers had to be 16 or older, and their children had to be 17 or younger. The program appears to have significantly increased physical violence against women in the family. The effect was more pronounced among women in rural areas whose education and income levels were below those of their husbands. The authors suggest that the CCT should also be conditioned on the mother accessing health supports, such as intrafamilial monitoring by social protection agencies. Data was sourced from the nationally-representative Pesquisa Nacional por Amostra de Domicílios – PNAD.

[xxvi] Machado et al. (2018) examined the effects of the Bolsa Familia Program (PBF) on violent crime using multivariate regression and data on homicides and hospitalizations across Brazil. Municipalities with higher rates of BFP coverage among the eligible population had significantly lower homicide rates and lower hospitalizations as a result of violent crime. These findings are robust to different model specifications, and the models include other factors correlated with homicide as controls.

[xxvii] Studying the Oportunidades program in Mexico, Bobonis and coauthors (2013) use multivariate regression with numerous controls for confounders and endogenous selection issues to estimate the impact of the CCT on intimate partner violence, six years after the program's rollout. They find that women in beneficiary households are 40 percent less likely to experience intimate partner violence than their non-beneficiary peers. However, beneficiary women are just as likely as non-beneficiary women to experience emotional abuse and are significantly more likely than their untreated peers to receive threats of abuse without associated physical violence. This suggests that while the program may promote the safety of women through their income and decision-making empowerment, it does not change the risk of emotional abuse.

Table Q.2. Scholarships programs studies

				Age range (years)		Correlated outcomes					Violence and crime		
Abridged citation	Research design[i]	Program and description	Outcome follow-up period	Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
HICs (no evidence located on impacts of scholarships programs on violence, crime, and correlated outcomes in HICs)													
LMICs													
Barrera-Osorio et al. 2018	RCT	Merit and need-based scholarships (Cambodia)[ii]	9 years after program	9–10	Mean age 21	NS							
Friedman et al. 2016	RCT	(Merit-based) Girls Scholarship Program (Kenya)[iii]	3-6 years after implementation	Mean age 13.3	17–21							Mixed	
Liu et al. 2013	RCT	(Need-based) Early Commitment of Financial Aid (China)[iv]	1 year after promised scholarship	15	16	NS						NS	
Filmer and Schady 2014	QED	(Need-based) Cambodia Education Sector Support Program Scholarship Program (Cambodia)[v]	3 years after program (6 years after implementation)	11	17							NS	
Luo et al. 2011	Pre-post	Compassionate Heart Scholars Program, peer-elected cash benefit and volunteerism program (China)[vi]	During and at end of program	11–18	11–19	+							
LAC													
Ganimian et al. 2018	RCT	(Need-based) Scholarship and Mentoring Program (Argentina)[vii]	3 years after implementation	Mean age 12.5	Mean age 15.5	NS							

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; QED = quasiexperimental design; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] These study design details refer to the methods used to test outcomes of interest.
[ii] Barrera-Osorio et al. (2018) conducted a randomized trial of a program where treated children (4th graders) received 3 years of scholarships based on merit or need, contingent on attendance and basic performance. The scholarship disbursements ended after 6th grade, and 9 years later, researchers found that both treatments significantly increased educational attainment (by an average of 4 months) and the merit treatment produced significant positive cognitive effects, slightly significant (10 percent) positive employment outcomes, and positive family SES impacts. However, neither the need-based nor merit treatment produced significant impacts on the strengths and difficulties measures (prosocial, internalizing, externalizing) or the Big 5 measures (openness, conscientiousness, extroversion, agreeableness and neuroticism). Emotional and behavioral difficulties were measured with the Strengths and Difficulties Questionnaire (SDQ, Goodman 1997).
[iii] Friedman et al. (2016) used a randomized design (with instrumental variable checks to test a human capital channel) to examine the effects of the Girls' Scholarship Program (GSP), which had a target population of 6th grade girls (mean age 13) in the Busia region of Kenya. Girls who scored in the top 15% on a government standardized exam in randomly assigned treatment schools received a scholarship of $38 USD spread over 2 years. Control schools had no access to the GSP. In terms of standard outcomes, the program increased likelihood of secondary school attendance, enrollment in general, and test scores. The girls were re-surveyed when 17–21, and results show the following: on a scale of 0 to 1, treated girls were significantly less likely (-0.068) to accept that men had the right to beat their wives (the control mean was 0.25), and less likely to have had their parents choose their spouses (0.024 less than the control mean of 0.042, a difference only significant at the 90 percent level). There were no significant program impacts on contraception, fertility, age of marriage. While the program increased news literacy and political awareness among treatment girls, it did not affect their voting intentions or likelihood of engagement in community groups. Treated girls were also significantly less likely to be satisfied with (-0.239) and show respect for (-0.076) authority, and significantly less likely to be satisfied with Kenyan democracy (-0.048). Finally, treated girls were more likely to express that political violence was acceptable (0.059). The authors suggest that these changes may be due to human capital channels. Most outcome measurements were adapted from World Values Survey and Afrobarometer Surveys, as well as Bratton et al. (2005), Logan and Bratton (2006) and Weakliem (2002).
[iv] Liu and coauthors (2013) used a randomized design to examine the effects of Early Commitment of Financial Aid (ECFA), a scholarship promised to lower secondary students that would defray the costs of their future upper high school attendance. One year after the promise, and multiple reminders of the commitment from implementers, treated students were more likely than their untreated peers to matriculate into upper high school. However, the incentive did not appear to have significant effects on dropout (in the last year of lower secondary) or on students' self-esteem. The program did appear to significantly reduce dropout among the lower-performing subgroup of students.
[v] In a quasi-experimental study of another need-based scholarship in Cambodia, Filmer and Schady (2014) found the disbursements had mixed effects on risky behaviors: 6 years after the children first received the scholarship (and three years after the last disbursement), they were significantly more likely than their untreated peers to have attained greater schooling (0.6 additional grades), but were no more or less likely to have a child in adolescence, get married, score higher on tests, have a job, or earn more.
[vi] Luo et al. (2011) used a pre-post design with regressions and *t*-tests to study the Compassionate Heart Scholars Program, which allowed 11635 students from 298 classes in 197 schools in Shaanxi to nominate and vote for their peers to receive a scholarship. Therefore, each student was a voter and either a non-nominee/winner, a nominee, or a scholarship winner. The scholarship entailed a 400 / 800 Yuan annual disbursement for middle/high school students and the obligation to design and complete various community service projects. These projects included visiting nursing homes, taking poor children to local museums, and cleaning community spaces. Of note is that students nominated (and subsequently elected) peers who were significantly stronger already than the non-winners in Chinese, Math, English, Self-Esteem, Self-Efficacy, and Social responsibility scores, according to baseline (pre-nomination) scores. The election process itself appears to have boosted the winners' academic score relative to changes in the non-winner group (significant at the 1 percent level). Even being nominated appears to have had significant impacts (at the 1 percent level) on academic scores. Being nominated or elected to the scholarship program appears to have significant impacts on students' self-esteem relative the normal (non-nominated or non-winner) students, even before scholarship disbursement or community service. Qualitative evidence from interviews with nominated and winner students confirmed that those students selected by their peers felt greater confidence and drive after the election. After the community service component, elected scholars developed significantly more self-efficacy and social responsibility than their non-winner peers (at the 10% level). The involvement in the community service component did lead to significant changes in academic scores for scholars relative to

normal students, but the positive academic impacts from the election process did persist. The study controlled for family income, gender, and grade level, but several limitations remain: (1) how generalizable is this study beyond Shaanxi, especially given the possibility of: (2) Unobservable independent variables. For example, were the scholars who were stronger even before the election, more prepared to learn as a result of their higher initial cognitive skill? (3) It appears the election produces the academic benefit, and the scholarship/community service produces the self-esteem and self-efficacy and social responsibility benefit, but how can one parse out the effect of the scholarship allocation itself?

[viii] Ganimian and coauthors (2018) used a randomized controlled approach to identify the impacts of the Scholarship and Mentoring Program (SMP) in Argentina, a need-based benefit which was conditioned on students not repeating grades, not being suspended, and staying enrolled in a program-affiliated school. This program is implemented at the beginning of secondary and may last for up to 4 years. The monthly scholarship (10 disbursements per year) of about $40 USD was deposited to student accounts, which can be used for any purpose. The mentoring components included monthly non-academic sessions (10 per year) with university-educated paid mentors hired by the non-profit. Mentors had training in developmental psychology, teaching, social work, or similar fields and received pre and in-service training. Monthly sessions were either group or individual, and parents/guardians had the option to be present. Mentors had wide latitude in planning sessions to address the individual needs of their charges. Mentors also had power to subjectively determine whether a student should be expelled or suspended from the program. Impacts on standard outcomes include improved preventive and corrective academic behaviors, but there was little to no impact of the program on academic mindsets, perseverance, learning strategies, school performance (attendance, grade repetition), and student achievement (test scores). The SMP did not have significant impacts on the Big 5 social-emotional traits (as laid out by John et al. 2008; John and Srivastava 1999), except for conscientiousness, which showed a small but significant negative impact. However, this difference is partially due to better performance in the control group. Intent-to-treat and treatment-on-the-treated specifications yield the nearly the same results. Program cost is estimated at $733 USD/Year. Authors do not offer concrete policy or research recommendations. This paper is also reviewed in the Dropout and Expulsion Prevention (DEP) chapter.

Table Q.3. Feeding programs studies

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective	School violence	Violent crime	Non-violent crime
HICs													
Schanzenbach and Zaki 2014	RCT	Before-school and in-classroom breakfasts (USA)[ii]	3 years after implementation	10	13					+			
Kitchen et al. 2012	QED	Free School Meals Pilot (UK)[iii]	2 years after implementation	Grades 0–4, 7–9	Grades 2–6, 9–11					+			
LMICs													
Buchman et al. 2016	RCT	*Kishoree Kontha,* girls' positive youth development program plus conditional cooking oil incentives (Bangladesh)[iv]	4.5 years after program	Girls 10–17	Girls and women mean age 22					+			
Cluver et al. 2014 Cluver et al. 2016	Correlational	Multiple social programs, including cash and feeding programs (South Africa)[v]	Varied	10–19	10–19					+			
LAC (no evidence located on impacts of feeding programs on violence, crime, and correlated outcomes in LAC)													

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; QED = quasiexperimental design; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] These study design details refer to the methods used to test outcomes of interest.

[ii] Schanzenbach and Zaki (2014) used data from a randomized trial of the universal free School Breakfast Program (SBP) and specifically Breakfast in Classroom (BIC). After three years of programming, the BIC and general cafeteria-based SBP do not appear to have consistent or significant impacts on student behaviors compared with students in the business-as-usual comparison group, as measured with the "bad behavior index." Different model specifications, including those with instrumental variables, do not show significant results either. Only in highly disadvantaged subgroups, such as children from low-income families in urban schools show some evidence of behavior change as a result of the program.

[iii] In England, Kitchen et al. (2012) used a quasi-experimental design to evaluate a free school meal program. After two years of programming, the researchers find that parents whose primary-age children received the school meals were significantly more likely (9 percentage points) than parents of untreated students to report that it was "certainly true" that their child was obedient (a key family environmental factor). However, when those "true" responses were combined with those from parents who reported that their child's obedience was "somewhat true," the effect disappeared. These results suggest that parents in treated families were more confident in their children's obedience, but the findings should be interpreted with caution.

[iv] In Bangladesh, Buchman et al. (2016) used an RCT with multiple treatment arms to evaluate the impacts of (1) a 6-month Kishoree Kontha positive youth development (PYD) / empowerment program, (2) a cooking oil transfer (conditional on no adolescent marriage and no childbearing), and (3) the two treatments combined. The conditional cooking oil transfer reduced girls' likelihood of bearing children in their teenage years by 11 percent relative their untreated peers (significant at the p-value < 0.05 level). Similarly, the oil incentive reduced the likelihood of treated girls (who were 15–17 at program start) of early marriage by 21 percent (significant at the p-value < 0.01 level). The empowerment program, which included literacy tutoring, financial training, and life skills training, made no significant impact on early pregnancy or child marriage. Neither did the combined program, which included both. The authors estimated that per $1000, the cooking oil incentive averts 1.3 child marriages, delays child marriage 6.3 years, and increases school enrollment 4.3 years. The empowerment side increases enrollment by 4.3 years for every $1000. However, only the incentive produces a net present value in education larger ($1078) than the current investment ($1000).

[v] Cluver and coauthors conducted two studies of various social protection programs in South Africa, including CTs and school feeding programs. In the 2014 paper, using PCA, the authors showed that adolescents who received cash-type supports (child grants, school feeding, and food gardens) had significantly fewer risky sexual behaviors than adolescents who did not receive those supports. Adolescents who had both cash and care (positive parenting and teacher support) saw an even greater reduction in the odds of risky sexual behaviors (approximately half the rate of their non-cash and care peers). The 2016 paper broke down the effects of the different social protection programs and showed that child-focused grants (such as transfers) and school feeding reduced risky sexual behaviors. Transactional sex was 2 percent among young women who received free schooling and child grants, whereas it was 10 percent in among young women who did not receive such supports. School feeding also appeared to have a negative relationship with "incautious" sex: students who received school meals had rates of 10 percent (versus 15 percent among the non-recipient students), and 7 percent if they were also exposed to good parental monitoring.

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APPENDIX R:

ACCESS TO HIGH QUALITY SCHOOLS

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This appendix section provides information from the foundational literature on the impacts of access to high quality schools on academic achievement and provides additional information on the studies summarized in Chapter XVII in Tables XVII.2 to XVII.4.

A. Impacts of vouchers and lotteries on standard education outcomes

A number of high-quality studies find no significant effect of universal vouchers on student achievement, although there may be more positive impacts for targeted voucher programs and for disadvantaged students whose primary barrier to private schooling is cost. One global meta-analysis finds null or slightly positive effects of vouchers on student achievement, while another concludes that "a perhaps surprisingly large proportion of the most rigorous studies suggest that being awarded a voucher has an effect that is statistically indistinguishable from zero" (Shakeel et al. 2016; Epple et al. 2017). Similarly, a review of experimental and quasi-experimental studies on vouchers in LMICs confirms that overall, there is insufficient evidence to show that private school vouchers promote student learning more than the public school system (Baum 2018). Studies in countries including the United States, Chile, Colombia, and India find limited and sometimes negative impacts of voucher programs on learning, although there is some evidence that voucher programs may improve graduation rates, college enrollment, and attainment (Wolf et al. 2019; Abdulkadiroğlu et al. 2018; Cowen 2013; Wolf 2013; and Crawfurd, 2019). There is emerging evidence in both HICs and LMICs that voucher programs may be most effective for the most at-risk students (Wolf et al. 2019; Baum 2018; Howell et al. 2002; Chingos and Peterson 2015; Dixon et al. 2019).

In LAC, evidence from two well-established voucher programs has shown that targeting low-income or other disadvantaged populations may lead to greater learning impacts than universal programs. There is mixed evidence on the impact of Chile's universal voucher program on test scores, years of schooling, or grade repetition (Hsieh and Urquiola 2006; McEwan et al. 2008; Sapelli and Vial 2005). After Chile modified the voucher program to provide additional scholarships to low-income students (that is, using a "targeted" approach), several studies concluded that the voucher program had sustained significant impacts on student test scores, particularly for private schools serving a large proportion of low-income students (Anand et al. 2009; Correa et al. 2014; Lara et al. 2011; Mizala and Torche 2017; and Neilson 2013). Overall, Colombia's PACES program, launched in 1991 and offering targeted private school vouchers to low-income public school students, has had more consistent impacts on student achievement including graduation rates, grade repetition, and test scores (Bettinger et al. 2007; and Angrist et al. 2002 and 2006). In addition, a study of Mexico's targeted lottery program for low-income students determining entrance to private primary schools found that transferring to a private school increased students' performance on literacy tests (Santibañez et al. 2018).

The impact of lottery programs (also known as public school "open enrollment" in HICs) on cognitive outcomes is inconclusive due to the small number of studies. Lottery programs in the United States and China that enable students to transfer to higher-quality public schools have shown positive impacts on some student outcomes, such as college attainment and enrollment, but not on cognitive outcomes including test scores and grades (Özek 2009; Zhang 2012; Cullen et al. 2006; Hastings et al. 2008; Deming et al. 2011; and Deming et al. 2014).

Research has shown that voucher and lottery programs' impact on improving overall school quality through competition is mixed. In HICs, there is evidence that providing vouchers may lead to an overall increase in public and private school quality due to spillover effects (Böhlmark et al. 2015), although a recent study of Wisconsin's open enrollment program revealed that school quality improved substantially in schools that had *lost* the most students to other districts, while schools that *gained* the most students demonstrated no increase in quality, as measured by test scores (Welsch and Zimmer 2012). This finding may indicate that open enrollment policies increase competition between schools, prompting lower-quality schools to improve; however, it may also indicate that lower-quality students left schools, or that simply reducing the overall number of students in schools improved student achievement. Separately from the competition literature, low take-up rates of vouchers and open enrollment schemes overall call into question the premise that vouchers will lead to increased competition among schools; studies of multiple voucher programs in U.S. cities have found that large percentages of students who receive vouchers did not use the voucher because it did not cover enough of the costs of private schooling (Timpane et al. 2001). Moreover, in rural areas students tend to have substantially less access to public or private schools they can attend, even with a voucher or open enrollment program (McEwan et al. 2008).

Unintended consequences of voucher programs include "cream skimming" of higher-quality students into private schools, and increased residential segregation. A World Bank report concludes that voucher programs would be more equitable if they were targeted at specific population groups, such as students from low-income families. Otherwise there is a risk that "gains for students who move to a higher-quality peer group are offset by losses for either their new or old classmates" (Ferreira and Walton 2006). In the US, Scotland, Sweden, and Chile, there is evidence that voucher and school choice programs may increase school and residential segregation (Hsieh and Urquiola 2006; Braun-Munzinger 2005; Böhlmark et al. 2015; Willms 2018; Elacqua 2012; Valenzuela et al. 2014). However, in an analysis of Louisiana's voucher program that enabled students to transfer to private schools, Egalite et al. (2017) found that public school racial stratification had decreased, with no effect on private schools. A long-term evaluation of the Louisiana program confirmed that there was little evidence of "cream skimming" of higher-quality students into private schools (Wolf et al. 2019).

Research on voucher programs' cost-effectiveness is mixed. One meta-analysis found that vouchers typically cost much less than the government would otherwise pay for a year of the same student's education in a public school (Baum 2018). However, in Colombia Angrist et al. (2002) estimated that students had to "top up" their voucher by more than 70 percent, and the government ended up paying $24 more per student in the voucher scheme than a public school placement. As mentioned above, other studies also found that take-up rates for vouchers were low due to the high cost of private schooling (Timpane et al. 2001). Nevertheless, Angrist (2002) estimates that in Colombia, increased life-time earnings due to higher academic outcomes from participating in the voucher program would offset any costs incurred by the public sector to pay additional private school fees.

Appendix Table R.1. Vouchers

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
				HICs									
Mayer 2002	RCT	School Choice Scholarships Foundation Program, provided scholarships to low-income students to attend private school (New York)	Medium term	1st-4th grade	4th-7th grade			+		+			
Webber et al. 2019	RCT	Opportunity Scholarship Program, a federally funded program that provides vouchers to low-income families to send their children to private schools (Washington, DC)	Medium term	K-12th grade	3rd grade – 2nd year of college or equivalent			+		+			
Bettinger and Slonim 2006	Natural experiment	Children's Scholarship Fund, provided 4-year renewable, private school scholarships to low-income students (Ohio)	Medium term	K-8th grade	3rd-11th grade					+			
Greene 2001	Natural experiment	Children's Scholarship Fund, provided partial scholarship for students to attend private school (North Carolina)	Short term	K-8th grade	2nd-8th grade			+					
Carlson et al. 2017	Natural experiment	School Choice Scholarships Foundation Program, provided scholarships to low-income students to attend private school (New York)	Long term	1st-5th grade	18 years and older					NS			
DeAngelis and Wolf 2019	Longitudinal, PSM	Milwaukee Parental Choice Program, provides private school voucher to low-income students (Wisconsin)	Long term	8th-9th grade	25-28 years old								+

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years) Program	Age range (years) Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
DeAngelis and Wolf 2016	Longitudinal with comparison group	Milwaukee Parental Choice Program, provides private school voucher to low-income students (Wisconsin)	Long term	8th-12th grade	22-25 years old								+
DeAngelis and Wolf 2018	Regression analysis	Milwaukee Parental Choice Program, provides private school voucher to low-income students (Wisconsin)	Long term	8th-9th grade	19-26 years old					NS			
LMICs													
Crawfurd 2019	RCT	ENABLE, a privately funded voucher to disadvantaged students to move to a private school through India's Right to Education Act (Delhi, India)	Medium term	1st-4th grade	5th grade	NS							
Damera 2017	Natural experiment	State-funded voucher to disadvantaged students to move to a private school through India's Right to Education Act (Karnataka)	Short term	7	7-8	+							
LAC													
Angrist 2002	QED	PACES, a federally funded program that provided private school vouchers to low-income students (Colombia)	Short term	6th-8th grade	8th grade					+			
McEwan 2008	RDD	Universal voucher program wherein private schools accept a per-student subsidy that partially covers tuition (Chile)	Medium term	Primary school	Primary school				-				
Elacqua 2012	Regression analysis	Universal voucher program wherein private schools accept a per-student subsidy that partially covers tuition (Chile)	Long term	K-12th grade	K-12th grade				-				

				Age range (years)		Correlated outcomes					Violence and crime		
Abridged citation	Research design	Program and description	Outcome follow-up period	Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
Valenzuela 2014	Regression analysis	Universal voucher program wherein private schools accept a per-student subsidy that partially covers tuition (Chile)	Long term	K-12th grade	K-12th grade			-					

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

Appendix Table R.2. Lotteries

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective	School violence	Violent crime	Non-violent crime
					HICs								
Cullen 2006	Natural experiment	Chicago Public Schools, school choice program where students can apply to any public school in their district through a lottery (Illinois)	Medium term	8th-12th grade	12th grade			NS		+		+	+
Deming 2011	Natural experiment	Charlotte-Mecklenburg school district public school choice program, male students are selected through lottery (North Carolina)	Long-term	6th-12th grade	6 years later							+	+
Lavy 2010	RDD, DID	Tel Aviv school choice program where students rank their school preference, including outside of their district (Israel)	Long-term	6th-12th grade	12th grade			+			+		
LMICs (no evidence located on impacts of lotteries on violence, crime, and correlated outcomes in LMICs)													
LAC (no evidence located on impacts of lotteries on violence, crime, and correlated outcomes in LAC)													

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

2.   Impacts of merit-based scholarships on standard education outcomes

There is scant literature on the impact of MBS that enable students to transfer to higher-quality schools, however the two studies we found suggest that MBS is a promising program to improve academic outcomes.[39] In our foundational literature review, we located two studies on the impacts of MBS that enable students' access to higher-quality schools on students' academic outcomes. In Chile, when the government began requiring fee-charging private schools to offer MBS to low-income public school students to offset the cost of enrollment, Anand et al. (2009) used propensity score matching methods to estimate impacts on students' academic achievement and found significant positive impacts on academic achievement for scholarship recipients. However, the authors also found that there was no difference between outcomes for students awarded MBS and those who attended private schools with a voucher.

Duflo et al. (2017) found that MBS for students admitted to secondary school led to various benefits, including increased educational attainment, improved health outcomes, and—for those admitted to vocational education programs—improved employment and earnings. For students admitted to vocational programs, the authors estimated a rate of return to the cost of the scholarships of 13 percent. This is likely to be an underestimate of the true rate of return for this group of students however because it excludes impacts beyond impact effects, including benefits of schooling, changes in work hours, or reductions in fertility at age 25. The authors noted that it was too early to estimate the internal rate of return for students admitted to academic degree programs.

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[39] The majority of MBS literature focuses on scholarships as a "pay for performance" incentive for students to continue enrollment in a current school, or to improve their academic achievement and attainment at their current school, thus disqualifying it from this chapter. These types of MBS are in line with the "Conditional Cash Transfer" approaches discussed elsewhere in this report (see Chapter XVI). This chapter only includes scholarships that are merit-based *and* enable students to transfer to higher-quality schools.

Appendix Table R.3. Merit-based scholarships (MBS)

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
HICs (no evidence located on impacts of MBS on violence, crime, and correlated outcomes in HICs)													
LMICs													
Barrera-Osorio et al. 2018	RCT	Two-pronged scholarship program for rural 4th grade students: the 3-year scholarship targeted students by income or by merit (Cambodia)	Short-term	4th-6th grade	6th grade	Mixed[i]							
Duflo et al. 2017	RCT	Scholarship program for secondary school students (Ghana)	Medium-term	Secondary school	25 years old					+[ii]			
Friedman et al. 2016	RCT	Girls' Scholarship Program, a foundation-supported merit scholarship to girls in 6th grade (Kenya)	Medium term	7th-8th grade	17-21 years old					Mixed[iii]			
Kremer et al. 2009	RCT	Girls' Scholarship Progam, a foundation-supported merit scholarship to girls in 6th grade (Kenya)	Short-term	7th-8th grade	7th-8th grade				+				
LAC (no evidence located on impacts of MBS on violence, crime, and correlated outcomes in LAC)													

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] The study reported improvements in self-reported well-being, but no impacts on social-emotional skills.
[ii] The study reported that scholarship recipients had 0.2 fewer children by age 25.
[iii] The authors reported on the MBS program's impacts on scholarship recipients' viewpoints on test scores and viewpoints. The scholarship raised test scores and secondary schooling, made students less likely to accept domestic violence, increased objective political knowledge, and reduced acceptance of political authority. However, the scholarship also increased the perceived legitimacy of political violence and did not increase voting intentions, perceived political efficacy or community participation.

3.   Impacts of single-sex instruction on standard education outcomes

The evidence base for SSI's impacts on academic achievement is small and based on studies that are not rigorous. Evidence suggests that impacts may be larger for girls and for students who prefer SSI. In Trinidad and Tobago, Jackson (2012) exploited the semi-randomized nature of a government program that places secondary students in SSI or coeducational schools. The author found that female students with a strong preference for SSI experienced a large and significant improvement in academic outcomes when placed in SSI schools. However, for male students and female students with lower initial preference for SSI, the impacts of being placed in an SSI school were close to null. Two non-experimental studies from the US find mixed, small results. Hayes et al. (2011) analyzed observational data on middle school students who attended single-sex schools and coeducational schools and, after adjusting for student characteristics and peer effects, found that gender composition had no impact on academic achievement. Hoffman et al. (2008) compared outcomes for students assigned to single-sex classes and coeducational classes within a coeducational high school and found small, inconsistent impacts on achievement. Qualitative analysis revealed that girls' class participation increased in SSI classes compared to coeducational classes. Teachers considered SSI to be conducive to learning, but students perceived no academic or social benefit to SSI.

Appendix Table R.4. Single-Sex Instruction (SSI)

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Social-emotional skills	Correlated outcomes				Violence and crime		
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
HICs													
Eisenkopf 2015	Natural experiment	Female high school students are randomly assigned to single-sex or coeducational classrooms (Switzerland)	Medium term	9th-12th grade	12th grade	+							
Lee 2014	Natural experiment	Middle school students are randomly assigned to single-sex schools, coeducational schools with SSI classes, or coeducational schools with mixed-gender classes (South Korea)	Medium term	5th-8th grade	9th grade			+					
Lavy and Schlosser 2011	Longitudinal, fixed effects	Observes the gender peer effect in coeducational classrooms by isolating outcomes based on proportion of female students (Israel)	Medium term	5th grade	10th grade			+			+		
Black et al. 2013	Longitudinal analysis, fixed effects	Observes gender peer effect in coeducational classrooms by isolating outcomes based on proportion of female students (Norway)	Medium term	14-16	18					+			
Sullivan 2009	Longitudinal analysis	Analysis of students from the 1970 British Cohort Study who attended single-sex or coeducational schools (UK)	Long-term	7-16	16	Mixed							
LMICs													
Picho and Stephens 2012	QED	In an experiment, explored the effect of Stereotype Threat on female students	Short-term	15-16	15-16	+							

| Abridged citation | Research design | Program and description | Outcome follow-up period | Age range (years) | | Correlated outcomes | | | | | Violence and crime | | |
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
		from coeducational and single-sex schools (Uganda)											
					LAC								
Villalobos et al. 2016	PSM	Compares outcomes for students at coeducational and single-sex institutions, (Chile)	Short-term	K-8th grade	4th, 8th, and 10th grade	+		NS					

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

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APPENDIX S:

TEACHER INCENTIVES

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This appendix section focuses on information from the foundational literature on the impact of teacher incentives, including performance pay and contracts, on academic achievement and provides additional information on the studies summarized in Chapter XVIII, Tables XVIII.2 and XVIII.3. Teacher performance pay and teacher contracts are discussed separately.

A. Foundational literature on the impacts of teacher performance pay on academic achievement

There is a growing body of literature on teacher performance pay, which shows their potential to improve student test scores in primary and secondary school. Impacts are consistently positive in LMICs, but mixed in HICs. In LMICs, numerous rigorous evaluations have evaluated the impacts of teacher performance pay and nearly all have found significant impacts on student test scores (for example, Muralidharan and Sundararaman 2011, Muralidharan 2012, Glewwe et al. 2010, Mbiti et al. 2019a, and Mbiti et al. 2019b in LMICs and Contreras and Rau 2012 and Santibáñez et al. 2007 in LAC). In HICs, the literature on teacher performance pay is mixed, with some finding significant positive impacts on student learning (Lavy 2002, 2009, and 2015; Atkinson et al. 2009; Dee and Wyckoff 2015; and Fryer et al. 2012) and others finding no impacts or small impacts on student test scores (Booker and Glazerman 2008; Fryer 2013; and Chiang et al. 2017).

Differences in contexts between LMICs and HICs could explain why teacher performance pay has been more effective in LMICs. The available evidence does not tell us why teacher performance pay has been effective in LMICs, but has a mixed record in HICs. However, some differences suggest potential explanations:

- **Higher teacher absence rates in LMICs may be indicative of a lower accountability contexts, where programs to strengthen incentives for teachers may be more effective**. Available evidence indicates that teacher absence rates in LMICs are higher (19 percent on average, according to one six-country survey (Chaudhury et al. 2006)) than in HICs (6 percent in the US, according to recent analysis of 40 large school districts (Joseph et al. 2014)). In LMICs, hiring authority may be concentrated at central ministries or state offices, which are too far from schools to observe and penalize teacher absences.

- **Performance pay schemes in the U.S. may have been too complex to provide effective incentives.** As suggested in Fryer (2013), teachers in the U.S. may have been less likely to respond to teacher incentive programs because they have been difficult to understand or poorly explained. For example, in their evaluation of the Teacher Incentive Fund in the U.S., Chiang et al. (2017) found that only 40 percent of teachers who were eligible for a bonus knew they were eligible, and teachers typically thought the value of the bonus they would expect was 40 percent of its actual value.

Some, but not all, studies suggest that impacts are short-term and on narrowly defined test outcomes. Glewwe et al. (2010) conducted an RCT to evaluate the impacts of a teacher performance pay[40] scheme in Kenyan primary schools in which teachers were rewarded for students' test scores on a standardized test, and penalized for students who did not take the test. Researchers found evidence that teachers had taught narrowly to the test: scores on the high-

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[40] The incentive was for in-kind goods rather than cash.

stakes test improved, but scores on unrelated tests did not. Teacher attendance was unchanged, as was homework assignment, but test preparation sessions increased. The year after the incentives program ended, there was no lasting impact on test scores. However, this is not always the case. Muralidharan and Sundararaman (2011) evaluated the impacts of teacher performance pay in primary schools in India and found significant improvements in the high-stakes test scores used to determine teachers' eligibility for performance pay as well as impacts on test scores on subjects unrelated to the performance pay scheme. Although it is difficult to say what explains the difference in results, a key difference between the two experiments is that the Kenyan program spanned two school years, whereas the experiment in India took place over five academic years. It could be that behaviors adopted with the performance pay scheme in place become habits after a longer period of time.

Two RCTs highlighted the importance of how teacher performance pay schemes are structured. Evidence suggests that the possibility of having to give something up is stronger than the possibility of gaining something. Fryer et al. 2012 conducted an RCT in Chicago schools to determine if loss aversion would create stronger incentives that bonus payments. To test this theory, authors gave incentive payments to participating teachers at the beginning of the year and explained that if they failed to meet the conditions of the incentive payment, they would be required to repay the money. In another arm, teachers would receive the same incentive payment at the end of the year if they met the conditions of the incentive payment. They found large impacts for teachers who received the upfront payment they have had to repay, but no significant impact for teachers who were eligible to receive the bonus payment at the end of the school year, demonstrating that loss aversion can generate strong impacts. Dee and Wyckoff (2015) evaluated the IMPACT incentives plan used in Washington, DC public schools, and found that the scheme's threat of dismissal for low-performing teachers was effective. Teachers who were close to the threshold for dismissal were more likely to resign than other teachers, and they found large impacts for teachers near the threshold who stayed. In two papers, Muralidharan and Sundaraman (2011) and Muralidharan (2012) compare the impacts of individual and group incentives separately against a comparison group of schools that were not offered teacher performance pay. They found no difference in impacts after one year, but found that individual incentives generated larger impacts on student test scores at the end of the second year and after five years.

Teacher performance pay and school subsidies can complement one another to create larger impacts than the sum of their independent impacts. Mbiti et al. (2019b) conducted an RCT in Tanzania in which they offered schools unconditional grants, teacher performance pay, or both. They found that the impacts of teacher performance pay combined with an unconditional school grant were larger than the sum of the impacts of grants and teacher performance pay when offered on their own, demonstrating that the two are complementary. This approach addresses the potential concern mentioned above that increasing motivation will not lead to improvements in learning if teachers face binding resource constraints.

Emerging evidence suggests that teacher performance pay schemes do influence the composition of teachers as well as teacher effort. Leaver et al. (2020) used a novel randomization design in which they first randomly assigned teacher labor markets (similar to districts) to either a pay-for-performance scheme or to a traditional fixed-wage approach. The authors could use information on who applied for teaching jobs in each labor market to estimate

the impact of the pay structure on the composition of teacher applicants. Next, within teacher labor markets, authors conducted school-level randomization to assign schools to either stick with their initially assigned pay structure or to switch. The impact of the second randomization allowed the authors to estimate the impact of the pay structure on teacher effort. Authors found that advertising teacher performance pay attracted applicants who were more money-oriented, but also more effective teachers. They also found that the pay structure used increased teacher effort as reflected by increased teacher presence and observed pedagogy in the classroom. Altogether, they found a total impact of 0.21 standard deviations, and that one quarter was due to compositional effects and the rest was due to impacts on teacher effort.

B. Foundational literature on the impacts of contract teachers on academic achievement

Literature from HICs shows that employment arrangements with less job security tend to increase teacher effort and reduce teacher absence and, through reduced teacher absence, benefit learning. Jones (2015) took advantage of variation in years of employment required before teachers would be eligible for tenure across school districts and found that in the year in which teachers were evaluated for tenure, they were more likely to join committees, participate in extracurricular activities, and spend their own money on their classrooms, but that these effects disappeared once they were awarded teacher. In a study of Chicago Public Schools, Jacob (2010) found that reducing teachers' job security reduced teachers' absence rate. Miller et al. (2008) showed that teacher absences reduce student learning, as expected, estimating that ten days of teacher absence leads to a reduction in student learning of 0.033 standard deviations. Clotfelter et al. (2009) found a similar result estimating that ten additional sick days reduced student learning by 0.023 standard deviations.

Literature from LMICs on contract teachers shows that hiring teachers with renewable contracts can significantly improve learning at a low cost. Two rigorous studies in India show that contract teachers led to significant improvements in learning. Duflo, Dupas, and Kremer (2015) randomly assigned schools to receive a contract teacher in addition to their existing teaching staff. Schools divided a cohort of students in two, reducing class size by half. The authors found no measurable benefit for the students who remained with the civil service teacher, despite a sharp reduction in class size, but they found large, significant impacts on learning for the students assigned to the contract teacher. These impacts appear to be driven by contract teachers' increased likelihood of being at school during random checks relative to the civil service teachers at their own schools or civil service teachers at other schools. These results suggest that the increased effort put forth by contract teachers overrode any disadvantage they were at because of having had less training. A second rigorous study conducted by Muralidharan and Sundaraman (2013) found similar results. Students with contract teachers had significantly higher test scores than students with civil service teachers and again, this appeared to be driven by contract teachers being more likely to be in school as well as more likely to be engaged in teaching while at school.

Benefits can be lost, though, when taken to scale. Bold et al. (2013) evaluated the impacts of contract teacher arrangements that were taken to scale in a large-scale RCT in all Kenyan provinces. The scheme was implemented by an NGO and by the government. The authors found that the NGO implementation yielded large-scale benefits, but there was not benefit with

government implementation. The authors hypothesize that this discrepancy is due to implementation constraints and political economy factors in place with the government implementation.

Two non-experimental studies paint a more complicated picture. Alcázar et al. (2006) used data from a nationally representative survey of primary schools in Peru, including unannounced visits to measure teacher absences and identify factors correlated with absence. They found that on average, teachers were absent 11 percent of the time and that factors positively correlated with teacher absence included location in poor communities, remote communities, poor infrastructure, having few ties to the local community, and contract teaching. This result could appear to contradict the results found in the experimental studies in India, but the correlation observed in the Peruvian data does not demonstrate causation, and it could also be that schools with contract teachers are also likely to be schools with other characteristics that lead to high absence rates, such as being remote or lacking infrastructure. Bourdon et al. (2010) used nonexperimental methods to estimate the impacts of contract teachers on learning in Mali, Niger, and Togo, where contract teachers are increasingly common. The authors found that overall, contract teachers boosted learning for low-ability students in low grades, but led to lower test scores for high-ability students in high grades, suggesting that the more basic training that contract teachers have may become a problem in upper grades in which teachers cover more complex material.

Appendix Table S.1. Teacher performance pay (TPP)

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family Environment	School Environment	Community Environment	Risky and Protective Behaviors	School violence	Violent crime	Non-violent crime
HICs													
Lavy 2009	Natural experiment	Individual monetary incentives for language and math teachers in secondary schools (Israel)	Same year	12th grade students	12th grade students			+[i]					
LMICs													
Duflo et al. 2012	School-level RCT	Teacher incentive payments for (own) attendance (India)	Same year	Primary age students	Primary age students			+[ii]					
Glewwe et al. 2010	School-level RCT	Teacher incentive payments based on student test scores for 4th-8th grade teachers (Kenya)	Short and long-term	Two years, starting in grades 4-8	Grades 6-10			NS[iii]					
LAC (no evidence located on impacts of TPP on violence, crime, and correlated outcomes in LAC)													

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] Teachers in schools that participated in the monetary incentive program were more responsive to students' needs. Specifically, they were more likely to track students by ability (math and English), adapt their teaching methods according to students' ability (English only), to offer additional instruction time (math and English), and to target academically weak students (English only).

[ii] Teacher absence rates were significantly lower in treatment schools (22 percent) than in control schools (42 percent).

[iii] Authors found no significant impact on teacher attendance, a subjective measure of how warm the teacher is with students, or assigning homework.

Appendix Table S.2. Contract teachers

| Abridged citation | Research design | Program and description | Outcome follow-up period | Age range (years) | | Social-emotional skills | Correlated outcomes | | | | Violence and crime | | |
				Program	Outcome		Family Environment	School Environment	Community Environment	Risky and Protective	School violence	Violent crime	Non-violent crime
HICs (no evidence located on impacts of contract teachers on violence, crime, and correlated outcomes in HICs)													
LMICs													
Duflo, Dupas, and Kremer 2015	RCT	Schools received a new contract teacher, reducing class sizes by half (Kenya).	End of two-year program	6-8 (grades 1 and 2)	Age 7 or 8 (grade 2)			+[i]					
LAC (no evidence located on impacts of contract teachers on violence, crime, and correlated outcomes in LAC)													

Notes: + = Significant positive impact; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial.
[i] The contract teacher program reduced teacher absenteeism among contract teachers.

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APPENDIX T:

SECONDARY CERTIFICATION

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This appendix provides information from the foundational literature on the impact of secondary certification programs on academic achievement, with additional information on the studies summarized in Chapter XIX, Table XIX.2.

Foundational literature on the impacts of secondary certification programs on academic achievement

The theory of change for secondary certification is based on (1) human capital theory and (2) labor market signaling theory. Under human capital theory, secondary certification programs can help youths acquire cognitive and social-emotional skills that can improve their educational and employment opportunities and their likelihood of success. Under labor market signaling theory, certification provides potential employers or institutions of higher learning with a signal suggesting that certification recipients are more likely to succeed than people who do not have a secondary education or certification (Tyler et al. 2000). Higher levels of human capital and improved education and employment opportunities may reduce the likelihood of violence and crime-related outcomes, such as criminal activity, incarceration, and recidivism (Cai et al. 2019).

In HICs, evidence suggests that certificate-holders' education attainment, employment, and earnings are not equivalent to those of secondary graduates. Smith (2003) indicates that while institutional support for the GED is high and demand for the credential is strong, educational attainment and earnings of GED holders are substantially lower than those of traditional graduates. Similarly, Heckman et al. (2011) noted that while nearly 500,000 high school dropouts passed the GED test in 2008 and noted that it establishes equivalence in some cognitive measures, the certification does not help participants overcome deficits in social-emotional skills, including persistence, motivation, and reliability. In an earlier paper, Cameron and Heckman (1993) also showed that GED exam passers are no better off than dropouts in many attainment and earnings outcomes. Patterson et al. (2010) found that labor market outcomes GED passers are only different from those of permanent dropouts if the certificate-holding individuals use it to acquire additional training. But few GED test passers complete post-secondary education; only 11.8 percent of GED test-passers who had enrolled in a post-secondary program following their certification actually completed a post-secondary course of study six years later (Patterson et al. 2003). Rumberger and Lamb (2003) also show that high school dropouts in the US and Australia—even those who return to complete a diploma or receive an equivalency—experience much longer periods in young adulthood when they are not employed or in post-secondary training than do high school graduates.[41]

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[41] While the authors do not identify the specific cause of dropouts' longer-term disengagement from the labor market and post-secondary education, Tyler et al. (2000) found that the labor market signaling hypothesis for the GED (which posits that the credential indicates high school equivalency to employers) only holds true in certain cases. GED certification appears to increase earnings of young white dropouts by 10-19%, but does not produce significant effects among non-white dropouts. This suggests that the barriers to gainful employment for non-white youth remain despite gaining educational equivalency on paper. To mitigate this discrepancy, policymakers in some states offer full high school diplomas to youth who earn equivalency through a test (Treskon 2016).

Nonetheless, acquiring secondary certification can have positive effects on education and employment indicators, when compared to not receiving any certification at all. Murnane et al. (1995) found that GED acquisition among male high school dropouts was associated with a significant increase in the rate of wage growth (over non-GED-acquirers), and suggest that dropouts that acquire a GED are more likely than other dropouts to seek additional training and better paying jobs. Tyler (2004a) found that high school dropouts who passed the GED had significantly higher earnings (13 to 20 percent) 6 years after the exam than those who did not pass, a change which was due to higher rates of employment, not differential wage growth. Promisingly, intensive programs to prepare at-risk youth for the GED exam and subsequent training indeed improve their chances of passing the exam and enrolled in college (MRDC 2019). Cai et al. (2019), examining education programs (including GED programs) in prisons in the United States, found that while on average inmates used literacy and numeracy skills significantly less than household-based populations, the inmates who participated in the education programs had significantly higher basic skill levels than their peers who did not participate.

The availability of certification programs may produce perverse incentives. Heckman et al. (2012) found that GED programs may induce high school students to drop out of school in favor of taking the test. When GED test pass rates dropped (because of an increase in test difficulty), so did high school dropout rates. Similarly, when GED programs were introduced in Oregon and California, graduation rates declined and dropout rates increased. This suggests that youth are choosing to leave school on the assumption that they can pass the GED, believing that the GED is truly equivalent to a high school diploma. Tyler (2003) synthesized research on the impact of GED on the economic outcomes of certificate holders, and noted that 1) the presence of an inexpensive GED option may encourage dropout among certain students, 2) positive economic impacts of the GED only accrue to those who originally dropped out with few skills, 3) economic benefits take time to appear, and 4) GED holders who acquire post-secondary training may enjoy the same economic benefits as traditional graduates who seek training, but few GED holders actually get that training.

The cost-effectiveness of secondary certification programs is promising but is not well established. GED certification costs include exam fees, preparation class expenses, and time spent studying, as well as the public expenditure of subsidies to GED programs (Tyler 2003). For instance, the costs of such programs as Learn and Earn to Achieve Potential (LEAP), which includes GED preparation and employment training, is between $5,300 and $7,300 per participant (Treskon et al. 2019). However, the costs to society and the individual who drops out and does *not* receive any kind of secondary certification may be much higher. Compared with graduates, dropouts in the US have lower annual earnings (between $7,000 and $9500 lower, as of 2006), employment rates, and worse health, and as a result, society loses billions of dollars in tax revenue, spends more on public assistance, and endures higher crime rates (Tyler and Lofstrom 2009). What remains unclear is the degree to which the benefits of secondary certification fill the gap between the options of dropping out and receiving a high school diploma.

Appendix Table T.1. Secondary certification

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
HICs													
Unterman et al. 2014	RCT	SEED DC (alternative middle and high boarding school) (USA)[i]	6 years after program began, but with rolling enrollment	5th and 6th grade	7th to 12th grade	-	-			Mixed	-		
Gonzalez et al. 2016	Correlational	GED (USA)[ii]	NA	Mean 44.6, with 18-24 oversampled	Mean 44.6, with 18-24 oversampled					NS			
Ou 2019	Correlational	GED (USA)[iii]	NA	22–24	22–24					Mixed		NS	NS
LMICs (no evidence located on impacts of secondary certification programs on violence, crime, and correlated outcomes in LMICs)													
LAC													
Kwauk and Perlman Robinson 2016	Qualitative	Sistema de Aprendizaje Tutorial (SAT) (secondary level alternative education) (Honduras)[iv4]	Varied	NA	NA	+			+				

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] Unterman et al. (2014) examine the academic and behavioral outcomes of students at an alternative boarding middle and high school in Washington, DC using an experimental lottery design. SEED DC is a 5-day-per-week residential school with a supportive academic and social environment designed to help students to get their diploma and enter college. Outcomes suggest that the system did not have consistent desirable effects on risk behaviors and other outcomes. Students who attended SEED used significantly less tobacco than their non-SEED peers. In contrast, SEED students also reported higher rates of risky behavior (such as arguing with parents or fighting with other students) than non-SEED students. There were no significant effects on having a baby or fathering a baby in adolescence, alcohol use, or marijuana use. Students who attended SEED also reported lower grit and perseverance than their non-SEED peers. The authors do not provide cost-effectiveness estimates but note that SEED is nearly twice as expensive as normal schooling. Unterman and colleagues suggest that the families that applied for SEED and were rejected through the lottery system likely continued to advocate for their children by seeking challenging and supportive academic environments, causing effects of SEED on student outcomes to appear nonsignificant or even negative next to their non-SEED peers.

[ii] Gonzalez et al. (2016) use longitudinal data from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC; Chen et al., 2010) to identify the association between GED receipt and future risky substance use behaviors in comparison to high school diploma earners. In a simple regression, GED recipients were more likely than dropouts or high school graduates to have begun alcohol and tobacco use before 18 and were more likely to have alcohol and crack/cocaine use disorders in the past year than either of the other groups as well. Controlling for race, age, and other factors, significant results for alcohol and crack/cocaine were attenuated, but GED recipients and dropouts were significantly more likely than high school graduates to have a marijuana use disorder in the year before the survey was administered. In fact, the odds among GED earners of having a marijuana use disorder were 1.53 times as large as the odds among graduates. Unlike graduating from high school, receiving a GED did not appear to protect against substance use disorders in future years.

[iii] Ou (2019) uses data from the Chicago Longitudinal Study (CLS) to assess the influence of dropping out, receiving a GED, or completing high school on various employment and health outcomes of young adults. Controlling for sociodemographic characteristics and early educational achievement, permanent dropouts (those who did not complete high school and never gained an equivalent certification) have significantly more substance use than GED recipients (+13.1 percent), while high school graduates have significantly less (-11.8 percent) than GED recipients. GED recipients did not have significantly different severe substance abuse patterns than permanent dropouts, but high school graduates have significantly lower rates of severe substance abuse (-10.4 percent) than GED recipients. HS graduates also have significantly fewer arrest convictions (-23.1 percent) and lower incarceration rates (-13.3 percent) than GED recipients, while permanent dropouts do not have significantly different rates than GED recipients on either of those indicators. Income, while not an outcome of interest, showed a similar pattern: permanent dropouts were 8.6 percent less likely than GED recipients to have a quarterly income greater than $3000, while high school graduates were 23.7 percent more likely to have income greater than that amount. This evidence suggests that receiving a GED does not imply equivalency to high school graduation in terms of skills or experience and indicates that the GED certification does not have as strong of a negative relationship with risky behaviors as graduating from high school. However, if permanent dropout status is the counterfactual for GED receipt, then GED certification is associated with more desirable outcomes. The authors suggest additional research on the cost-effectiveness of the GED credential.

[iv] A review of the evidence on the Sistema de Aprendizaje Tutorial (SAT) conducted by Kwauk and Perlman Robinson (2016) compares the SAT alternative secondary school system (which is present in Guatemala, Honduras, Nicaragua, Colombia, Ecuador, and Brazil) to traditional schools. These alternative learning environments support secondary attainment in rural and remote communities, and use flexible teacher contracts, in-service teacher training, and updated materials. Drawing upon case studies from Honduras, the authors suggest that the SAT program helped young women empower themselves by developing self-confidence and awareness of their rights. Additional evidence from Honduras suggest that SAT helped students develop a greater sense of civic responsibility than their peers in traditional schools. Costs of the program in Honduras were estimated to be 10 percent lower than those of rural government secondary schools, savings which were supported by the "learning by doing" components of the program and the flexible teacher contracts.

APPENDIX U:

WORKFORCE DEVELOPMENT

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This appendix provides information from the foundational literature on workforce development (WFD) programs' impact on standard education outcomes and provides additional information on the studies summarized in Chapter XX, Table XX.2.

Impacts of WFD programs on standard education outcomes

Most of the existing literature on the effects of WFD programs focuses on labor market outcomes. Evaluations of WFD programs typically focus on short-term employment and earnings measures because conducting long-term follow-up is more difficult. There is no consensus on the impact of WFD programs on labor outcomes (Schochet et al. 2001; Millenky et al. 2011; Miller et al. 2018; Bertrand et al. 2017a; Mckenzie 2017; Kluve et al. 2017; Tripney et al. 2013).

In the United States, three large experimental evaluations found positive effects of WFD programs on employment and earnings. Schochet and colleagues (2001) conducted a randomized evaluation of the Job Corps program, the United States' largest residential training program for disadvantaged youth from ages 16 to 24. The program provides technical vocational training, academic education, residential living, health care, health education, and counseling. The researchers found positive impacts of the Job Corps program on employment rate, time spent employed, and earnings in the third year after random assignment that persisted through the end of the 48-month follow-up period. However, 9-year and 20-year studies of Job Corps that used tax data found no evidence of long-term program effects on employment and earnings overall. Job Corps' positive effects persisted but did not grow for 20- to 24-year-olds, while older participants experienced employment gains and earned more on average than older participants from the control group (Schochet et al. 2008; Schochet 2018). Another rigorous evaluation examined the National Guard Youth ChalleNGe program, which is also a U.S. residential WFD program (Millenky et al. 2011). The 17-month program targets school dropouts ages 15 to 18 and consists of a "quasi-military," 2-week orientation and assessment period followed by a 20-week residential phase and then a post-residential phase.[42] Millenky and colleagues (2011) found that three years after entering the study, program participants were more likely to be employed. In addition, they earned approximately 20 percent more than nonparticipants. Most recently, Miller and colleagues (2018) conducted a nationwide experimental evaluation of the YouthBuild program, which offers 16- to 24-year-old dropouts 6 to 12 months of educational services (focused on reaching high school equivalency), technical vocational training, youth development services,[43] and supportive or transitional services.[44] The authors found that four years after study entry YouthBuild increased self-reported employment rates, wages, and earnings but not employment, as measured with administrative records (Miller et al. 2018).

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[42] The residential phase focuses on the following eight core components: (1) leadership, (2) responsible citizenship, (3) service to the community, (4) life coping skills, (5) physical fitness, (6) health and hygiene, (7) job skills, and (8) academic excellence. This phase is followed by a post-residential phase that includes a mentoring program.

[43] Youth development services include leadership training in the classroom, formal and informal leadership roles within the program, and service to the community.

[44] Supportive or transitional services include life skills training, counseling, case management, workforce preparation, stipends, and up to one year of follow-up support services.

However, a recent review of 12 studies on the impact of technical vocational training found only 3 studies (out of 9 reporting employment outcomes) that observed a statistically significant impact on employment and only 2 studies (out of 9 reporting earnings outcomes) that observed a statistically significant impact on earnings (McKenzie 2017). Another recent review that focused on developing countries examined the rigorous evidence of employment programs for youth from ages 15 to 25 (Fox and Kaul 2017). The researchers found that two-thirds of programs had no effect on labor market outcomes. When there were effects, in most instances they were only short-term effects that dissipated two to three years after training completion. Furthermore, the most successful programs included several different components and were the most expensive—costing two to five times the yearly per capita income of the country. In Colombia, a randomized evaluation of *Jóvenes en Acción,* a technical vocational classroom and on-the-job training program for disadvantaged youth, found that the program had a significant positive impact on the probability of employment and earnings for women and on shifts from informal to formal work for both men and women (Attanasio et al. 2011). The authors also conducted a cost-benefit analysis of *Jóvenes en Acción,* which focused on the benefits of the program on earnings for women. They concluded that the program had a net benefit of $666 (in U.S. dollars) and an internal rate of return of 21.6 percent.

Table U.1. Workforce development (WFD)

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Nonviolent crime
HICs													
Millenky et al. 2011	RCT	National Guard Youth ChalleNGe: Residential program with eight core components (United States)	Three years after start of study	16–18	19–21					Mixed[i,ii]		NS[iii]	
Miller et al. 2018	RCT	YouthBuild: Education services (focusing on reaching high school equivalency), technical vocational training, youth development services (United States)	Four years after program completion	16–24	20–28	NS[iv]				Mixed[v]		NS[vi]	
Visher et al. 2005	Meta-analysis of eight studies (RCT)	Ex-offender employment programs (United States)	Varies by study	Varies by study	Varies by study								NS[vii]
Newton et al. 2018	Systematic review of 12 studies (RCT and QED)	Post-release vocational training programs (United States)	Varies by study	Varies by study	Varies by study							Mixed	
Schaeffer et al. 2014	RCT	Community Restitution Apprenticeship-Focused Training (CRAFT): On-the-job training through placement as apprentices to master	Thirty months post-baseline follow-up	15–18	17–20					NS[viii]		NS[ix]	NS[x]

| Abridged citation | Research design | Program and description | Outcome follow-up period | Age range (years) | | Correlated outcomes | | | | | Violence and crime | | |
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Nonviolent crime
Schochet et al. 2001	RCT	craftspeople (United States) Job Corps: Residential program with technical vocational training, academic education, health education, and counseling (United States)	Forty-eight months after random assignment	16–24	20–28					NS[xi]		+[xii]	
					LMICs								
Adoho et al. 2014	RCT	Economic Empowerment of Adolescent Girls and Young Women (EPAG): Classroom-based technical vocational and life skills training, followed by job insertion or business start-up support (Liberia)	Seven months after exiting classroom-based training	16–27	16–28	Mixed[xiv]				NS[xv]			
Bausch et al. 2017	RCT	100 Hours to Success: Technical vocational training (Morocco)	Nearly three years after start of program	18–28	21–31	NS[xvi]				NS[xvii]			
Bandiera et al. 2014	RCT	Empowerment and Livelihood for Adolescents (ELA): Technical vocational and life skills training (Uganda)		14–20	16–22					Mixed[xviii]		+[xix]	
Bertrand et al. 2017b	RCT	Public works program program groups: (1)	Four to five months after	18–30	18–31	+[xx]				+[xxi]			

				Age range (years)		Correlated outcomes					Violence and crime		
Abridged citation	Research design	Program and description	Outcome follow-up period	Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Nonviolent crime
Bertrand et al. 2017b	RCT	standard public works, (2) standard public works and self-employment training, and (3) standard public works and wage-employment and job search training (Côte d'Ivoire)	start of program Twelve to fifteen months after end of program	18–30	18–31	+[xxii]				NS[xxiii]			
Blattman and Annan 2016	RCT	Program combining agricultural training, capital inputs, and cognitive behavioral therapy (CBT) (Liberia)	Fourteen months after end of program	Average age 30	Average age 30					Mixed[xxiv]			
Dunbar et al. 2014	RCT	Shaping the Health of Adolescents in Zimbabwe (SHAZ!): Technical vocational training, life skills and health education, micro-grants, guidance counseling (Zimbabwe)	Up to 24 months after program completion	16–19	18–21					NS[xxv]		NS[xxvi]	
Hicks et al. 2016	RCT	Voucher program for vocational training (Kenya)	A few months after training completion	17–28	17–29					Mixed[xxvii]			
Hicks et al. 2016	RCT		Two to three years after training completion	17–28	19–31					Mixed[xxviii]			
Rosas et al. 2017	RCT	Youth Employment Support Project	Less than a year after	15–35	15–35	Mixed[xiv]							

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Nonviolent crime
		(YESP): Technical vocational training, on-the-job training, and entrepreneurship and business development training (Sierra Leone)	end of program										
Chakravarty et al. 2015	QED	Employment Fund (EF): Technical vocational training, job placement services, and life skills training for females (Nepal)	Nine to eleven months after training completion	16–35	16–36					NS[xxx]			
EDC 2017	QED	Mindanao Youth for Development (MyDev): Livelihood skills training and supported access to basic education and high school equivalency courses (Philippines)	Four to six months after graduation	14–27	14–28	Mixed[xxxi]				Mixed[xxxii]			
Ivaschenk et al. 2017	QED	Urban Youth Employment Project: Classroom on-the-job training (Papua New Guinea)	Twelve to eighteen months after project completion	16–39	17–40					Mixed[xxxiii]		NS[xxxiv]	Mixed[xxxv]
Swedberg and Reisman 2013	QED (non-equivalent group design)	Kenya Transition Initiative–Eastleigh (KTI-E): Livelihood training, with primary focus on messaging on role of youth in community (Kenya)	Sample of training completers	Not specified	Not specified					+[xxxvi]			

				Age range (years)		Correlated outcomes					Violence and crime		
Abridged citation	Research design	Program and description	Outcome follow-up period	Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Nonviolent crime
Swedbergy and Reisman 2013	QED (non-equivalent group design)	Garissa Youth Project (G-Youth): Livelihood training, messaging on role of youth in community, positive behavior, and personal choice (Kenya)	Sample of training completers	16–30	16–30					+[xxxvii]			
Swedberg and Reisman 2013	QED (non-equivalent group design)	Somali Youth Livelihoods Program (SYLP): Livelihood training, job placement, messaging on role of youth in community (Somalia)	Sample of training completers	15–24	15–24					Mixed[xxxviii]			
LAC													
Diaz and Rosas 2016	RCT	*Projoven*: Technical vocational training, followed by internship (Peru)	Three years after graduation	14–26	17–29	NS[xxxix]							
Calero and Rozo 2016	RCT	*Galpao Aplauso*: Technical vocational and noncognitive skills training (Brazil)	A few months after end of training	17–29	17–30	NS[xl]				Mixed[xli]			
Dexis Consulting Group 2018	RCT	*Empleando Futuros*: Technical vocational training including noncognitive skills development, basic labor competencies, and cognitive behavioral therapy (Honduras)	Five months after baseline includes training completers and dropouts	16–30	16–31					Mixed[xlii]			

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Nonviolent crime
Ibarraran et al. 2014	RCT	*Juventud y Empleo*: Technical vocational training and life skills training, followed by internship (Dominican Republic)	Eighteen to twenty-four months after graduation	16–29	17–31	Mixed[xliii]				+[xliv]			
Social Impact 2018	RCT	*A Ganar*: An integrated technical vocational training program for at-risk youth with in-classroom and sports-based field activities, internships, entrepreneurship workshops, and post-training employment search assistance (Guatemala and Honduras)	Eighteen months after program completion	16–24	17–25	Mixed[xlv]				Mixed[xlvi]			
Dexis Consulting Group and Management Systems International 2013	QED (non-equivalent group design)	*A Ganar*: Technical vocational training and life skills training, includes skills development through sports (Saint Vincent)	Sample included current trainees and graduates	16–24	16–24					+[xlvii]			
Dexis Consulting Group and Management Systems International 2013	QED (non-equivalent group design)	Caribbean Youth Empowerment Program (CYEP): Technical vocational training and life skills training, including	Sample included current trainees and graduates	17–25	17–25					-[xlviii]			

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Nonviolent crime
		entrepreneurship track (Saint Lucia)											
Social Impact 2017	Pre-post	*Alerta Joven* (AJ): Fifteen different types of programs, including training in technical vocational skills, noncognitive abilities, entrepreneurship, and sexual health topics (Dominican Republic)	Not specified	11–24	11–24					Mixed[xliv]		Mixed[l]	
De García et al. 2014	Ex-post	Skills and Knowledge for Youth Employment (SKYE): Technical vocational training program with noncognitive skills training and a mentorship component (Guyana)	Not specified	15–31	15–31					+[li]			

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] There was no statistically significant effect on recent binge drinking rates or on frequent use of marijuana and other illegal drugs. There was a statistically significant negative effect on having ever tried illegal drugs other than marijuana (program participants were more likely to have ever tried).
[ii] There was a statistically significant negative effect on the likelihood of using birth control (program participants were less likely to use birth control).
[iii] There was no statistically significant effect on self-reported delinquency or on arrests or convictions.
[iv] There were no significant effects on signs of major depression, self-esteem score, or self-confidence score.
[v] There was a significant effect on having volunteered and being involved in politics or local community activities. There were significant negative effects on being willing to wait for bigger financial rewards, having five or more drinks once or more in a typical week, and using another drug since random assignment. No significant effects were found on registering to vote or having voted, being involved in a gang fight in the past 12 months, or believing that most people can be trusted.
[vi] There were no significant effects on measures of involvement with the criminal justice system, which included outcomes such as being arrested, charged, convicted, or locked up.
[vii] The meta-analysis presented results from eight random assignment studies. It found that employment programs for ex-offenders did not reduce recidivism.
[viii] No statistically significant effects were found for any alcohol, marijuana, or substance problem outcomes.
[ix] No statistically significant effects were found for self-reported measures of general delinquency and crimes against persons.
[x] No statistically significant effects were found for self-reported measures of general theft.
[xi] No statistically significant effects were found for measures of risky behaviors.
[xii] There was a statistically significant effect on the percentage of participants arrested (decreased arrest rate).
[xiii] There were statistically significant positive effects of participation in work-related training on involvement in local politics; volunteering in clubs, organizations, and community service; being active in artistic or musical activities; and attending classical and modern musical and theater events.
[xiv] There was a statistically significant positive effect on the entrepreneurial ability score but no significant effect on the self-regulation score.
[xv] There were no statistically significant impacts on any of the following sexual behaviors: number of regular partners, number of casual partners, use of a condom the last time had sex with regular partner.
[xvi] There was no statistically significant effect on the GRIT Scale, Rosenberg's self-esteem scale, or the risk scale.
[xviii] There were no statistically significant effects on community engagement outcomes, including volunteerism, satisfaction with role in the community, and a community problem-solving scale.
[xviii] There was a statistically significant positive effect on always using condoms if sexually active. There was no statistically significant effect on using other contraceptives if sexually active.
[xix] There was a decrease in the likelihood of having sex unwillingly in the past year.
[xx] There was a statistically significant positive effect on the well-being index.
[xxi] There was a statistically significant positive effect on the behavior index.
[xxii] There was a statistically significant positive effect on the well-being index.
[xiii] There was no statistically significant effect on the behavior index.
[xxiv] Participants shifted their time use away from illicit activities but did not exit illicit activities completely. There were also statistically significant effects on self-reported drug selling and theft.
[xxv] There was no statistically significant effect on transactional sex in the last month, use of condoms with current partner, and use of contraceptives with current partner.
[xxvi] There was no statistically significant effect on experiencing physical or sexual violence or rape.
[xxvii] For the intention-to-treat analysis: there were no statistically significant effects on "thinks Kenyan governance is better than 2 years ago," a summary measure of political participation, a summary index for justified political violence, and "agrees that most people cannot be trusted." For the treatment-on-the-treated analysis: there were statistically significant negative effects on "thinks Kenyan governance is better than 2 years ago," a summary measure of political participation, and a summary index for justified political violence. There was no statistically significant effect on "agrees that most people cannot be trusted."
[xxviii] For the intention-to-treat analysis: there were no statistically significant effects on "thinks Kenyan governance is better than 2 years ago," a summary measure of political participation, a summary index for justified political violence, and "agrees that most people cannot be trusted." For the treatment-on-the-treated analysis: there were statistically significant positive effects on a summary measure of political participation and a summary index for justified political violence. There was no statistically significant effect on "thinks Kenyan governance is better than 2 years ago" and "agrees that most people cannot be trusted."

xxix There were significant positive impacts on impulse control, greater locus of control, and multitasking ability. There was no statistically significant effect on preparedness to take risks.

xxx There was no statistically significant effect on the use of any type of contraception (if sexually active).

xxxi There was no statistically significant effect on the percentage of youth participants who improved their life skills, work readiness skills, and leadership skills. However, there was a statistically significant positive effect on the extent of youth participants' improvement in life skills, work readiness skills, and leadership skills.

xxxii There were statistically significant positive effects on the perception of community, satisfaction with community, satisfaction with government, and frequency of involvement in community organizations. There were no statistically significant effects on the perception of government or the number of community organizations involved in over time.

xxxiii There were statistically significant reductions in self-reports of hanging out with friends late at night, having a best friend involved in crime in last three months, having friends involved in fights or robberies, using threat or force with somebody, and being attacked and fighting back. There were no statistically significant effects on self-reports of chewing betel nut (a popular stimulant) or getting drunk often (one or more times per week).

Xxxiv There were no statistically significant effects on self-reports of being involved in an assault (physical or verbal) or being the victim of an assault in the last six months.

xxxv There was a statistically significant reduction in self-reports of damaging of somebody's property for fun/joke. No statistically significant effect on self-report of involvement in stealing, being a victim of stealing, involvement in alcohol-related crime , being a victim of alcohol-related crime, or trespassing in the last six months.

xxxvi KTI-E participants had higher average scores than comparison youth (statistically significant difference) on the following: attending a community meeting in the past year, working with other youth to raise issues with authorities in the past year, participation in community decision-making, level of satisfaction with how local government decisions are made in the community, opinion on how much an ordinary person can do to improve the situation when there are problems in the community, believe that youth associations make a positive contribution to the community, how leaders view youth within the community, and the extent to which they feel supported and represented by local youth organizations. There were no statistically significant differences between KTI-E participants and comparison youth on the level of opposition of violence in the name of Islam, but a high number of youth from both groups reported being against violence.

xxxvii G-Youth participants had higher average scores than comparison youth (statistically significant difference) on the following: attending a community meeting in the past year, working with other youth to raise issues with authorities in the past year, participation in community decision-making, level of satisfaction with how local government decisions are made in the community, opinion on how much an ordinary person can do to improve the situation when there are problems in the community, believe that youth associations make a positive contribution to the community, and the extent to which they feel supported and represented by local youth organizations. There were no statistically significant differences between G-Youth participants and comparison youth on the level of opposition of violence in the name of Islam, but a high number of youth from both groups reported being against violence.

xxxviii SYLP participants had higher average scores than comparison youth (statistically significant difference) on attending a community meeting in the past year. However, there were no statistically significant differences between SYLP participants and comparison youth on working with other youth to raise issues with authorities in the past year, participation in community decision-making, level of satisfaction with how local government decisions are made in the community, opinion on how much an ordinary person can do to improve the situation when there are problems in the community, believe that youth associations make a positive contribution to the community, and the extent to which they feel supported and represented by local youth organizations. There were also no statistically significant differences between SYLP participants and comparison youth on the level of opposition of violence in the name of Islam, but a high number of youth from both groups reported being against violence.

xxxiv No statistically significant effect on self-esteem, perseverance, and ambition scales.

xl No statistically significant effect during either follow-up period on CPS scale and Grit Scale.

xli No statistically significant effect during either follow-up period on the smoking, alcohol, marijuana, or other drug use. Also, no statistically significant effect on participation in fights, victimization, or the risky behavior summary index. The study did find that program participants with higher socio-emotional skills, did reduce their alcohol consumption and had lower crime victimization.

xlii The descriptive comparisons presented by the study show that the average risk of violence involvement doubled for the comparison group (n=73), decreased slightly among training dropouts (n=47), and increased among training completers (n=15). It is important to note that at follow-up the study was only able to collect data for 62 youth in the program group and 73 in the comparison group. Out of the 62 youth from the program group, 47 youth had dropped out before completing training and so the small number of completers precludes reliable statistical comparisons between program and comparison group outcomes.

[xliii] Statistically significant positive effect on total on Social and Personal Competencies Scale (CPS) score and total Grit Scale. No statistically significant effect on Rosenberg Scale.

[xliv] For females, statistically significant negative effect on the probability of being pregnant.

[xlv] No statistically significant effect on self-esteem based on the adjusted Rosenberg Scale. A Ganar youth made significant improvements in four asset-building contexts and seven external and internal sub-measures of the 58-item Development Assets Profile (DAP) which measures socio-emotional skills.

[xlvi] A Ganar participants report having more peers participate in risk behaviors, with significant difference in 5 behaviors: incarceration, crime, drug use, gang involvement and fighting. Insignificant differences in more peer participation in drug trafficking and unprotected sex. However, the individual risk behavior of A Ganar participants did not differ from the comparison group.

[xlvii] Fifty six percent of A Ganar trainees/graduates (n=54) report being less likely to engage in risky behavior compared to 47 percent of trainees/beneficiaries from similar WFD training projects (n=49).

[xlviii] Seventy eight percent of CYEP trainees/graduates (n=47) report being less likely to engage in risky behavior compared to 85 percent of trainees/beneficiaries from similar WFD training projects (n=52).

[xlix] AJ participants were more likely to use an effective method of contraception during their last sexual encounter at follow-up than when they were first admitted into the program. Nineteen percent of AJ participants reported participating in fights at follow-up compared to 9 percent during program admission. The percentage of youth that reported consuming alcohol in the past year decreased from 76 percent during program admission to 64 percent at follow-up.

[l] While 3 percent of AJ participants reported committing a robbery during program admission, no participants reported committing a robbery at follow-up. Five percent of AJ participants reported committing an assault at follow-up compared to 2 percent during program admission. Also, 24 percent of AJ participants reported being victims of assault or robbery at follow-up compared to 12 percent during program admission.

[li] Surveyed SKYE participants reported a high degree of agreement that the program let to an improved ability to stay out of trouble.

APPENDIX V:

PROGRAMS FOR OUT OF SCHOOL CHILDREN AND YOUTH

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This appendix provides a literature summary on drivers of exclusion from and barriers to reintegration in school for children and youth, information from the foundational literature on the impact of programs for out of school children and youth, including complimentary basic education (CBE), accelerated education programs (AEP) and adult basic education (ABE) on academic achievement, with additional information on the studies summarized in Chapter XXI, Tables XXI.2, XXI.3 and XXI.4.

Drivers of exclusion from and barriers to reintegration in school

For most out of school children and youth, poverty is the principal agent of exclusion from school; the direct and opportunity costs of schooling force and keep children out of the formal education system.[45] In many cases, a child's labor is needed to contribute to the family income and a family cannot afford the cost of school uniforms and books. In addition, conflict can undermine or even lead to the dismantling of education systems and can push children out of school (USAID and ECCN 2016). Finally, inadequate school facilities and materials can diminish a child's likelihood of enrolling in school and progressing through the education system. Together, these factors can push children and youths out of school and/or result in them being overage for the grade at which they should re-enter the education system based on their knowledge and skills (Musaroche 2005).[46] Many OOSCY programs seek to mitigate some of these drivers.

Out of school children and youth also face demand- and supply-side barriers to reintegration in formal education systems. In the Philippines, for example, a World Bank study reported that out-of-school children and youths wanted to return to their studies but were unable to do so because they needed tutoring and scholarships to overcome barriers to re-entry. Examinations of the youths also revealed that young people frequently suffered from low self-esteem, low perseverance, and poor emotional control, and some reported that they even resorted to illegal activities in order to earn an income (Balachander 2003).[47] Across LMICs, demand-side barriers to a child's reintegration into school can reflect sociocultural norms, including expectations that youths marry young and have children early in life (particularly among girls), as well as economic constraints, including the need for young people to work to support their families and families' inability to afford ancillary school costs. Supply-side barriers to OOSCY reintegration include poor educational facilities, underprepared teachers, and stigma associated with overage children attending grade levels appropriate for their skill levels. Finally, governance and capacity issues can pose institutional barriers to OOSCY reintegration, whether as a consequence of poor data and planning or as a result of financial constraints within the education system (UNICEF

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[45] CBE programs, AEP, and ABE programs focus on children excluded from primary education. However, the same exclusionary factors can push adolescents out of secondary school. For information on programs targeting youths who left secondary school early, see Chapters XII (Secondary Equivalency/Certification) and XIII (Workforce Development).

[46] Programs to prevent dropout and expulsio n from occurring in the first place are the subject of Chapter XI.

[47] It is noteworthy that out-of-school children and youths were not more likely than other youth cohorts to be involved in illegal activities such as gangs or robbery. However, they did report that being out of school, jobless, and without other opportunities forced them to engage in those illegal activities in order to support themselves. Out-of-school children and youths were also identified in the Philippines as stigmatized, vulnerable to social ills, and oriented to risky behaviors (Balachander 2003).

2018; ATEM 2012; UNICEF 2015a). These barriers can combine to create an environment that bars lower-income children in LMICs from reintegrating into formal education.

Impacts of complimentary basic education on standard education outcomes

There is strong evidence that CBE programs can have positive impacts on academic achievement and other cognitive outcomes. Early evaluations of CBE programs showed positive impacts on literacy and numeracy, paving the way for the expansion of CBE programs across LMICs. Psacharopoulos and co-authors (1993) examined Escuela Nueva in Colombia (one of the first CBE programs to be rigorously evaluated), using quasi-experimental methods on cognitive and social-emotional test scores to establish program impact. The researchers found that Escuela Nueva had significant positive impacts on students' interest in civics, as well as their performance on math and Spanish tests. Subsequent studies of CBEs, including quasi-experimental and correlational analyses, have estimated program effects by tracking improvements in reading and arithmetic outcomes measured by standardized tests and by examining the rates of successful transition into secondary education when school administrative data are available. For example, a pre-post and correlational evaluation of the EDUCATODOS program in Honduras found that Spanish and mathematics that test scores were positively associated with exposure to the program and the test scores of participants improved over the course of the program (EQUIP2 2006).

Because CBE participants are typically not randomly assigned to government schools or CBE programs, researchers typically use correlational or quasi-experimental designs to examine program outcomes (De Stefano et al. 2007). A recent report from High-Quality Technical Assistance for Results (HEART-DFID, 2014) found that out of 35 CBE programs they reviewed, nearly all achieved considerable success in improving educational access, learning outcomes, and opportunities to reintegrate into formal schooling (HEART-DFID 2014).[48] Escuela Nueva, for example, continues to yield either equivalent or higher learning outcomes than conventional schooling. A recent study using standardized test data found that the effect of Escuela Nueva on a child's learning outcomes was equivalent to the impact of the child being one socioeconomic level higher (out of four national income brackets) (Hammler 2018).

CBE programs have high cost effectiveness, often delivering improvements in primary-level proficiency and grade completion at a lower cost than standard schools. Cost savings for the program and the participants are achieved through (1) training local secondary school graduates as facilitators and (2) offering greater flexibility for out-of-school and overage learners (for example, adaptable schedules, convenient local learning centers, and no uniform requirements) (Jere 2012). Research on CBE programs in Afghanistan, Bangladesh, Egypt, Ghana, Guatemala, Honduras, Mali, and Zambia showed that program participants were more likely to complete primary education than students in standard public schools and generally at a lower cost per student (DeStefano et al. 2007). The Community Schools CBE in Mali showed higher unit costs than public school, but 67 percent of CBE participants completed their primary studies compared to 56 percent of public-school students (exam scores were also higher). The School for Life CBE in Ghana also showed higher costs for student access ($39 per student per year compared to $27 in public schools), but the cost of grade completion was much lower for CBE than in public

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[48] Of these 35 reviewed by HEART, all were in LMICs and 5 were in LAC: Colombia, El Salvador, Guatemala, Honduras, and Mexico. The programs were begun between 1990 and 2014.

schools ($43 instead of $135) because students in the CBE were much more likely to complete grades than those in public schools. Improvements in primary-level learning from CBEs were also achieved at lower cost, with a cost of $52 per student compared to an estimated $1500 per student in the public system for similar levels of proficiency. The cost-effectiveness for EDUCATODOS primary cycle in Honduras, expressed in terms of investment, was 29,000 students enrolled (and 17,500 completing a grade level) per $1 million spent, versus 10,000 enrolled (and 7,000 completing a grade level) per $1 million spent in the standard primary program (DeStefano et al. 2005). Spaulding notes that the grade 1–6 component of the program delivered stronger cognitive gains than traditional primary schooling at only 28 percent the cost through the use of a compressed curriculum (3 years for grades 1–6 in the CBE) and a decentralized structure that relied on local partners and volunteer facilitators to deliver the program (Spaulding 2002; EQUIP2 2006). This implies that EDUCATODOS is more efficient both in offering access and in producing higher levels of attainment.

Cost assessments of four CBE programs in Uganda, however, indicate that CBE programs can incur high start-up costs, including expenses for community outreach efforts, facilitator recruitment and training, and teaching materials provision (Ilon 2002). The Complementary Basic Education program in Tanzania encountered similarly high per-student costs at start-up (Musaroche 2005). These high fixed costs can potentially be reduced as programs scale up by relying on extant formal government curricula and by partially integrating administrative structures with government education systems.

Establishing a cost-benefit estimate for complementary and adult basic education programs (including the economic boons to greater society) is possible, as evidenced by calculations that Knowles and Behrman (2005) produce in their review of 40 different youth-supporting programs. For example, basic education programs for OOSC aged 8–14 years in Bangladesh cost $52 per participant in 2000, and adult basic education programs in Bangladesh cost $20.40 per participant who passed the primary-level assessment. If passing the assessment is assumed to be equivalent to finishing the primary cycle, then the adult basic education program cost only 33 percent what it costs to put a child through standard public education. Because complementary and adult basic education programs are pro-poor investments targeting illiterate or under-educated OOSC and young adults, Knowles and Behrman argue that the benefits of primary-level equivalency to society can be loosely quantified by higher rates of literate workers and reductions in inequity. However, attributing changes in the larger economy or society to one program poses a challenge for researchers, and cost-effectiveness calculations in that area are sparse.

In terms of the social-emotional and behavioral effects of basic education programs (documented in the Findings section of this chapter), researchers are rarely able to (1) estimate the long-term effects of social-emotional skills and protective behaviors generated by programming, and (2) distinguish the social and economic impact of those effects, which could be obscured or countervailed by other factors, such as economic downturns.

Appendix Table V.1. Complementary basic education (CBE) Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
HICs (no evidence located on impacts of CBE programs on violence, crime, and correlated outcomes in HICs)[i]													
LMICs													
Ilon 2002	Qualitative	Five CBE programs, Mumbende Non-formal Education, COPE, CHANCE, ABEK and BEUPA (Uganda)[ii]	During programs	6–18	6–18		+	+	+	+			
Munthali 2015	Qualitative	Joint CBE Program for Adolescent Girls (JPAG) (Malawi)[iii]	4 years after implementation	10–19	Under 24	+							
LAC													
EQUIP2 2006	Qualitative	Educatodos and Telebasica, in-person and technology-based complementary basic education programs (Honduras)[iv, v]	5 years after implementation	7–78	7–78	+							
Spaulding 2002	Qualitative		Varied	Adolescents and young adults	Adolescents and young adults	+	+			+			

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest. See also the evaluation conducted by Miller et al. (2018) of the YouthBuild program, which includes education and vocation components for out-of-school adolescents in the United States, in the Workforce Development chapter.

[i] Ilon (2002) provides qualitative evidence on the association of exposure to five CBEs in Uganda and participants' protective behaviors, social-emotional ability, and environmental factors. The data was collected using informal interviews with community leaders and local program chairpersons. These CBE programs were similar in duration (3 years) and target group (OOSC ages 6-18 who are excluded from school by poverty or distance) but varied in curricula. For example, the Alternative Basic Education for Karamoja (ABEK) did not use standard government curricula, whereas programs for consolidated rural communities and Kampala did use the government's universal primary education (UPE) curriculum. Despite these differences, community leaders largely across the models suggested that the CBE programs produced a strong sense of solidarity among participants and their families, cohesion in the community, and community pride in the work of facilitators and the learning of students. Leaders reported that children in the Karamoja and Kampala CBE programs appeared to have become cleaner, neater, and more respectful of their elders.

[ii] In Malawi, Munthali et al. (2015) examined a nine-month literacy-focused CBE program that formed part of the broader Joint Program for Adolescent Girls (JPAG), an initiative funded UNICEF, UNPFA, UNESCO, and WFP. Targeted at out-of-school girls ages 10-19, the CBE component produced gains in literacy (measured through exams) and positive (self-reported) outcomes in terms of girls' confidence in social situations and their self-esteem in general. These latter indicators were identified using data from 623 questionnaires for adolescent girls, 16 FGDs with various stakeholders, 14 interviews with other stakeholders. These qualitative findings should be interpreted with caution.

[iii] In this paper, EQUIP2 (2006) deployed mixed methods to examine the *Educatodos* program in Honduras. The researchers used pre-post tests to measure cognitive skills development and showed significant positive gains CBE center students relative to those in the traditional education system. However, only qualitative data was available on participants' behavioral changes. These data collected by Improving Educational Quality (IEQ) suggest that women participants and facilitators gained self-esteem through the program and greater control over the social and economic lives. As suggested in Prins (2005) above, Educatodos achieves cost-effectiveness through a compressed curriculum (3 years for grades 1-6 in the CBE) and a decentralized structure that relies on local partners and volunteer facilitators to deliver the program.

[iv] In this paper, Spaulding (2002) reviews quasi-experimental and qualitative evaluations of several nontraditional and complementary basic education programs in Honduras, including *Educatodos*. These programs were targeted at primary school dropouts, who had abandoned their educations due poverty (and the associated opportunity cost of education) and the damage of Hurricane Mitch. Programs involved in-person lessons by facilitators with grade 1-6 packages and 7-9 packages of teacher manuals, tele-education tools (sent cassettes and CDs), and materials for students. Evidence suggested that participants became more active in community issues, and that they gained self-confidence and positive self-image. Further, Spaulding suggest that participants gained skills to "work more effectively with their families and children.

[v] Spaulding reports that grade 1-6 component of *Educatodos* delivered stronger cognitive gains than traditional primary schooling at only 28% the cost.

Impacts of accelerated education programs (AEP) on standard education outcomes

The evidence of the impact of AEPs on academic achievement is weak but suggests a positive association. The weakness of the evidence base is due in part to the fact that by design, most AEPs have been implemented in areas of recent conflict or extreme poverty, which produce challenging environments for evaluating AEPs. A USAID literature review of such programs found an overall lack of rigorous or longitudinal evidence on program effects (Baxter et al. 2016). Existing evidence from the USAID review and other evaluations (NRC 2015), however, show that students in AEPs often meet or exceed academic proficiencies of students in formal schooling but that students transitioning to formal schooling after completing an AEP experience high rates of absenteeism and dropout (Baxter et al. 2016). For example, in Liberia, evaluators of the Accelerated Learning Program for Positive Learning and United Service (ALPP) used government standardized testing to compare the language arts and math skills of AEP participants to those of their government school peers and found that AEP participants performed at least as well as the comparison group (Coyne et al. 2008). Using a propensity score matching design, Baxter and co-authors (2016) evaluated the SPEED program in Ethiopia and found that reading and math gains were similar between the two groups.

AEP evaluations that include cost-effectiveness calculations typically measure effects in terms of program completion, rather than violence, crime, and correlated indicators. For example, Coyne and co-authors (2008) calculate that it cost $200 for one child to graduate the Accelerated Learning Program PLUS in Liberia. These evaluations also do not provide a detailed accounting of long-term benefits. As Burde and co-authors (2015) note, this dearth of cost evidence is common among programs that deliver education in crisis environments, and it precludes discussions on the economics of providing education in emergencies.

Appendix Table V.2 Accelerated education programming (AEPs)

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
HIC (no evidence located on impacts of AEPs on violence, crime, and correlated outcomes in HICs)													
LMICs													
Peterson 2013	Synthesis of qualitative studies[i]	Multiple AEPs targeted at out-of-school and internally-displaced children (multiple countries)	Varied	10–18[ii]	10–18[ii]	+				+		+	
Nkutu et al. 2010	Qualitative[iii]	Accelerated Learning Program and ALP for Positive Learning and United Service (Liberia)	At completion of second	10–18[ii]	13–25	+				+			
Coyne et al. 2008	Qualitative[iv]		Midterm evaluation	10–18	10–18	+				+		+	+
Manda 2011	Qualitative[v]		At completion	8–35	8–35	+						+	
LAC													
Andisha et al. 2014	QED[vi]	Escuela Primaria Accelerada (Panama)	At completion	12+	12+					NS			
Acevedo and Hernandez-Wolfe 2014	Qualitative[vii]	Aceleración de aprendizaje, an accelerated education program targeted at displaced primary-overage children (Colombia)	NA	10–17	10–17	+							
Ramos Cuesta 2016	Qualitative[viii]		4 years after implementation	9–15	9–15	+				+			+

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] In a review of AEPs, Peterson (2013) cites qualitative evidence to argue that the programs can have robust impacts on participant behaviors and community health, reducing the risk of violence and crime. She notes that in Liberia, participants in the MoE/UNICEF AEP felt a greater sense of normalcy, safety, and social cohesion in communities that had been affected by the civil war. Conflict resolution and decision-making skills improved among ALP students (many of whom were ex-combatants), and greater prosocial behaviors were registered by the NRC (the implementing agency). Peterson also cites Nkutu et al. (2010), below.

[ii] Programs included some older participants.

[iii] Nkutu et al. (2010) examined the Norwegian Refugee Council's Rapid Response Education Program (RREP) Accelerated Learning Program in Liberia, which began in 2005 with a planned phase-out in 2010 after two compressed primary cycles. The program targeted war-affected out-of-school and over-age youth with basic education, but also included physical education, community mobilization, and an adult literacy component for young mothers. The research team collected qualitative data through interviews and focus group discussions with 408 ALP participants, past learners, teachers and assistants, and parents and community members. Analysis of this qualitative data suggests that the ALP had positive influences on participants' self-esteem, and also reduced the use of aggressive behaviors and vulgar language they acquired during the conflict.

[iv] In Liberia, Coyne et al. (2008) evaluated the Accelerated Learning Program PLUS (ALPP), a comprehensive AEP that included curricula on life skills, entrepreneurship, family planning, HIV awareness, nutrition, violence prevention, and civic rights and responsibilities. Evaluators used government standardized testing to compare the language arts and math skills of AEP participants and their government school counterparts. They found that AEP participants performed at least as well as their peers in conventional programs. Coyne and coauthors collected data through focus groups with participants, many of whom were children associated with fighting forces (CAFFs), returnees, displaced children, and young mothers who had experienced sex crimes during the war. Qualitative data suggested that the program reduced domestic and public violence, criminal activity, and drunkenness, and increased participants' sense of purpose. No cost-effectiveness analyses (or comparison with alternative programs) are available, but basic calculations indicate that the ALPP costs $200 for one child to graduate with primary equivalency.

[v] Manda (2011) evaluated the ALP in Liberia at the phase-out of both the PLUS version (see above) and regular program (without the add-on components). Quantitative outcome data showed that ALP finishers were mostly on par with conventional school learners in primary-level academic assessments. Focus group discussions revealed that participants felt a greater sense of responsibility in conflict resolution than they had before the program, which they thought reduced public and domestic violence. These findings were sourced from interviews and focus group discussions with 120 individuals.

[vi] In Panama, Andisha et al. (2014) used a quasi-experimental design to evaluate the impact of an AEP on child labor and engagement in extracurricular programs among working, indigenous out-of-school children. This 5-day-per-week, year-round program was designed to help OOSC in extreme poverty overcome barriers to primary education completion (grade 6), and to reduce rates of child labor in indigenous communities. Researchers found that while the AEP significantly reduced children's time spent on economic activities, it had no effect on time spent in extracurricular programs. Extracurricular involvement, as noted in Chapter II, is an indicator of protective behaviors that are linked with a lower likelihood of exposure to violence and crime. Comparing the outcomes in economic activity and extracurricular engagement, the authors attribute the significant reduction in child labor hours to the fact that children simply had fewer hours in the day to work due to their commitment to the AEP.

[vii] In this qualitative paper, Acevedo and Hernandez-Wolfe (2014) explore the resilience of students and teachers in a Colombian accelerated education program. The Aceleración de Aprendizaje is an accelerated primary-level curriculum that includes, in addition to mathematics and language, social sciences, natural sciences, and personalization with the aim of increasing self-esteem. Based on their interviews of teachers, authors suggest that students in the program (internally displaced children ages 10-17) did indeed gain skills in emotional self-regulation and communication competencies. The findings of this paper are based on a small pool of interviewees, and should be interpreted with caution.

[viii] Like Acevedo and Hernandez-Wolfe (2014), Ramos Cuesta (2016) examines the student and teacher perceptions of the Colombian Aceleración de aprendizaje program using qualitative methods. Drawing from a series of interviews with participants and instructors, Ramos Cuesta suggests that the program increases self-esteem of students and reduces their likelihood of exhibiting delinquent behaviors and becoming involved in dangerous groups. The findings of this paper are based on a small pool of interviewees, and should be interpreted with caution.

Impacts of adult basic education (ABE) on standard education outcomes

We found strong evidence of positive impacts of ABE programs on cognitive outcomes, primarily from HICs. For example, a review of 175 rigorous evaluations of ABE programs in HICs show positive impacts of the programs on adult literacy and numeracy, as well as employment (Vorhaus et al. 2011). Evaluations of ABE programs in LMICs likewise demonstrate positive impacts on labor market integration and earnings, although the impact on literacy levels are more modest (Blunch 2017).[49]

The World Bank (2005) notes that standard education systems in LMICs have disproportionately benefited boys, men, and families with the financial means to support education attainment, leaving girls and women from low-income families with poor literacy skills and lower confidence in their cognitive abilities. Adult literacy programs (ALPs), a type of ABE, have the potential to provide long-overdue educational benefits to women, and for that reason, some are exclusively targeted at women (Chadha and Wadhwa 2018). Information and communications technology programs focused on literacy show promise in delivering basic education to adult women, but the findings also suggest that the impacts may vary for women with lower and higher levels of literacy. Deshpande and co-authors (2017) found that the TARA Ashkar Plus program, a computer-aided adult literacy initiative for women in India, produced significant improvements in literacy and numeracy but that the effects were smaller among women who were illiterate before the program than among more literate women. These findings are somewhat concerning given that the development community views ALPs as programs that should disproportionately benefit poorer and less literate people (World Bank 2005).

There is an emerging body of evidence on the cost effectiveness of ABE programs on improving education outcomes. Banerji and co-authors (2017) compare several programs in India that work to improve literacy among youth mothers with the intention of producing positive effects on their children's learning as well. The authors find that programs' impacts vary from improvements of 0.24 – 0.28 standard deviations in literacy test scores per $100 spent, but no further program comparisons are made, nor do the authors explore the cost-effectiveness of the initiatives with regard to social-emotional skills or other domains. Lauglo (2001) speculates that adult basic education programs can produce "minimum literacy" at a cost much lower than the expenditures required to educate a child for 3-4 years in primary school, because the participants—illiterate youth and adults—tend to be highly motivated in gaining the skills they missed during their primary-age years. Indeed, cost estimates from eight early ABE programs indicate that the unit costs (spending for one participant for one year) were between one-half and one-seventh the estimated cost of primary schooling in the country where the ABE is situated. Lauglo emphasizes that despite these apparent savings, ABE is by no means an appropriate substitute for enrolling and educating young children in primary school (2001).

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[49] ABE evaluations often measure literacy and numeracy outcomes with tests adapted from assessments designed by research organizations, (such as the Annual Status of Education Report, ASER) or funders such as USAID (e.g. the EGRA and EGMA tests) (Deshpande et al. 2017). Measurements of other basic skills and context-specific learning are typically gathered through qualitative means, including focus groups and key informant interviews (Chadha and Wadhwa, 2018). The structure of ABE varies depending on the program context, with some programs dedicated solely to literacy development, and others providing participants with education on livelihood development and family health, among other topics.

Appendix Table V.3. Adult basic education (ABE) programs

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective	School violence	Violent crime	Non-violent crime
HICs													
Meadows and Metcalf 2008	QED[i]	*Skills for Life*, a range of adult literacy and numeracy programs (England)	One year after implementation	18+	19+	+							
Vorhaus et al. 2011	Systematic review[ii]	Variety of ABE programs (OECD counties)	Varied	Youth and adults	19+	+	+		+	+		Mixed	Mixed
LMICs													
Chadha and Wadhwa 2018	QED[iii]	*TARA Ashkar+*, an adult literacy program targeted at low-income women (India)	At completion-18 months after program	15–60	15–60[v]		+		NS	+			
	Qualitative[iv]					+	+		+	+			
Kagitcibasi et al. 2005	QED[v]	*Functional Adult Literacy Program* (Turkey)	At completion (four months)	17–65	17–65	+	+			+			
Kuenzi 2018	Correlational[vi]	Four adult literacy education programs implemented by NGOs and the government (Senegal)	Varied[vii]	18+	18+					-			
Olomukoro and Adelore 2015	Correlational, qualitative[viii]	ABE: Adult literacy classes from NGOs and the Agency of Adult and Non-formal Education (Nigeria)	During program	NA	NA	+							

				Age range (years)		Correlated outcomes					Violence and crime		
Abridged citation	Research design	Program and description	Outcome follow-up period	Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective	School violence	Violent crime	Non-violent crime
Awgichew and Seyoum 2017	Qualitative[ix]	ABE: *Integrated Functional Adult Education program (IFAEP)* (Ethiopia)	During program	15–60	15–60	+	+			+			
Lauglo 2001	Qualitative[x]	Multiple adult basic education programs (multiple countries)	During program to after program	11+	11+	+	+						
Raupp and Ramos-Mattoussi 2012	Qualitative[xi]	*Alfalit* adult literacy program (Liberia, Mozambique, Angola)	Midline	14–50	14–50					+			
Thompson 2002	Qualitative[xii]	*Kenya Post-Literacy Projects*, groups supporting newly literate adults as they integrate literacy skills into livelihoods (Kenya)	Varied[xiii]	NA	NA	+			+				
LAC													
Prins 2005	Qualitative[xiv]	*Alfalit*, an adult literacy program (El Salvador)	After *Alfalit* course[xv]	13–66	13–66	+			+				

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] Meadows and Metcalf (2008) evaluated the impact of the *Skills for Life* adult literacy and numeracy program in England using difference-in-difference and propensity score matching, quasi-experimental design. The researchers found that learners reported significantly greater self-esteem, confidence in their literacy and numeracy skills, and commitment to furthering their education and training than non-learners.

[ii] Vorhaus et al. (2011) review rigorous evidence on ABE programs across OECD countries and find that participation in adult basic education programming has varied effects (null and positive) on recidivism rates across different programs targeting ex-offenders. Programs across Britain showed limited evidence of efficacy in reducing recidivism, but completion of an adult basic education program in Canada reduced recidivism rates by 11.6 percentage points. Vorhaus and co-authors also found that ABE programs show strong positive outcomes for risky and protective behaviors, social-emotional abilities, family environment, and community environment. In one study, men aged 21–34 years who significantly improved their literacy and numeracy abilities were twice as likely to report being interested in politics than their non-improver peers, while women who improved were almost twice as likely to demonstrate community engagement (i.e., recently participated in a rally or demonstration or had signed a petition) and 14 percentage points more likely to have been involved in a community organization (55 percent of women improvers compared to 41 percent of women who did not improve). This suggests that a participant's responsiveness to ABE may also indicate a greater potential for positive behavior change. Across multiple studies, program participants reported stronger interest in learning, greater self-efficacy, higher self-esteem and confidence as a result of new written and oral communication abilities. Across multiple studies, program participants report more confidence in supporting their children's education and in managing family affairs. Across multiple studies, program participants demonstrate stronger social capital through new networks, social activities, and integration into community affairs.

[iii] Chadha and Wadhwa (2018) deploy a quasi-experimental design using propensity score matching to show that adult literacy programs such as TARA Ashkar + in India can produce strong positive outcomes in family environment, social-emotional skills, and even domestic violence. Participants in the program (women 15 and older) showed statistically significant higher rate of engagement in community groups and a higher likelihood of reporting domestic abuse to local leaders and police. The women also had higher confidence in dealing with schools and the police and showed more involvement in their young children's education. Though several of these findings were established through qualitative research based largely on focus group discussions rather than rigorous quantitative methods, they do suggest that adult basic education may provide multi-generational effects through improved advocacy on the part of young mothers.

[iv] Mean age at time of measurement was 33 years.

[v] Kagitcibasi and coauthors (2005) reports on the impacts of a Functional Adult Literacy Program targeted at women in Turkey. Using a quasi-experimental design, the researchers show that treated women had significantly higher levels of social participation than they did pre-treatment, and higher levels than their (individually-matched) untreated peers as well. Treated women also showed significantly higher self-efficacy and family cohesion indicators than they did in their pre-treatment data. The study comes with limitations: the individually matched non-treated individuals had slightly higher education and income than the treated women and may not provide a useful counterfactual.

[vi] Kuenzi (2018) used multivariate regression, proprietary survey data, and AfroBarometer data, to examine the association of exposure to adult literacy education and participants' trust in religious and social institutions in Senegal. Program participants (ages 18+) reported significantly lower trust in community religious leaders than their non-participant peers after completion of the program, although ethnicity appeared to mediate the effect of the program on that distrust. This suggests that programs to increase basic skills may influence participants' deference toward traditional leadership figures, especially if ethnic identities are strong.

[vii] Authors tested for different levels of exposure.

[viii] The program examined by Olomukoro and Adelore (2015) involved beginner classes for those with no literacy skills, intermediate classes for those with basic skills who wish to gain greater reading, writing, and number-use abilities, and advanced classes for those who have achieved literacy and wish to reinforce skills and expand their application. A survey of 1022 participants was supplemented with focus groups. Participation in all levels of the literacy classes was significantly correlated with political involvement of women and positive views of the possibility of women in leadership roles. Participation in beginner, intermediate, and advanced literacy classes is significantly associated with psychological empowerment (feeling able to take action confidently and independently as a result of literacy). Focus group discussions confirm that women in the program perceived that they had higher self-esteem as a result of their literacy training. Measures included self-made psychological empowerment scale (PES) and socio-political empowerment scale (SPES).

[ix] Awgichew and Seyoum (2017) use qualitative methods to collect and analyze data from 302 learners and 153 facilitators in an adult learning program in Ethiopia. The Integrated Functional Adult Education program (IFAEP) focuses on literacy but includes elements to support agriculture and income generation skills. The researchers reported that participants felt the program improved their sense of social rights and responsibilities, and also stimulated them to participate in elections and community affairs. Further, participants reported that women learners were empowered to "face different responsibilities at home.

[x] Lauglo (2001) reviews a series of adult education studies to build an evidence base for expanding ABE in sub-Saharan Africa. He suggests that ABE programs in Uganda and Nepal boosted self-confidence and self-esteem among women and girls as young as 11 and increased the engagement of young mothers in their children's educations.

[xi] Raupp and Ramos-Mattoussi (2012) conducted a mid-term formative evaluation of the USAID-supported Alfalit program in Liberia, Mozambique, and Angola. While quantitative methods were used to collect and analyze data on adult literacy gains, only qualitative data was collected for outcomes of interest. After conducting surveys of 155 beneficiaries and focus group discussions with others, the researchers suggested that newly literate women again showed improving protective behaviors: they reported voting more than they had before the program and demonstrated greater cognizance of their rights. However, the effects of the adult literacy component are difficult to disentangle from the effects of other treatment components, such as a Savings Club in Mozambique. This study should be interpreted with caution.

[xii] In a case study of 4 similar ABE programs in Kenya, Thompson (2002) examines how literacy training, paired with livelihood components such as business education and tailoring classes, affected participants' livelihoods and psychosocial outcomes. The paper suggests that gains in literacy allowed female participants to take on management positions in nascent community organizations, such as loan associations. In turn, these new responsibilities supposedly allowed women to form tighter social networks, revise stereotypical gender roles, and build self-esteem. However, Thompson fails to describe the qualitative methods used to collect the evidence and does not offer specifics as to the ages and sociodemographic characteristics of participants.

[xiii] Examined case studies of programs ongoing since 1968, 1980, and 1999.

[xiv] Prins (2005) conducted a qualitative study of the *Alfalit* literacy program as delivered to adolescents and adults in lower-income rural communities of El Salvador. The program targeted literacy development of individuals ages 13-66, but also reduced the shame of illiteracy experienced by participants. Qualitative data from interview and focus groups suggests that the program and the literacy it fosters increased the confidence and social cohesion of participants. These effects were particularly strong among women.

[xv] Exact follow-up period unspecified.

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APPENDIX W:

EXTRACURRICULAR PROGRAMS

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This appendix provides information from the foundational literature on the impact of extracurricular programs on academic achievement, with additional information on the studies summarized in Chapter XXII, Tables XXII.2, XXII.3 and XXII.4.

A. Foundational literature on the impacts of extracurricular programs on academic achievement

Drawing almost entirely from evaluations of programs in HICs, we found emerging to strong evidence of the positive impacts of extracurricular programs on academic outcomes, such as academic achievement and school attendance. Meta-analyses that focused on mentoring programs and sports activities suggested that both could have positive impacts on academic achievement and that mentoring programs could reduce student absences. The evidence base for the impact of ASPs on academic outcomes, however, was mixed. The highest quality studies more consistently suggested that ASPs had no significant impacts on either academic achievement or school attendance. As described in Chapter IX, the evidence was also mixed for academic tutoring programs that were explicitly designed to improve student learning.

1. Impacts of mentoring on academic outcomes

There was strong, consistent evidence from HICs that mentoring programs could improve academic outcomes. The evidence base consisted of three meta-analyses—Tolan et al. (2014), DuBois et al. (2011), and DuBois et al. (2002)—all of which found positive impacts on academic outcomes. Tolan et al. (2014) analyzed 10 experimental and 15 strong quasi-experimental studies of mentoring programs conducted in English-speaking countries between 1970 and 2011. They found positive impacts on academic outcomes, including school grades, standardized test scores, graduation, and retention.[50] DuBois et al. (2011) conducted a meta-analysis of 54 experimental and quasi-experimental studies published between 1999 and 2010 of child and adolescent mentoring programs. They found positive short-term impacts on academic outcomes, including standardized test scores and school absences. The authors also found similar results for longer-term outcomes measured between six months and four years post-program; however, this analysis only included seven or fewer of the studies.[51] DuBois et al. (2002) similarly found positive impacts of a meta-analysis of 43 studies of mentoring programs that were conducted between 1970 and 1998.

2. Impacts of organized sports on academic outcomes

We found an emerging body of evidence from HICs that organized sports may improve academic outcomes. However, fewer than half of the studies used rigorous causal designs, and only half of the studies showed positive impacts or associations. A systematic review conducted by Neild et al. (2019) identified experimental studies of two organized sports programs—Girls on the Move and FIT Kids—and correlational studies of five programs that examined the impact or association of sports activities with academic outcomes. The findings of the experimental studies were split, with positive impacts estimated on math achievement for Girls on the Move

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[50] The authors included quasi-experimental studies that established baseline equivalence of the relevant behaviors or risk factors across the treatment and comparison groups.

[51] Unlike the short-term analyses, the authors did not specify the number of studies included in the analyses for each set of outcomes.

(da Cruz 2017) and no impacts estimated on general achievement or achievement in math, reading, or science for FIT Kids (Gutin et al. 2008; Yin et al. 2005a; Yin et al. 2005b; Yin et al. 2005c). The five correlational studies were likewise split but with slightly more of the studies finding positive results for reading and math achievement. Our search also identified an experimental study conducted by Heller et al. (2013), which found that nontraditional sports (such as archery, boxing, and wrestling) improved schooling outcomes among at-risk male public school students in Chicago, Illinois, in both of the first two years after program implementation.

In addition, we found supporting evidence from a meta-analysis conducted by Fedewa and Ahn (2011) of 59 studies published from 1947 to 2009 that evaluated physical activity (39 of the studies used experimental or quasi-experimental designs). The authors found that physical activity was positively associated with both academic and cognitive outcomes. However, their review did not specifically focus on sports activities, so it was unclear to what degree these findings were relevant to sports activities specifically rather than physical activity generally.

3.   Impacts of ASPs on academic outcomes

We found a large body of evidence from HICs that suggested that ASPs may have positive impacts on academic outcomes. However, the strongest study suggested that ASPs likely did not result in consistent impacts. Among the ASPs evaluated by the studies that we identified, the content of the programs ranged widely, consisting of various combinations of academic, recreational, and youth development activities. The most common of these were academic activities, which were generally combined with other recreational and youth development activities and which ranged from one-on-one tutoring to group tutoring, homework support, and homework-specific time. We identified four meta-analyses and two systematic reviews of studies in HICs that examined the impact of ASPs on academic outcomes. Some of the meta-analyses found evidence of improvements in academic outcomes (Lauer et al. 2006; Durlak et al. 2010); others found no impacts on attendance (Kremer et al. 2015; Zief et al. 2006), reading scores, or GPA (Zief et al. 2006). These differences may be explained by differences in the selection criteria used by the two sets of studies. First, unlike Zief et al. (2006), neither Lauer et al. (2006) nor Durlak et al. (2010) restricted their analyses to experimental studies. In addition, unlike Kremer et al. (2015), neither Lauer et al. (2006) nor Durlak et al.(2010) required that the quasi-experimental studies in their analyses establish pre-test equivalence or control for pre-test differences (Kremer et al. 2015). As a result, the average quality of the studies included in those two meta-analyses was likely worse than in the other two meta-analyses, which further suggests that ASPs likely do not have a consistent effect on academic outcomes.

This conclusion was largely supported by the two systematic reviews that we identified: Beckett et al. (2009) and Neild et al. (2019). Beckett et al. (2009) identified five evaluations of ASPs that met our search criteria and found no impacts of the target programs on standardized test scores (Goldschmidt et al. 2007; U.S. Department of Education 2003; Dynarski et al. 2004; James-Burdumy et al. 2005; Bissell et al. 2002). The review conducted by Neild et al. (2019) identified 44 studies that met our search criteria. Among the studies that evaluated measures of academic achievement, most found no impacts on reading, math, science, or general academic achievement. In contrast to the findings in Kremer et al. (2015) and Zief et al. (2006), 12 of 19 studies that evaluated attendance or enrollment found positive impacts. However, nearly all of

these studies were quasi-experimental, so the average quality of these studies was likely worse than those included in the more rigorous meta-analyses.

Other potential explanations for the differences we observed in results across the reviews were differences in the quality of implementation and in the content of the ASPs. Unfortunately, none of the meta-analyses or systematic reviews presented here provided information on the quality of implementation across the various studies they included, so we could not assess the role of implementation quality. Similarly, none of the reviews we identified evaluated the impact of ASPs based on the content of the programs, so we likewise could not assess the role of program content.

Other studies of varying aspects of ASPs likewise found inconsistent evidence of impacts on academic outcomes. Roth et al. (2010) conducted a review of studies of ASPs to identify the impact of different intensities and duration of exposure to ASPs. Most of the studies they identified found no significant impacts of greater intensity or duration of exposure to ASPs. Black et al. (2009) conducted an experimental evaluation of the impact of two ASPs with enhanced academic instruction (one focused on math, one focused on reading) relative to ASPs with more common, less-structured academic support (for example, homework help and tutoring).[52] The study found some evidence of positive impacts on reading and math but most outcomes displayed no impact.

The evidence we identified from LAC, however, presented largely positive impacts on academic achievement but mixed impacts on measures of enrollment and attendance. An experimental study of an ASP in El Salvador conducted by Dinarte (2017) examined the impact on school outcomes among 10- to 16-year-old public school students. The author found improvements in measures of achievement in reading, math, and science courses; in the probability of failing at least one course; and in the number of days absent from school.[53] An experimental study of the *Espacios para Crecer* program in Nicaragua also found positive impacts on literacy skills and grade progression but no impacts on school enrollment or attendance (Bagby et al. 2019). The improvements in learning and grade progression in Nicaragua were driven by female students and by children who were not in school when the program began, whereas the results in El Salvador were largely driven by more violent students who were integrated into ASPs with less violent students (rather than being concentrated into ASPs with other violent students).

The evaluation of *Espacios para Crecer* in Nicaragua also included a cost-effectiveness analysis, which found the program was in the middle to high range of programs focused on improving test scores. The authors found that the program cost between $45 and $358 USD per each 0.1 standard deviation improvement in literacy skills that it generated, on average. The lower estimate was close to cost-effectiveness estimates of literacy programs in Honduras ($52 to $57) and Niger ($24). The higher estimate ($358), which included setup costs and arguably

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[52] The enhanced instruction time also included taking attendance and eating snacks.

[53] Dinarte (2017) examined both grades in reading, math, and science courses as well as the probability of passing courses based on grades. He estimated positive impacts on math and science grades and the probability of passing reading and science courses (and positive but nonsignificant impacts on reading grade and the probability of passing math).

better reflected the costs of starting similar programs in new contexts, was much less cost-effective.

Table W.1.Mentoring studies

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years) Program	Age range (years) Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
HICs													
DuBois et al. (2002)	Meta-analysis	Child and adolescent mentoring programs (43 studies)	Varied[xiv]	Varied[ii]	Varied[ii]	+[iii]				+			
DuBois et al. (2011)	Meta-analysis	Child and adolescent mentoring programs (54 studies)	At completion / Six months to four years after start of program	5–18 / 5–18[v]	6–19 / 6–22[v]	+ / +		+		+[iv] / +[iv]			+[iv] / +[iv]
Jolliffe and Farrington (2008)	Meta-analysis	Mentoring programs focused on reoffending (18 studies)	Varied[vi]	Varied[vi]	9–22						+[vii]	+[vii]	
Tolan et al. (2014)	Meta-analysis	One-on-one mentorship provided by unrelated adult to youth at risk of delinquency (English-speaking HICs) (25 studies)	Varied[xxv]	Youth[y]	Youth[y]					+			
Herrera et al. (2013)	RCT	Mentoring program for "higher-risk" youth (United States)	Thirteen months after program	8–15	9–16	Mixed[viii]				NS			
Ho et al. (2017)	RCT[ix]	Eight weeks of 90-minute positive, youth development-based sports mentorship sessions (Hong Kong)	At completion (one month)	Youth[x]	Youth[x]	+	NS	NS					
LoSciuto et al. (1996)	RCT[xi]	Across Ages, an after-school mentoring	At completion (one year)	11–12	12–13	+				NS[xiii]			

| Abridged citation | Research design | Program and description | Outcome follow-up period | Age range (years) | | Correlated outcomes | | | | | | Violence and crime | | |
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
		program with an older adult (age 55+) (United States)[12]											
Ng et al. (2014)	RCT	Yearlong, one-on-one adult mentoring with 16 English-language teaching sessions over six months (Hong Kong)	At completion	7–12	8–13	NS							
Grossman and Rhodes (2002)	QED[14]	Big Brothers Big Sisters of America, mentoring offered to young, urban adolescents (United States)	Eighteen months after start of program	10–16	11–18	Mixed[xv]	+[xvi]	+[xvii]		+[xviii]			NS
DeWit et al. (2016)	Correlational	Big Brothers Big Sisters of Canada, community mentoring relationships offered to families recruited by program (Canada)	Eighteen months after start of program	6–17	7–19	+[xix]	+[xx]	+[xxi]		+[xxii]			
Kogan and Brody (2010)	Correlational	Informal mentoring from nonparent adult (United States)	NA	NA	18–21	+							
LMICs													
Bulut et al. (2010)	Qualitative	Mentoring for first-year nursing students provided by fourth-year students (Turkey)	Midline	18–20[xxiii]	18–20[xxiii]	+							
Chweu and Schultz (2010)	Qualitative	Voluntary life skills mentoring program as part of student	Midline	17+	17+	+							

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
		development and support for first-year university students (South Africa)											
LAC (no evidence located on impacts of mentoring programs on violence, crime, and correlated outcomes in LAC countries)													

+ = significant positive impact; - = significant negative impact; mixed = mixed impact; NS = no significant effect found (outcome was tested); NA = not available; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; QED = quasi-experimental design; RCT = randomized control trial.

[i] These study design details refer to the methods used to test outcomes of interest.

[ii] The mean age of children in each study was less than 19 years.

[iii] The authors found positive impacts of mentoring programs on social-emotional skills with a meta-analysis that used fixed effects methods but not with random effects methods.

[iv] DuBois et al. (2010) included an outcome domain labeled "conduct problems," which included drug use (risky and protective behaviors) and bullying (school violence). Because we cannot differentiate the results of the two domains that we are using, we applied the results for "conduct problems" to both risky and protective behaviors and school violence.

[v] The authors did not specify the seven studies that included longer-term follow-up periods, so we could not easily ascertain the age ranges. In place of this information, we have provided the largest possible age ranges derived from the age ranges of the "at completion" sample.

[vi] Outcome follow-up periods ranged from at the completion of the program to four years after the start of the program.

[vii] The authors found improvements in reoffending among previous criminal offenders.

[viii] The program led to improvements in depression but no impacts on social acceptance or self-perceptions of academic ability.

[ix] The control group received exclusive access to a health education website.

[x] The mean age was 12.3 years.

[xi] Attrition at follow-up was 23 percent and roughly equal across the treatment and control groups.

[xii] The program also included community service, a classroom-based life skills curriculum, and workshops for parents.

[xiii] This study was included in the Tolan et al. (2014) meta-analysis for risky and protective behaviors.

[xiv] The evaluation was designed as an RCT. However, this study estimated separate impacts based on the length of time each mentorship lasted (less than 3 months, 3 to 6 months, 6 to 12 months, more than 12 months), which was not explicitly incorporated into the RCT design. The authors attempted to account for this endogenous element by using an instrumental variable (IV), but a strong argument can be made that the exclusion restriction necessary for the IV to fully address this issue may not hold. As a result, we evaluated this study as a QED for the purposes of this review.

[xv] Mentoring for more than 12 months was associated with an increase in self-worth and the value placed on school. Mentoring for fewer than 3 months was associated with a decline in self-worth but had no association with the value of school. For mentoring from 3 to 6 months or 6 to 12 months, there was no relationship with either self-worth or the value of school. The patterns for self-worth and value of school largely remained similar, but the significance disappeared with IV.

[xvi] For mentoring from 3 to 6 months and more than 12 months, the study found a higher quality of relationships with parents, but not for fewer than 3 months or from 6 to 12 months. The differences did not remain statistically significant with IV.

[xvii] The ordinary least squares (OLS) models showed greater social acceptance among children who were mentored for more than 12 months, with reduced (but insignificant) effects for shorter mentoring lengths (in fact, social acceptance was lower for mentees mentored for fewer than 3 months than non-mentored respondents). The significant increase for more than 12 months remained with IV.

[xviii] Mentoring for more than 12 months was associated with a decrease in the frequency of drug use and alcohol use (both in the OLS and IV models). Mentoring for 6 to 12 months was associated with a decrease in the frequency of drug use (and alcohol use, but not statistically significant). (The decrease remained in the IV model but was only marginally significant.) For mentoring that was fewer than 3 months or 3 to 6 months, there was more drug and alcohol use, but this was not statistically significant. The difference remained and was significant under IV.

[xiv] Girls mentored for 12 or more months had significantly lower depression scores and higher self-esteem than non-mentored girls. Boys who were mentored for 12 or more months and ended the mentorship also had lower depression score than non-mentored boys but not for behavioral problems or self-esteem. All children who were mentored for 12 or more months and ended it had lower social anxiety scores than non-mentored children. Children continuously mentored for 12 or more months also had lower scores, but the differences were not statistically significant. Coping skills were higher for children who were mentored for at least 12 months (but not statistically significant for cognitive-behavioral problem-solving if mentoring ended).

[xx] Parental support was higher among children who were mentored for more than 12 months and who continued to be mentored than children who were not mentored, but the difference was only statistically significant among boys. There was no difference between children who were mentored for fewer than 12 months or children who were mentored for 12 months or more but whose mentorship ended and non-mentored children.

[xxi] Peer support was higher among boys who were mentored for 12 or more months than among non-mentored boys, but not among girls or for children who were mentored for fewer than 12 months. Differences in teacher support were not statistically significant.

[xxii] Girls mentored for 12 or more months had significantly lower behavioral problems than those who were not mentored, but not girls who were mentored for fewer than 12 months (compared to non-mentored girls) and not among boys.

[xxiii] Eighty-five percent of the first-year nursing students were between ages 18 and 20.
[xxiv] The outcome follow-up period ranged from less than one year to more than one year.
[xxv] The authors did not provide additional details.

Table W.2. Studies of organized sports

| Abridged citation | Research design[1] | Program and description | Outcome follow-up period | Age range (years) | | Social-emotional skills | Family environment | School environment | Community environment | Risky and protective behaviors | Violent crime | Nonviolent crime | School violence |
				Program	Outcome								
HICs													
Heller et al. (2013)	RCT	World Sports Chicago, provides nontraditional sports during after-school time (United States)[2]	One year after start of program	11–15	12–16						+		
			Two years after start of program	11–15	13–17						NS		
Lisha and Sussman (2010)	Systematic review[3]	Participation in organized team sports (26 studies); participation in recreational sports or general physical activity (7 studies) (various HICs)	NA	NA	13–24					Mixed[4]			
Taylor et al. (2015)	Systematic review	Participation in sports activities (40+ studies) (various HICs)	NA	NA	6–19	+[5]				Mixed[6]	Mixed[7]		Mixed[8]
Barber et al. (2001)	Correlational	Participation in team sports (United States)	NA	NA	15–16			+		-			
Eccles et al. (2003)	Correlational	Participation in team sports in grade 10 (United States)	NA	NA	15–16					Mixed[9]			
				NA	NA	17–18					Mixed[10]			
				NA	NA	21–22					NS			
				NA	NA	25–26					NS			
Fauth et al. (2007)	Correlational	Participation in sports/cheerleading (United States)	NA	NA	9–17	NS				-			
Ferron et al. (1999)	Correlational	Participation in sports activities (Switzerland)	NA	NA	15–20					+			
Fredricks and Eccles (2006)	Correlational[11]	Participation in organized sports (United States)	NA	NA	16–17	+				+			
Harrison and	Correlational	Participation in team sports (United States)	NA	NA	14–15	+[12]	+	+	+	+[13]	+	+	

				Age range (years)		Correlated outcomes					Violence and crime		
Abridged citation	Research design[1]	Program and description	Outcome follow-up period	Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Narayan (2003) Kreager (2007)	Correlational	Participation in school sports (United States)	NA	NA	10–19						Mixed[xiv]		Mixed[xiv]
Pedersen and Seidman (2004)	Correlational	Participation in team sports (United States)	NA	NA	Adolescents[xv]	+[xvi]							
Rainey et al. (1996)	Correlational	Participation in team sports (United States)	NA	NA	14–18	+				Mixed[17]			
Taliaferro et al. (2010)	Correlational	Participation in sports (United States)	NA	NA	14–18		Mixed[xviii]	+		Mixed[xix]	+		Mixed[xx]
Terry-McElrath et al. (2011)	Correlational	Participation in team sports (United States)	NA	NA	13–18					Mixed[xxi]			
LMICs													
Maro et al. (2009)	Non-random QED	Two arms: (1) AIDS education combined with soccer and (2) components of first arm plus two additional weeks of training for trainers (Tanzania)[22]	At end of program (eight weeks)	12–15	12–15					+[xxiii]			
Çalik et al. (2018)	Non-random, pre-post QED	Fourteen weeks of three, 60-minute athletic training lessons (Turkey)	At end of program (14 weeks)	Secondary school students[24]	Secondary school students[24]	+							
Altin and Kivrak (2018)	Correlational	Participation in sports (Turkey)	NA	NA	High school students					NS			
Chan et al. (2011)	Correlational	Participation in after-school sports (China)	NA	NA	Junior secondary school students[xxv]	NS[xxvi]	NS	NS					
Cluver et al. (2016)	Correlational	Participation in sports group (South Africa)	NA	NA	10–19					NS[xxvii]			

Abridged citation	Research design[1]	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Coetzee and Spamer (2003)	Correlational	Participation in organized sports (South Africa)	NA	NA	13–18					Mixed[xxix]	-		
De Wet et al. (2018)	Correlational	Participation in sports (South Africa)	NA	NA	12–22					-[xxix]			
Kaufman et al. (2004)	Correlational	Participation in sports clubs (South Africa)	NA	NA	14–22					NS			
Keskin and Akdeniz (2018)	Correlational	Participation in sports (Turkey)	NA	NA	Teenager and young adults[xxx]					+			
Lv and Takami (2015)	Correlational	Participation in sports clubs (China)	NA	NA	16–29	+				+			
Malebo et al. (2007)	Correlational	Participation in sports (South Africa)	NA	NA	20–35	+[31]				+			
Savucu et al. (2017)	Correlational	Participation in two or more hours of physical education/sports courses (Turkey)	NA	NA	13–19 years								-
Sekulic et al. (2012)	Correlational	Participation in team sports, participation in individual sports (Bosnia and Herzegovina)	NA	NA	17–18					+[xxxi]			
Sysoeva et al. (2009)	Correlational[3] [3]	Participation in synchronized swimming (Russia)	NA	NA	10–18	+							
Trifescu et al. (2017)	Correlational	Participation in sports clubs or in a competitive soccer club (Romania)[34]	NA	NA	15–18				-[xxxv]	+[xxxvi]	NS		
Burnett (2006)	Qualitative	Sports programs offered at local schools (South Africa)	At completion of program	Younger than 15	Younger than 15			+		+		+	
Burnett (2015)	Qualitative	School-based running program to assist underprivileged	At completion of program	Primary school students	Primary school students	+				+			

| Abridged citation | Research design[1] | Program and description | Outcome follow-up period | Age range (years) | | Correlated outcomes | | | | | Violence and crime | | |
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
		students in primary school (South Africa)											
Gaible (2015)	Qualitative	Sports clubs open to girls in grades 6 through 8 (Nepal)	Two years after implementation	11–14	11–14	+							
Khan and Jamil (2017)	Qualitative	Participation in sports (Pakistan)	NA	NA	14–18	+				+	+	+	+
Maebuta (2011)	Qualitative	Combination of course work in secondary school (separate classes) in morning and soccer training in afternoon, plus funds for school fees, uniforms, and materials (Solomon Islands)	One and a half years after program started	14–18	14–18	+		+					
LAC													
Cid (2017)	Systematic review	Sports programs (Uruguay) (one study)[37]	Fourteen months after program started	11–19	12–20					+			
Bedendo et al. (2013)	Correlational	Participation in soccer (Brazil)	NA	NA	14–18					-			
Bedendo and Noto (2015)	Correlational	Participation in a sport in the last month (gym/weight lifting, track/cycling/ swimming, basketball/ volleyball/handball, gymnastics/dance, soccer, fighting/martial arts/capoeira) (Brazil)	NA	NA	14–18					-[xxxviii]			
	Correlational	Participation in sports activities for less than six months (Brazil)	NA	NA	14–19					NS			

| Abridged citation | Research design[1] | Program and description | Outcome follow-up period | Age range (years) | | Correlated outcomes | | | | | Violence and crime | | |
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
de Lima and Silva (2019)		Participation in sports activities for six months or more (Brazil)	NA	NA	14–19					Mixed[xxxix]			
Malete et al. (2008)	Correlational	Participation in a competitive or recreational sport (Jamaica)	NA	NA	12–18	-xl							
Muller Mariano and da Silva Filho (2015)	Qualitative	Soccer training combined with monthly food baskets, psychosocial counseling, bimonthly meetings with parents/guardians, referrals to public services, periodic visits to schools, monitoring of school attendance and performance, and external cultural and educational activities (Brazil)	Up to two years after program started	9–15	9–17	+	+			+			

+ = significant positive impact; - = significant negative impact; mixed = mixed impact; NS = no significant effect found (outcome was tested); NA = not available; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; QED = quasi-experimental design; RCT = randomized control trial

[i] These study design details refer to the methods used to test outcomes of interest.

[ii] Nontraditional sports included archery, boxing, wrestling, weightlifting, handball, and martial arts.

[iii] The review included 34 studies published in English between 1982 and 2008 that used a comparative quantitative research design. The authors did not explicitly discuss the methods employed in each of the studies included in the review, but the authors' language and the results of our review of this program area more broadly suggested that they were likely mostly correlational studies.

[iv] For alcohol consumption: 22 of 29 studies found a positive association with sports, 2 found a negative association, 2 found no relationship, and 2 found different results by gender. For cigarette use: 14 of 15 studies found a negative association with sports, while 1 found no relationship. For illicit drug use: 9 of 15 studies found a negative association with sports, 2 found a positive relationship, and 3 found different results by gender.

[v] The review identified 11 descriptive quantitative studies that investigated the relationship between sports and social-emotional skills. All 11 studies found evidence of a positive relationship.

[vi] The review identified 24 descriptive quantitative studies that investigated the relationship between sports and risky and protective behaviors. Most of the studies (15 of 24) found a beneficial relationship. However, studies examining alcohol use found a largely detrimental relationship between participation and alcohol use.

[vii] The review identified 8 descriptive quantitative studies that investigated the relationship between sports and nonviolent crime or delinquency and one meta-analysis of 28 descriptive quantitative studies of the association between wilderness activities and nonviolent crime or delinquency. The findings were mixed, with 5 studies finding better outcomes with participation and 4 studies finding worse outcomes.

[viii] The review identified 7 descriptive quantitative studies that investigated the relationship between sports and violent crime and one meta-analysis of 28 descriptive quantitative studies of the association between wilderness activities and violent crime. The findings were mixed, with half suggesting that sports/physical activity participation was associated with more violence, one study finding a decrease in violent crime with participation, and the remaining studies finding mixed relationships that often varied for different types of activity.

[ix] Sports participation had no association with consumption of alcohol but was positively associated with enjoying school.

[x] Sports participation was positively associated with both consumption of alcohol (negative outcome) and enjoying school (positive outcome).

[xi] Overall sample attrition was high (39 percent). In addition, attrition was higher among African American and high-risk youth compared to European American and low-risk youth.

[xii] Liking school and feeling good about themselves was more common and feeling sad all or most of the time was less common among students who participated in sports, non-sport extracurricular activities, or both than among students who did not participate in either type of activity. Feeling nervous, worried, or upset was less common among students who participated in sports and both sports and non-sport activities but not among students who participated in non-sport extracurricular activities alone.

[xiii] Cigarette use, binge drinking, marijuana use, truancy, sexual activity, and attempting suicide were less common among students who participated in sports, non-sport extracurricular activities, or both than among students who did not participate in either type of activity. Alcohol use was lower among students who participated in non-sport extracurricular activities or both sports and non-sport activities but not among students who participated in sports alone. Having suicidal thoughts was lower among students who participated in sports or both sports and non-sport activities but not among students who participated in non-sport activities alone.

[xiv] The outcome in this study was whether male students had been in serious fights in the last 12 months. Because the location was not specified, we were uncertain about whether this would fit into the violent crime or school violence categories. The study found a positive association between participation in contact sports (football and wrestling) and fighting, a negative association between participation in tennis and fighting, and no association between participation in other sports and fighting.

[xv] The mean age was 13.2 years in the first wave and 16.4 years in the second wave.

[xvi] Girls' team sports achievement experiences in early adolescence were positively associated with self-esteem in middle adolescence.

[xvii] Participation in two or more sports teams was associated with drinking more frequently and binge drinking more frequently. Participation in any sports team was associated with a lower likelihood of smoking cigarettes regularly and smoking fewer cigarettes and a higher likelihood of using smokeless tobacco (although this difference was not robust to gender and race).

[xviii] Sports participation was negatively associated with being the victim of domestic violence among females but not among males.

[xix] Among females, sports participation was negatively associated with ever having sexual intercourse, having sexual intercourse in the past three months, and having multiple sexual partners in the past three months. However, among males, sports participation was positively associated with sexual intercourse in the past three months but not associated with ever having sexual intercourse or having multiple partners in the past three months. Condom use in the last sexual encounter was positively associated with sports participation among both genders. Sports participation was negatively associated with carrying weapons, considering suicide,

or attempting suicide among both genders. Alcohol use, binge drinking, and use of chewing tobacco were higher among male athletes (than among nonathletes), but not among females. Cigarette smoking and use of marijuana, cocaine, and other drugs were lower among athletes than nonathletes of both genders. Steroid use was lower among female athletes than nonathletes but not among males.

[xx] Sports participation was positively associated with being in a physical fight at school among males but not among females. Sports participation was not associated with being injured in a fight among either gender.

[xxi] Participation in team sports was associated with greater alcohol use and binge drinking in high school, but in middle school sports were not associated with alcohol use and were negatively associated with binge drinking. Participation in team sports was negatively associated with cigarette and marijuana use (with relatively large magnitudes) but positively associated with smokeless tobacco and steroid use. However, in both middle and high school exercise frequency was negatively associated with alcohol use, binge drinking, cigarette use, and marijuana use; not associated with smokeless tobacco use; and positively associated with steroid use (although with very small magnitudes).

[xxii] Comparison groups received either (1) traditional in-school AIDS education (in-school children) or (2) no AIDS education (out-of-school children).

[xxiii] Attitudes toward condom use, recent condom use, and intention to use a condom and attitudes toward having an exclusive sexual partner and perceived control over condom use were all significantly better among youth in the two treatment arms than for the two comparison groups. Children in the second program arm (that included additional training) had stronger intentions to use condoms, stronger perceived control over condom use, and more positive attitudes to having an exclusive sexual partner than children in the first treatment arm. There were no differences between the two treatment arms for the other measures.

[xxiv] The mean age was 10.9 years.

[xxv] The mean age was 14.28 years.

[xxvi] Participation in sports clubs was associated with resilience, but this association was not robust to the inclusion of demographic controls.

[xxvii] Participation in sports groups was associated with higher nonadherence to antiretroviral therapy use (odds ratio = 1.37) but was only marginally statistically significant (p-value = 0.057).

[xxviii] Sports participants were significantly more likely to use marijuana than nonparticipants. There was no significant difference for binge drinking, regular smoking, cocaine use, glue use, steroid use, having sexual intercourse in the last three months, or having multiple sexual partners.

[xxix] Students participating in sports were more likely to participate in risky sexual behavior (odds ratio = 1.29) or use illicit drugs (odds ratio = 1.03) than students who did not participate in sports. The results described by the authors did not appear to be consistent with the results presented in the study's figures. For the purposes of this exercise, we assumed that the authors' descriptions of the findings were accurate.

[xxx] Twenty-seven percent were under age 20, 49 percent were ages 20 to 25, and 24 percent were older than age 25.

[xxxi] The authors found a positive relationship between sports participation and sense of coherence, sense of purpose, and level of autonomy and a negative relationship between sports participation and pessimism. However, they found no significant relationship between sports and other social-emotional measures (positive affect, negative affect, self-efficacy, optimistic life orientation, somatic symptoms, anxiety and insomnia, social dysfunction, and depression).

[xxxii] Participation in team sports, time involved in sports, and achievement in sports were negatively correlated with smoking among boys but not among girls. There was no association between participation in individual sports. None of the sports measures were related to alcohol consumption.

[xxxiii] The study sampled an age-matched comparison group.

[xxxiv] The sample included only male high school students. The sample students who participated in sports clubs and did not participate in sports clubs constituted a cross-section of students in grades 9 to 11 from three high schools in Cluj-Napoca; whereas, the other students in the sample participated in a competition football club in the city and may not have attended the same high schools.

[xxxv] Competitive soccer players were significantly more likely (by 31 to 33 percentage points or "pp") to be verbally aggressive than students participating in sports clubs and students not participating in sports clubs. There were no differences between the last two groups.

[xxxvi] Competitive soccer players were less likely to ever smoke (by 30 to 35 pp), ever use electronic cigarettes (by 48 to 49 pp), use e-cigarettes in the last month (by 13 pp), be intoxicated at least three times over their life (by 19 to 22 pp), or consume beer in the last week (19 to 24 pp) than students in the other groups. The authors found no difference in smoking, e-cigarette use, or alcohol use between sports club participants and nonparticipants.

[xxxvii] Cid (2017) included six studies from 2012 to 2016: three studies of music programs (two RCTs in Venezuela and Peru and one difference-in-difference in Haiti and Jamaica), two studies of one ASP (*Apoyo Escolar*) in Uruguay (both RCTs), and one study of a sports program in Uruguay (difference-in-difference). The author found only two studies to have adequate sample sizes, low risk of bias, and internal consistency: the RCT of the music program in Venezuela and one of the RCTs of *Apoyo Escolar*.

[xxxviii] Alcohol use in the last month was significantly higher among youth involved in gym/weight lifting (odds ratio = 2) and soccer (odds ratio = 1.2) but not among other sports (versus not participating in any sport). There were similar findings for heavy episodic drinking in the last month. Tobacco use was significantly higher among youth involved in fighting/martial arts/capoeira (odds ratio = 1.9) but not among other sports.

[xxix] Sports participation for six months or more was associated with a greater likelihood of alcohol consumption. It was also associated with a lower likelihood of cigarette use, but the relationship was not statistically significant.

[xl] Physical self-worth and frequency of sports involvement were negatively correlated, but the magnitude was small (correlation coefficient = -0.13, p-value < 0.01).

Appendix Table W.3. Studies of after-school programs

Abridged citation	Research design[i]	Program and description	Outcome follow-up period	Age range (years)		Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
				Program	Outcome						Violence and crime		
				HICs									
Durlak et al. (2010)	Meta-analysis[ii]	ASP focused on personal or social skills (not including adventure education, extracurricular activities, or summer camps) (United States) (75 studies)	Varied[iii]	5–18	5–18					+			
Kremer et al. (2015)	Meta-analysis	Programs held after-school during school year, including more than one activity, for at-risk primary or secondary students (United States, Canada, United Kingdom, Ireland, Australia) (19 studies)	Varied	Elementary through high school students	Elementary through high school students[iv]	NS							
Taheri and Welsh (2016)	Meta-analysis	Programs in which ASPs, including recreation-based activities, drop-in clubs, and tutoring services, are primary activity (17 studies)	Varied	Varied[v]	Varied					+			
Zief et al. (2006)	Meta-analysis[vi]	ASPs that combine recreation and/or youth development programming with academic support services (United States) (three studies)	Varied	11–19	11–19					+			

Abridged citation	Research design[i]	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Neild et al. (2019)	Systematic review[vii]	Variety of after-school programs, including academic tutoring, homework assistance, arts, and sports (United States) (six studies)	At completion/short term	6–14	6–14	Mixed[viii]							
Taylor et al. (2015)	Systematic review	Participation in arts (various HICs) (two studies)	NA	NA	6–19	+				+			
Eccles et al. (2003)	Correlational	Participation in performing arts in grade 10 (United States)	NA NA NA NA	NA NA NA NA	15–16 17–18 21–22 25–26					+ + NS NS			
Fauth et al. (2007)	Correlational	Participation in arts, community-based clubs, or church groups (United States)	NA	NA	9–17	-[ix]				Mixed[x]			
Hardaway et al. (2012)	Correlational	Participation in dance, music, or arts and crafts lessons; sports, clubs, or youth groups; before- or after-school programs; leadership activities; or musical activities among adolescents in households below poverty line (United States)	NA	NA	9–18	+[xi]	NS	+		NS	NS		
Harrison and Narayan (2003)	Correlational	Participation in non-sport extracurricular activities (United States)[xii]	NA	NA	14–15	+[xiii]	+	+	NS	+[xiv]	+	+	

				Age range (years)		Correlated outcomes					Violence and crime		
Abridged citation	Research design[i]	Program and description	Outcome follow-up period	Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
Jeltova et al. (2005)	Correlational	Participation in organized after-school activities among immigrant girls from former Soviet Union (United States)	NA	NA	13–18					+			
Marsh and Kleitman (2002)	Correlational[xv]	Participation in extracurricular activities (United States)	NA	NA	17–18	+				Mixed[xvi]			
Shiah et al. (2013)	Correlational	Participation in school-based extracurricular activities (Taiwan)	NA	NA	College juniors and seniors	+[xvii]							
LMICs													
Ngware et al. (2016)	Non-random QED	Three years of two arms: (1) after-school homework support, mentoring, and school transition subsidy and (2) components of first program arm plus parental counseling and community sensitization (Kenya)	At midline (one year after program started)	10–13	11–14	+[xviii]				-[xix]			
Betts et al. (2003)	Correlational	Participation in extracurricular activities (Zimbabwe)	NA	NA	12–19					+[xx]			
Cluver et al. (2016)	Correlational	Participation choir/arts group (South Africa)	NA	NA	10–19					NS			
De Wet et al. (2018)	Correlational	Participation in youth groups, choir groups, drama or theater groups, or	NA	NA	12–22					-[xxi]			

				Age range (years)		Correlated outcomes					Violence and crime		
Abridged citation	Research design[i]	Program and description	Outcome follow-up period	Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
		other extracurricular activities (South Africa)											
Lv and Takami (2015)	Correlational	Participation in non-sports clubs (China)	NA	NA	16–29	+				NS			
Bademci et al. (2015)	Qualitative	Provided street youth with variety of out-of-school activities (visual and applied arts, photography and cinematography, drama, theater and ancillary skills, dance, legal thinking, philosophy, foreign languages, and architecture) (Turkey)	At completion of program	14–17	14–17	+				+			
LAC													
Cid (2017)	Systematic review[xxii]	Music programs and ASPs (Haiti, Jamaica, Peru, Uruguay, Venezuela) (five studies)[xxiii]	Multiple	6–17	6–18	NS[xxiv]				Mixed[xxv]			
Bagby et al. (2019)	RCT	*Espacios para Crecer*; ASPs, including academic support, life skills reinforcement, games, sports, and artistic activities (Nicaragua)	Eighteen months	5–16	6–18	NS			NS	NS			
Dinarte (2017)	RCT	Glasswing's After-School Clubs, an ASP that includes discussions of social	At completion	10–16	10–17					+	+	+	

Abridged citation	Research design[i]	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	Violent crime	Nonviolent crime	School violence
		skills and conflict management and social/learning activities (El Salvador)											

+ = significant positive impact; - = significant negative impact; mixed = mixed impact; NS = no significant effect found (outcome was tested); NA = not available; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; QED = quasi-experimental design; RCT = randomized control trial; ASP = after-school program

[i] These study design details refer to the methods used to test outcomes of interest.

[ii] The authors did not require studies to be either RCTs or QEDs with baseline equivalence.

[iii] The authors reported that the programs in 45 (of 68) studies lasted less than one year, programs in 12 studies lasted one to two years, and programs in 11 studies lasted longer than two years.

[iv] The mean age was 11.7 years.

[v] The mean age was 9 to 16 years.

[vi] The authors included only well-implemented experimental studies in their meta-analysis.

[vii] The review included six studies published in English since 2000 that used an experimental or quasi-experimental research design to estimate the impact of after-school programs on social and emotional competencies. One of these studies was already addressed in this aggregator (see James-Burdumy et al. 2007).

[viii] The reviewed studies included one RCT study that found positive impacts, one QED study that found negative impacts, and three RCT studies that found no significant impacts.

[ix] Symptoms of anxiety and depression were positively associated with participation in community-based clubs but not with participation in arts or church groups.

[x] Participation in arts was associated with less substance use but was not associated with delinquency. Participation with community-based clubs and church groups was not associated with either substance use or delinquency.

[xi] No statistically significant correlation existed with internalizing (and externalizing) behaviors measured three years earlier when respondents were age 6 to 15.

[xii] These activities included band, choir, orchestra, music lessons, or practicing voice or an instrument; clubs or organizations outside of school, and volunteer work or community service.

[xiii] Liking school and feeling good about themselves was more common and feeling sad all or most of the time was less common among students who participated in sports, non-sport extracurricular activities, or both than among students who did not participate in either type of activity. Feeling nervous, worried, or upset was less common among students who participated in sports and both sports and non-sport activities but not among students who participated in non-sport extracurricular activities alone.

[xiv] Cigarette use, binge drinking, marijuana use, truancy, sexual activity, and attempting suicide were less common among students who participated in sports, non-sport extracurricular activities, or both than among students who did not participate in either type of activity. Alcohol use was lower among students who participated in non-sport extracurricular activities or both sports and non-sport activities but not among students who participated in sports alone. Having suicidal thoughts was lower among students who participated in sports or both sports and non-sport activities but not among students who participated in non-sport activities alone.

[xv] Sample attrition was very high, which resulted in data imputation being employed for about two-thirds of the sample.

[xvi] In general, activity participation was not associated with staying out of trouble, but the outcome was positively associated with participation in art activities. Substance abuse was lower among students who participated in more extracurricular activities, particularly for art and newspaper activities.

[xvii] Participation in school-based extracurricular activities was associated with better emotional stability and social adaptation, but there was no association with overall psychological health or self-concept.

[xviii] Program Arm 1 was associated with higher self-confidence than the comparison group (0.313 on a 4-point Likert scale), but there was no difference between program Arm 2 and the comparison group.

[xix] Program Arm 1 was associated with an increase in aggression (0.265 on a 5-point scale, ranging from 0 incidence to 6+ incidences) and reckless behavior (29.2 percent more likely to participate in sexual-related activities). However, no significant differences existed between program Arm 2 and the comparison group (although, program Arm 2 has a lower aggression score on average than the comparison group but only with marginal significance).

[xx] Among boys who engaged in sexual activity, spending more time in extracurricular activities was associated with always using a condom versus never using a condom. Girls were also more likely to always use a condom with more time spent in extracurricular activities, but the difference was not statistically significant.

[xxi] Students participating in youth groups were more likely to participate in risky sexual behavior (odds ratio = 1.58) than other students, while students participating in other extracurricular activities were more likely to use illicit drugs (odds ratio = 2.11) than other students. The results described by the authors did not appear to be consistent with the results presented in the study's figures. For the purposes of this exercise, we assumed that the authors' written descriptions of the findings were accurate.

[xxii] The systematic review consisted of RCT and QED studies.

[xxiii] Cid (2017) included six studies from 2012 to 2016: three studies of music programs (two RCTs in Venezuela and Peru and one difference-in-difference in Haiti and Jamaica), two studies of one ASP (*Apoyo Escolar*) in Uruguay (both RCTs), and one study of a sports program in Uruguay (difference-in-difference). The

author found only two studies to have adequate sample sizes, low risk of bias, and internal consistency: the RCT of the music program in Venezuela and one of the RCTs of *Apoyo Escolar*.

[xxiv] The RCT in Venezuela found that the music program led to improvements in self-control, but the improvement was only marginally significant. Two of the lower quality studies also looked into social-emotional skills: the RCT in Peru found no effect on self-esteem or identity. The difference-in-difference study in Haiti and Jamaica found improvements in self-confidence.

[xxv] The higher quality RCT of *Apoyo Escolar* found improvements in classroom behavior among children with "committed parents." However, the RCT in Venezuela found that the music program led to improvement in pro-social behaviors, but the improvement was only marginally significant. Among the lower quality studies, the lower quality RCT of *Apoyo Escolar* found similar results to the higher quality study, the RCT in Peru found improvements in school conduct and a decrease in verbal and physical aggression, while the difference-in-difference study in Haiti and Jamaica found improvements in aggressive behaviors, misconduct, and involvement with delinquent peers.

APPENDIX X:

SCHOOL COUNSELING

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This appendix provides additional information on the counseling programs discussed in Chapter XXIII in Tables XXIII.2 through XXIII.5.

Appendix Table X.1. School Counselors Studies

Abridged citation	Research design1	Program and description	Outcome follow-up period	Age range (years)		Non-cognitive skills	Correlated outcomes			Risk and Protective Behaviors	Violence and crime		
				Program	Outcome		Family Environmental	School Environmental	Community Environmental		School violence	Violent crime	Non-violent crime
HICs													
Wolpert et al. 2015	RCT	Targeted Mental Health in Schools (UK)	Short-term (1 year)	8-9 years (Grade 4)	Unspecified (Grade 5)	NS				Mixed			
Reback 2010a	Regression discontinuity	One Half of a Full Time Equivalent Counselor (USA)	Varies	Grade 3-4	Grade 3-4					Mixed			
Reback 2010b	Correlational	School Counseling Services (USA)	Varies	Grade 3	Grade 3					Mixed			
Lapan et al. 2001	Correlational	Missouri Comprehensive Guidance Program (USA)	Varies	Grade 7	Grade 7			+					
Lapan et al. 2012a	Correlational	Comprehensive school counseling (USA)	Varies	High School	High School					Mixed			
Lapan 2012b	Correlational	School Counselors (USA)	Varies	Grades 6-12	Grades 6-12					+			
Dimmitt and Wilkerson 2012	Correlational	Comprehensive school counseling (USA)	Varies	Middle and High School	Middle and High School			Mixed		Mixed			
Carey and Dimmitt 2012	Correlational	School counseling services (USA)	Varies							Mixed			
Carrell and Carrell 2006, Carrell and Hoekstra 2006, Carrell and Hoekstra 2014	Correlational	Various studies of same program: Full-time equivalent school counselor in Alachua County, Florida (USA)	Varies	Elementary School	Varies					+			

Abridged citation	Research design1	Program and description	Outcome follow-up period	Age range (years)		Non-cognitive skills	Correlated outcomes			Risk and Protective Behaviors	Violence and crime		
				Program	Outcome		Family Environmental	School Environmental	Community Environmental		School violence	Violent crime	Non-violent crime
Lapan et al. 2014	Correlational	Comprehensive school counseling (USA)		Grades 7-12	Grades 7-12			+					
Whiston et al. 2011	Meta-analysis	School counseling programs (USA)	Varies	Grades K-12	Grades K-12	Mixed				+	+		
LMICs (no evidence located on violence, crime, and correlated outcomes in LMICs)													
LAC (no evidence located on violence, crime, and correlated outcomes in LAC)													

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

Appendix Table X.2. Responsive Services Program Studies

| Abridged citation | Research design[1] | Program and description | Outcome follow-up period | Age range (years) | | Correlated outcomes | | | | | Violence and crime | | |
				Program	Outcome	Non-cognitive skills	Family Environmental	School Environmental	Community Environmental	Risk and Protective Behaviors	School violence	Violent crime	Non-violent crime
					HICs								
Baskin et al. 2010a	Meta-analysis	Counseling and psychotherapy programs	Varies	Ages 5-18 (Grades K-12)	Varies	+				+			
Barnes et al.2014	Meta-analysis	Cognitive behavioral programs (Varies)	Varies	Grades 1-6	Varies					+			
Sukhodolsky 2004	Meta-analysis	Cognitive-behavioral therapy	Varies	Ages 7-17	Varies	+				+			
Wilson et al. 2001	Meta-analysis	School based prevention	Varies	Grades K-12	Varies					+			NS
Ray et al. 2015	Meta-analysis	Child-centered play therapy	Varies	Elementary school	Varies	+				+			
Bratton et al. 2005	Meta-analysis	Play therapy	Varies	Mean Age 7	Varies	+				+			
Gansle 2005	Meta-analysis	School-based anger programs	Varies	Ages 5-19 (Grades K-12)	Varies	+				+			
Wilson et al. 2003	Meta-analysis	School-based programs for reducing aggressive behavior	Varies	Grades Preschool-12	Varies					+			
Garrard and Lipsey 2007	Meta-analysis	Multiple programs	Varies	Ages 5-17 (Grades K-12)	Not Specified					+			
Park-Higgerson et al. 2008	Meta-analysis	School-based violence prevention	Varies	Grades 1-11	Varies					NS			

Abridged citation	Research design[1]	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Non-cognitive skills	Family Environmental	School Environmental	Community Environmental	Risk and Protective Behaviors	School violence	Violent crime	Non-violent crime
Weare and Nild 2011	Systematic review	Mental health programs (Varies)	Varies	Ages 4-19	Varies					+	+		
Waters et al. 2015	Systematic review	Meditation/ Contemplative Education (Varies)	Varies	Ages 5-18	Varies	Mixed							
Woods et al. 2011	Systematic review	Solution Focused Brief Therapy (Varies)	Varies	Ages 5-18	Varies	+				+			
Knopf et al. 2016	Systematic review	School-based health centers	Varies	Grades K-12	Varies					Mixed			
Benner et al. 2012	RCT	Behavior program (USA)	Short-term (15 months)	6-12 years (Kindergarten-Grade 3)	Not Specified					+			
Cho et al. 2005	RCT	Reconnecting Youth (USA)	6 months	Age 15				Mixed		Mixed			
Cooper et al. 2010	RCT	School-based humanistic counselling (UK)	Short-term (6 weeks)	Age 14 (Secondary School)	Not Specified					Mixed			
Green et al. 2007	RCT	Life coaching (USA)	Short-term (at completion)	Ages 16-17 (Grade 11)	Not Specified	+							
Jaycox 2009	RCT	Support for Students Exposed to Trauma (USA)	Short-term (6 months)	Age 12 (Grade 6-7)	Not Specified					NS			
Morrison et al. 2001	RCT	Group counseling (USA)	Short-term (1 month)	3rd grade	Not Specified	Mixed							

Abridged citation	Research design[1]	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Non-cognitive skills	Family Environmental	School Environmental	Community Environmental	Risk and Protective Behaviors	School violence	Violent crime	Non-violent crime
Shechtman 2006	RCT	Group counseling program (Israel)	Short-term (1 month)	Ages 12-17 (Grades 6-10)	Not specified	Mixed							
Shelton 2000	RCT	Psychoeducational program (USA)	Short-term (2 years)	Age 5 (Kindergarten)	Age 7 (Grade 2)	NS				NS			
Shoshani and Steinmetz 2014	RCT	Maytiv Program (Israel)	Short-term (2 years)	Ages 12-15 (Grades 7-9)	Not Specified	+							
Stein et al. 2011	RCT	Cognitive Behavioral Program for Trauma in Schools (USA)	Short-term (3 and 6 months)	Grade 6	Grade 6					NS			
Stevahn et al. 2000	RCT	Conflict resolution training (USA)	Short-term (10 weeks)	Kindergarten	Not Specified	+							
McArthur et al. 2012	RCT	School-based humanistic counselling (UK)	Short-tem (At completion)	Ages 13-16	Not Specified	+				Mixed			
Strolin-Goltzman 2010	QED	School-based health centers (USA)		Grade 6-12				Mixed					
Walker et al. 2010	QED	School-based health center (USA)	Varies	Grade 9	Grade 11					NS			
Bersamin et al. 2019	Correlational	School-based health centers (USA)	Varies	Grades 9-12	Varies			NS					
Brown et al. 2004	Correlational	Resolving Conflict	Varies	Ages 6-13 (Grades 1-6)	Varies	+				NS			

				Age range (years)		Correlated outcomes					Violence and crime		
Abridged citation	Research design[1]	Program and description	Outcome follow-up period	Program	Outcome	Non-cognitive skills	Family Environmental	School Environmental	Community Environmental	Risk and Protective Behaviors	School violence	Violent crime	Non-violent crime
Hazell 2005	Correlational	Creatively Program (USA) Mind Matters (Australia)	Short-term (along implementation)	Grades 7-12	Not specified	NS		+		NS			
Lee et al. 2009	Correlational	Place2Be (England and Scotland)	Short-term (at completion)	Ages 4-11 (Grades 1-6)	Not specified					+			
Lovenheim et al. 2016	Correlational	School-based health centers (USA)	Varies	14-19 years	Varies					+			
Madden et al. 2011	Correlational	Strengths-based coaching (Australia)	Short-term (At completion)	Ages 10-11 (Grade 5)	Not specified	+							
Ricketts and Guernsey 2006	Correlational	School-based health centers (USA)	Varies	Ages 15-17 (Grades 9-11)	Not specified					+			
Schellenberg et al. 2007	Correlational	Peace Pal Program (USA)	Medium-term (3 years)	Grades 3-5	Not specified					+			
Shuval et al. 2010	Correlational	Conflict resolution (USA)	Short-term (At completion)	Grade 4-5	Not specified					Mixed			
Soleimanpour et al. 2010	Correlational	School-based health centers (USA)	Short-term (less than 4 months)	Middle and high school	Middle and high school	+				+			
Steen et al. 2017	Correlational	Group counseling (USA)	Short-term (At completion)	Ages 12-16 (Grade 6 and 8)	Not specified	Mixed							

				Age range (years)		Correlated outcomes					Violence and crime		
Abridged citation	Research design[1]	Program and description	Outcome follow-up period	Program	Outcome	Non-cognitive skills	Family Environmental	School Environmental	Community Environmental	Risk and Protective Behaviors	School violence	Violent crime	Non-violent crime
Bell et al. 2000	Descriptive	Peer mediation (USA)	Short-term (12 weeks)	Grades 6-8	Not specified					+			
Jennings et al. 2000	Descriptive	Youth and Family Centers (USA)	Varies	K-12	Varies					+			
LMICs													
Barry et al. 2013	Systematic review	Mental health promotion programs	Varies	Ages 6-18	Varies	Mixed							
Singla et al. 2019	Meta-analysis	Life skills programs	Varies	Ages 10-19	Varies	+				+			
Aladag and Tezer 2009	RCT	Peer Helping Training Program (Turkey)	Short-term (6 months)	Undergraduate	Not specified	Mixed							
Egbochuku and Obiunu 2006	RCT	Reciprocal peer counseling program (Nigeria)	Short-term (at completion)	Senior secondary students	Not specified	+							
Guneri 2004	RCT	Conflict resolution training (Turkey)	Short-term (6 months)	4th grade	Not specified	+							
Jordans et al. 2010	RCT	Psychosocial program (Nepal)	Short-term (6 months)	Ages 11-14 (Grades 6-8)	Not specified	NS				NS			
Mutto et al. 2009	RCT	Mato-Oput5: peace education curriculum (Uganda)	Short-term (at completion)	Ages 9-18 (Grade 5)	Not specified	Mixed					NS		
Sahin et al. 2011	RCT	Conflict resolution and peer mediation training (Turkey)	Short term (at completion)	Undergraduate psychology students	Not specified	+							

Abridged citation	Research design[1]	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Non-cognitive skills	Family Environmental	School Environmental	Community Environmental	Risk and Protective Behaviors	School violence	Violent crime	Non-violent crime
Tol et al. 2010	RCT	Psychosocial program (Indonesia)	Short-term (6 months)	4th and 5th grade	Not specified	Mixed							
Onemli and Yondem 2012	QED	Psychoeducational group study (Turkey)	Short-term (at completion)	10th grade	Not specified	NS							
Latipun et al. 2012	Correlational	Peer Conflict Resolution Focused Counseling (PCRC) (Indonesia)	Short-term (1 week)	Senior high school students	Not specified	+				+			
Lin and Nasir 2013	Correlational	Psycho-educational group counseling (Malaysia)	Short-term (at completion)	Ages 11-13	Not specified	+							
Karatas and Gokcakan 2009	Correlational	Cognitive-behavioral therapy and psychodrama (Turkey)	Short-term (16 weeks)	Grade 9	Not specified					+			
Turnuklu et al. 2010	Correlational	Conflict resolution and peer mediation (Turkey)	Short-term (at completion)	Ages 10-11 (Grades 4-5)		Mixed							
Joker and Ghaderi 2015	Correlational	Solution-based counseling (Iran)	Short-term (at completion)	Ages 16-19 (High school)	Not specified	+							
Srikala and Kumar 2010	Correlational and Descriptive	Life Skills Education Program, NIMHANS Model (India)	Short-term (at completion)	Ages 14-16 (Grades 8-10)	Not specified	+				+			

				Age range (years)		Correlated outcomes					Violence and crime		
Abridged citation	Research design[1]	Program and description	Outcome follow-up period	Program	Outcome	Non-cognitive skills	Family Environmental	School Environmental	Community Environmental	Risk and Protective Behaviors	School violence	Violent crime	Non-violent crime
USAID 2015	Descriptive and qualitative	Cultivating Inclusive and Supportive Learning Environment (Jordan)	Short-term (at completion)	Grades 2-12	Not specified			+					
Sagkal et al. 2016	Correlational and qualitative	Peace Education (Turkey)	Short-term (at completion)	Grade 6	Not specified	+				+			
LAC													
Araya et al. 2013	RCT	Yo pienso, siento, y actuo: universal psychological program (Chile)	Short-term (12 months)	Middle school	Not specified	NS							

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

Appendix Table X.3. Guidance Curriculum Program Studies

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years) Program	Outcome	Correlated outcomes Non-cognitive skills	Family Environmental	School Environmental	Community Environmental	Violence and crime Risk and Protective Behaviors	School violence	Violent crime	Non-violent crime
						HICs							
Faggiano et al. 2005, Faggiano et al. 2008	Systematic review	Knowledge-based programs to prevent substance abuse	Varies	Grades 1-11	Varies								
Foxcroft and Tsertsvadze 2011	Systematic review	Universal, multi-component programs to prevent alcohol misuse	Varies	Ages 5-18 (primary school-high school)	Varies					Mixed			
Norberg et al. 2013	Systematic review	Primary prevention of cannabis use	Varies	Ages 11-21	Varies					+			
Onrust et al. 2016	Systematic review	Programs to prevent or reduce substance abuse	Varies	Primary school-high school	Varies					Mixed[i]			
MacArthur et al. 2016	Systematic review	Peer-led programs designed to prevent tobacco, alcohol, or drug abuse	Varies	Ages 11-21	Varies					+			
Thomas et al. 2015	Systematic review	Smoking prevention curricula	Varies	Ages 5-18	Varies					+[ii]			
Lee et al. 2016	Systematic review	Alcohol education programs	Varies	Not specified	Varies					NS			
Spoth et al. 2008	Systematic review	Preventative programs addressing underage drinking	Varies	All ages[iii]	Varies					Mixed			
Hennessy and Tanner-Smith 2015	Meta-analysis	School-based brief alcohol programs (HICs and LAC)	Varies	Ages 11-18	Varies					+			
Kulis et al. 2005	RCT	Keepin it REAL (USA): drug resistance strategy curriculum	Short-term (14 months)	Middle school	Not specified					+			
				LMICs (no evidence located on violence, crime, and correlated outcomes in LMICs)									

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes			Violence and crime					
				Program	Outcome	Non-cognitive skills	Family Environmental	School Environmental	Community Environmental	Risk and Protective Behaviors	School violence	Violent crime	Non-violent crime	
LAC														
Marsiglia et al. 2014	Correlational	Keepin it REAL (Mexico)	Short-term (at completion)	(Mean) Age 13 (Middle school)						Mixed				
Sanchez et al. 2016	Correlational	Unplugged: drug use prevention program (Brazil)	Short-term (4 months)	Ages 11-15 (Middle school)	Not specified					Mixed				

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

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[i] The effects of universal prevention programs vary by age group and outcome.
[ii] Corresponds to results at longest follow up.
[iii] This study covers all ages, it groups studies as <10 years 10-15 years and 16-20 or older. It says it does not cover college students but does cover out of school college aged populations.

Appendix Table X.4. Multi-Component Program Studies

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Non-cognitive skills	Correlated outcomes				Violence and crime		
				Program	Outcome	Non-cognitive skills	Family Environmental	School Environmental	Community Environmental	Risk and Protective Behaviors	School violence	Violent crime	Non-violent crime
HICs													
Stoolmiller et al. 2000	RCT	Universal prevention program for conduct disorder (USA)	Short term (less than 1 year)	Grades 1, 5	Not specified					+			
DeGarmo et al. 2009	RCT	Linking the Interests of Families and Teachers (LIFT) (USA)	Long-term (6 years)	Grade 5 [i]	Grade 12					+			
Eddy 2000	RCT	Linking the Interests of Families and Teachers (USA)	Medium-term (2 years)	Grades 1, 5	Not specified		+			+			
Harrington 2001	RCT	All Stars: character education and problem behavior prevention program (USA)	Short-term (1 year)	Middle school	Not specified					Mixed			Mixed
Child Study Research Group,. 2002	RCT	Metropolitan Area Child Study Programs (USA): Three programs focus on focused on social-cognitive, cultural competency training, classroom management plus small group training for at risk children plus family program.	Medium-term (5 years)	Grades 2-3 and Grades 5-6	Not Specified					Mixed			
Ngwe et al. 2004	RCT	Aban Aya Youth Project (AAYP): (USA)	Short-term (at completion)	Age 10 (Grade 5)	Age 14 (Grade 8)							+	
Lochman and Wells 2002	RCT	Coping Power within the Middle School Transition: indicated prevention program and variations that included a universal	Short-term (at completion)	Grades 5-6	Grade 6	Mixed				Mixed			

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Non-cognitive skills	Family Environmental	School Environmental	Community Environmental	Risk and Protective Behaviors	School violence	Violent crime	Non-violent crime
		component (targeting parents and teachers) and a combined indicated and universal components (USA)											
Lochman and Wells 2004	RCT	Coping Power: indicated prevention program and variation that included universal program (USA)	Short-term (1 year)	Grades 5,6	Grades 6,7					Mixed			
Lochman et al. 2009	RCT	Coping Power: indicated prevention program with variation in the level of counselor training (USA)	Short-term (at completion)	Grades 4-5	Grade 5					Mixed			
Zonnevylle-Bender et al. 2007	RCT	Coping Power (Netherlands)	Medium-term (5 years)	Ages 8-13	Not specified					+			NS
Seeley et al. 2017	RCT	First Step to Success (USA)	Short-term (at completion)	Age 4 (Preschool)	Not specified	+				Mixed			
Feil et al. 2016	RCT	First Step to Success (USA)	Short-term (at completion)	Ages 3-5 (Preschool)	Not specified	+				+			
Walker et al. 2009	RCT	First Steps to Success (USA)	Short-term (at completion)	Age 7 (Grades 1-3)	Not specified	+				+			
Woodbridge et al. 2014 (Follow-up of Walker et al. 2009)	RCT	First Step to Success (USA)	Short-term (1 year)	Grade 1-3	Not specified	NS				Mixed			
Walker et al. 2005	Correlational	First Step to Success (USA)	Short-term (at completion)	Grades K-2	Not specified					+			
Catalano et al. 2003	RCT	Raising Healthy Children (USA)	Short-term (at completion)	Age 7 (Grades 1-2)	Grades 2-3	Mixed				Mixed			
Muratori et al.2019	RCT	Coping Power Universal (Italy)	Short-term (at completion)	Age 5 (pre-school)	Not specified					NS			

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Non-cognitive skills	Family Environmental	School Environmental	Community Environmental	Risk and Protective Behaviors	School violence	Violent crime	Non-violent crime
Sumi et al. 2012	RCT	First Step to Success (USA)	Short-term (3 months)	Grades 1-3						+			
LMICs													
Shinde et al. 2018	RCT	Multi-component whole-school health promotion program (India)	Short-term (at completion)	Grade 9	Grade 9			Mixed			Mixed		Mixed
Ho et al. 2017	Correlational	Arts and play support program (China)	Short-term (at completion)	Grade 4	4th grade	+		+					
LAC													
Guzmán et al. 2015	Correlational	Skills for Life (Chile)	Short-term (Following school year)	Grade 2	Grade 3					+			

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] Some grade 5 classes included in this study included grade 4 students.

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APPENDIX Y:

PARENTING PROGRAMS

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This appendix provides information from the foundational literature on the impact of family engagement and parenting programs on academic achievement, with additional information on the studies summarized in Chapter XXIV, Table XXIV.2.

Impacts of parenting programs on standard education outcomes

Studies from LMICs provide consistent evidence that parenting programs can improve youths' cognitive abilities, especially among disadvantaged populations. For example, a meta-analysis of 22 evaluations of "parent-focused education and support" programs in LMICs by Rao et al. (2017) found positive impacts on cognitive development. These impacts were smaller than the estimated impacts of "child-focused" programs but not significantly so. All but one of the ten studies of parenting programs focused on disadvantaged children identified in a systematic review conducted by Baker-Henningham and López Bóo (2010) found positive impacts on cognitive skills (the findings for five programs focused on malnourished children, however, were mixed). A recent experimental study of 2- to 4-year-old children of low-income families in day who received care from child care centers in Brazil found that the addition of the Universidade do Bebê parenting program significantly improved children's cognitive measures, including working memory, IQ, and phonological short-term memory (Weisleder et al. 2018). Experimental studies of a two-year, home-based psychosocial stimulation program in Jamaica found positive impacts on children's cognition 9 years post-program and positive impacts on children's cognition and educational attainment 15- and 20-years post-program (Gertler et al. 2014; Walker et al. 2000; Walker et al. 2005). A rigorous quasi-experimental study of a home visiting program in Ecuador also found significant improvements in children's cognitive skills, as well as in children's health and mothers' psychological well-being (Rosero and Oosterbeek 2011). However, a recent RCT that evaluated the impacts of providing 18 months of psychosocial stimulation, micronutrients, or both, starting at ages 12 to 24 months through a large-scale program in Colombia found impacts on cognition and receptive language at the end of the program, but two years later, they found no significant impacts on those outcomes or on school readiness, executive functioning, or behavioral development (Andrew et al. 2018a).

The evidence base of the impact of parenting programs on academic outcomes, however, is more mixed across all geographic regions. For example, experimental studies of parenting programs among Somali-born parents of 11- to 16-year-old children in the United States (Osman 2017) and among parents of 5- to 6-year-olds the UK (Scott et al. 2010) found no evidence of improvements in measures of scholastic competence or reading ability, respectively. However, an experimental study of the Strong Families parenting program found positive impacts on the academic competence of 3- to 4-year-old children in an urban area in the southern United States (Conner and Fraser 2011).

Experimental and quasi-experimental evidence from LMICs and LAC countries are similarly mixed. Three recent reviews of parenting/home visiting programs in LMICs showed positive effects on children's learning outcomes (Britto et al. 2017, Aboud and Yousafzai 2015, Rao et al. 2014,). An experimental study of a parenting program in India found modest but significant improvements in math scores (both alone and combined with a maternal literacy program) and found improvements in language scores but only when combined with the maternal literacy program (Banerji et al. 2017). Similarly, an experimental study of Universidade do Bebê in Brazil by Weisleder et al. (2018) found improvements in language abilities, including

receptive vocabulary, expressive vocabulary, and interactive reading. A 20-year follow-up of experimental evaluation in Jamaica of a home-based psychosocial stimulation program for children ages 9 to 24 months found significant on educational attainment and employment (Gertler et al. 2014), A meta-analysis of five parenting programs in five LMICs, however, found no impact on youth literacy rates one or two years post-program (Spier et al. 2016). A systematic review conducted by Baker-Henningham and López Bóo (2010) also found mixed results with improvements in school grades for children in grades 1 through 6 and college attendance among 22 year olds among disadvantaged youth but found no significant impacts on the academic achievement of disadvantaged youth in a one year follow-up or on any schooling outcomes among malnourished youth. A quasi-experimental study of the Preescolar en la casa program in Ecuador found positive but insignificant impacts in language and math test scores and absences from school but also negative impacts on repeating at least one grade or taking time away from school (Lavy et al. 2016).

A cost-benefit analysis of a home-visiting program in Saint Lucia suggest that the program could produce greater benefits than costs, but uncertainty about long-term impacts on school enrollment makes it difficult to draw strong conclusions. Janssens and Rosemberg (2012) estimated benefit-cost ratios using a range of assumptions about the impact on school enrollment. They estimated ratios ranging from 0.44 to 3.09 assuming improvements in primary school enrollment from 1 to 7 percentage points and ratios ranging from 0.88 to 6.37 assuming improvements in primary and secondary school enrollment from 1 to 7 percentage points. These numbers suggest that benefits of the program may or may not outweigh its costs depending on the long-term impacts, which are uncertain.

Appendix Table Y.1. Parenting programs

| Abridged citation | Research design | Program and description | Outcome follow-up period | Age range (years) | | Social-emotional skills | Correlated outcomes | | | | Violence and crime | | |
				Program	Outcome		Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
						HICs							
Leijten et al. 2016	Meta-analysis[i]	Variety of transported and homegrown parenting programs (United States, Canada, Australia, United Kingdom, Ireland) (129 studies)	Varied	Varied	Varied					+			
Lundahl et al. 2006	Meta-analysis[ii]	Parent training programs (23 studies)	Varied	Varied	Varied		+						
Beckett et al. 2010	RCT	Incredible Years program (as part of the Helping Children Achieve Trial) (United Kingdom)	At end of program	5–7	5–8		+[iii]			+[iii]			
			9–11 months after program	5–7	6–9		+[iv]			+[iv]			
Bjørknes and Manger 2013	RCT	Group parenting workshops: Parent Management Training–Oregon Model (Norway)	43 weeks after program	3–9	3–10	NS	Mixed[v]			Mixed[vi]			
Chung et al. 2015	RCT	Level 4 Positive Parenting Program, including 5 group and 3 individual sessions (Hong Kong)	At end of program[vii]	Preschool children	Preschool children					+[viii]			
		Brief parenting group session under the Positive Parenting	At end of program[vii]	Preschool children	Preschool children					NS[viii]			

				Age range (years)		Correlated outcomes				Violence and crime		
Abridged citation	Research design	Program and description	Outcome follow-up period	Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
Fabrizio et al. 2013	RCT	Program model (Hong Kong) 4 session positive parenting program (Hong Kong)	At end of program	10–13	10–14		Mixed[ix]						
			3 months after program	10–13	10–14		NS[ix]						
Fabrizio et al. 2014	RCT	4 session positive parenting program (Hong Kong)	3 months after program	10–13	10–14		+[x]						
			6 months after program	10–13	10–14		+[x]						
			12 months after program	10–13	11–14		+[x]						
Haggerty et al. 2007	RCT	7 weekly family-training sessions: Staying Connected with Your Teen (United States)	2 years after program	13–14	15–16					Mixed[xi]		NS[xi]	
		Self-administered family-training program with telephone support (United States)	2 years after program	13–14	15–16					Mixed[xi]		Mixed[xi]	
Marsiglia et al. 2014	RCT[xii]	Familias: Preparando la Nueva Generación (Families: Preparing the New Generation): Parenting program added to "keepin' it REAL," a youth substance abuse prevention program (United States)[xiii]	8 weeks after program	12–13	12–13		+[xiv]						

				Age range (years)		Correlated outcomes					Violence and crime		
Abridged citation	Research design	Program and description	Outcome follow-up period	Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
Murry et al. 2005	RCT[xv]	Strong African American Families Program: Weekly meetings held at community facilities with separate, concurrent sessions for parents and children and joint sessions, focused on substance abuse and risky-sexual behavior (United States)	3 months after program	11–12	11–12	+[xvi]	+[xvi]						
Osman 2017[xvii]	RCT	Culturally tailored societal information combined with 12 weeks of 1–2 hour group parenting program "Connect" (United States)	2 months after program	11–16	11–17	Mixed[xviii]				Mixed[xix]			
Scott et al. 2010	RCT	Primary Age Learning Skills (PALS) parenting program, which includes Incredible Years and shortened version of the SPOKES literacy program (United Kingdom)	1 year after program	5–6	6–7		+[xx]			NS[xx]			
Somech and Elizur 2012	RCT	Hitkashrut program (Israel)[xxi]	1 months after program	3–5	3–6	+[xxii]	+[xxiii]			+[xxiv]			

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
Spoth et al. 2001	RCT[xxv]	Iowa Strengthening Families Program (United States)[xxvi]	42 months after program	11–12	15–16					+[xxvii]			
Sumargi et al. 2015	RCT	Positive Parenting Program (Australia)[xxviii]	1–2 weeks after program	2–12	2–13	+[xxix]	+[xxix]			+[xxix]			
Zhang et al. 2018	RCT	14-week group-based parenting program: After Deployment Adaptive Parenting Tools (ADAPT) (United States)	6 months after program	4–12	4–13		Mixed[xxx]						
Knox et al. 2011	QED	ACT Against Violence Parents Raising Safe Kids program (ACT-PRSK), an interactive violence prevention program for parents of young children (United States)	8 weeks after implementation	0–10	0–11		+						
Coore Desai et al. 2017	Systematic review[xxxi]	Variety of parenting programs, home visits, and multi-component programs (Various HICs) (28 studies)	Varied	Varied	Varied		Mixed[xxxii]						
Farrington and Welsh 2007	Systematic review[xxxiii]	Parent behavioral training (United States, Australia, United Kingdom, Ireland) (9 studies)	"Short-term"[xxxiv] "Long-term" [xxxiv]	Varied[xxxv] 2–8	Varied[xxxv] 16–21					Mixed[xxxvi] NS			
Lundgren and Amin 2015	Systematic review[xxxvii]	Variety of parent-centered programs (Various HICs, mostly	Varied	Varied	Varied		Mixed[xxxix]			+[xxxix]			

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
Pisani Altafim and Martins Linhares 2016	Systematic review[xl]	United States) (8 studies)[xxxviii] Variety of parenting education programs to prevent child violence and maltreatment (Various HICs) (13 studies)[xli]	Varied	Varied[xlii]	Varied[xlii]	+[xliii]	+[xliii]	+[xliii]		Mixed[xliii]			
Devall 2004	Pre-post	9–24 parenting sessions provided to teen, single, divorced, foster, abusive, substance affected, or incarcerated parents (United States)	2 years after implementation	0–23[xliv]	0–23[xliv]		+[xlv]						
Sumargi et al. 2014	Qualitative	Participated in one Positive Parenting Program session (Australia)[xxiv]	3 weeks after program	2–12	2–13	+[xlvi]	+[xlvi]			+[xlvi]			
			6 months after program	2–12	2–13	+[xlvi]	+[xlvi]			+[xlvi]			
LMICs													
Al-Hassan and Lansford 2011	RCT	Better Parenting Programme (Jordan)	At end of program (4 days to 1 month after start of implementation)	Young children	Young children		NS[48]						
Ashburn et al. 2015	RCT[xlviii]	Responsible, Engaged and Loving (REAL) Fathers, which includes father-centered mentoring	4 months after program	1–3	1–4		Mixed[xlix]						
			8–12 months after program	1–3	1–4		+[xlix]						

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
				Program	Outcome								
		program and a community awareness campaign (Uganda)											
Banerji et al. 2017[i]	RCT	Child and Mother Activities Packet (CHAMP) program, including weekly home visits (India)	1 year after implementation	0–8	1–9		Mixed[li]						
Kagitcibasi et al. 2001; Kagitcibasi et al. 2009	RCT[lii]	2 years of bi-weekly group meetings and home visits (Turkey)	1 year after program	3–5	4–6	+	+			+			
Katahoire et al. 2019	RCT	Promoting Sexual and Reproductive Health among Adolescents in Southern and Eastern Africa (PREPARE), which included 14 classroom-based education sessions with take home assignments and three parenting workshops (Uganda)	"Short follow-up interval"	Senior secondary school students	Senior secondary school students		+[liii]						
Klein and Rye 2004	RCT[lii]	3-month parenting program focusing on maternal child interaction (Ethiopia)	1 year after program	1–3	2–4	+	+			+			
Magwaza and Edwards 1991	RCT[lii]	10-week parenting program (South Africa)	At end of program	4	4					+			
			1 year after program	4	5					+			

| Abridged citation | Research design | Program and description | Outcome follow-up period | Age range (years) | | Social-emotional skills | Correlated outcomes | | | | Violence and crime | | |
				Program	Outcome		Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
Oveisi et al. 2010	RCT	2 parenting sessions (over 2 weeks) (Iran)	8 weeks after program	2–6	2–7		+[liv]						
Puffer et al. 2015[lv]	RCT	10 session parenting program: Parents Make the Difference (Liberia)	1 month after program	3–7	3–8	NS	+			NS			
Sim et al. 2014a	RCT[xlviii]	12-week group parenting program: Building Happy Families (Thailand)	1 month after program	8–12	8–13		+[lvii]						
Sim et al. 2014b	RCT[xlviii,lviii]	10-week group parenting program with a home visit: "Parents make a difference" (Liberia)[lviii]	1 month after program	3–7	3–8		+			NS			
Taylor et al. 2017[lix]	RCT	30 sessions per year focused on the importance of and role of parents in promoting reading (South Africa)	2 years after start of program	8–9 and 11–12	10–11 and 13–14		NS						
To et al. 2019	RCT	Six education group sessions with additional parental support (China)	At end of program	2–12	2–12		+[lx]						
Williams et al. 2001	RCT	As part of The Project Northland, The Slick Tracy Home Team Program provided pre-adolescents with homework assignments designed	6–8 months from baseline	10–11	10–11		Mixed[lxi]			NS[lxi]			

				Age range (years)		Correlated outcomes					Violence and crime		
Abridged citation	Research design	Program and description	Outcome follow-up period	Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
		to structure links between pre-adolescents and parents by educating parents about parenting strategies related to alcohol consumption (Russia)											
Skar et al. 2014	QED[lxii]	10–12 weekly International Child Development Programme (ICDP) group parenting sessions with additional follow-up visits at home for six weeks (Mozambique)	1–5 years after attended program	Under 7 years	Under 8 years		+[lxiii]			Mixed[lxiv]			
Britto et al. 2017	Systematic review	Variety of parenting and home visit programs (Various LMICs)	Varied	Varied	Varied	+							
Coore Desai et al. 2017	Systematic review[xxxi]	Variety of parenting programs, home visits, and multi-component programs (Various LMICs) (2 studies)	Varied	Varied	Varied		+[lxv]						
Knerr et al. 2016	Systematic review[lxvi]	SOS-Help for Parents (Iran)	8 weeks after program	2–6	2–7		+						
Cluver et al. 2016	Pre-post	12-week parenting program: Parenting for Lifelong Health (South Africa)	2–6 weeks after program	10–17	10–18	+[lxvii]	+[lxvii]			NS[lxvii]			

| Abridged citation | Research design | Program and description | Outcome follow-up period | Age range (years) | | Social-emotional skills | Correlated outcomes | | | | Violence and crime | | |
				Program	Outcome		Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
Cluver et al. 2017	Pre-post	10 sessions of parenting support program (over 5 weeks): Sinovuyo Caring Families Teen Programme (South Africa)	2 weeks after program	10–17	10–18		Mixed[lxix]	+[lxix]		Mixed[lxx]			
Vandenhoudt et al. 2010	Pre-post	5 weekly 3-hour parenting sessions of Families Matter! Program conducted in community venues (Kenya)	1 year after program	10–12	11–13		+[lxxi]						
Arunothong and Waewsawang wong 2012	Qualitative	7 sessions parenting program: Northern Thailand Parent Management Training Program (Thailand)	8 weeks after program	2–15	2–16		+[lxxii]			+[lxxii]			
			24 weeks after program	2–15	2–16		+[lxxii]			+[lxxii]			
			54 weeks after program	2–15	3–17		+[lxxii]			+[lxxii]			
LAC													
Andrew et al. 2018a	RCT	Psychosocial stimulation, micronutrients, or both	At end of program (18 months)	1–3.5	2.5–3.5		+						
			2 years after program	1–3.5	4.5–5.5		NS						
Dinaj-Koci et al. 2015	RCT[lxxiii]	Informed Parents and Children Together (ImPACT) parenting program paired with adolescent risk reduction program (Bahamas)	6 months after program	15–16	15–16		NS[lxxiv]						
			1 year after program	15–16	16–17		Mixed[lxxv]						

				Age range (years)		Correlated outcomes					Violence and crime		
Abridged citation	Research design	Program and description	Outcome follow-up period	Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
Knauer et al. 2016	RCT[lxxv]	Conditional cash transfer program (Prospera) combined with parenting program: Educación Inicial (EI) (Mexico)	4 years after baseline	0–3	4–7		Mixed[lxxvi]						
		Prospera combined with EI and promotion of EI (Mexico)	4 years after baseline	0–3	4–7		+[lxxvi]						
Mejia et al. 2015	RCT[lxxvii]	Discussion group focused on "dealing with disobedience," from Positive Parenting Program system (Panama)	2 weeks after program	3–12	3–13		+[lxxviii]			+[lxxviii]			
			3 months after program	3–12	3–13		+[lxxviii]			+[lxxviii]			
			6 months after program	3–12	3–13		+[lxxviii]			+[lxxviii]			
Skar et al. 2017	RCT[lxxix]	Community activities combined with ICDP (Colombia)	6 months after program	3–4	3–5		+[lxxx]						
		Community activities combined with ICDP and violence curriculum (Colombia)	6 months after program	3–4	3–5		+[81]						
Wang et al. 2014	RCT[lxxiv]	Informed Parents and Children Together (ImPACT) parenting program paired with adolescent risk reduction program (Bahamas)	6 months after program	10th grade students[lxxxi]	10th grade students[lxxxi]		NS[lxxxii]						
			1 year after program	10th grade students[lxxxi]	11th grade students[lxxxi]		Mixed[lxxxii]						
			18 months after program	10th grade students[lxxxi]	11th grade students[lxxxi]		+[lxxxii]						
Weisleder et al. 2018[lxxxiii]	RCT[lxxxiv]	Standard child care with additional parenting program—	9 months after program	2–4	2–5	+[lxxxv]	+[lxxxv]			+[lxxxv]			

				Age range (years)		Correlated outcomes					Violence and crime		
Abridged citation	Research design	Program and description	Outcome follow-up period	Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
		Universidade do Bebê—focused on reading aloud and delivered at child care center (Brazil)											
Campero et al. 2011	QED[lxxxvi]	4 parenting workshop sessions (Mexico)[lxxxvii]	6–8 months after start of program	First year high school students[lxxxviii]	First year high school students[lxxxviii]					+[lxxxix]			
Cardenas et al. 2017	QED[xc]	Weekly group parenting training sessions (Mexico)	1 year after implementation	2–5	3–6	NS[xci]	NS[xci]						
			2 years after implementation	1–4	3–6	NS[xci]	NS[xci]						
Lavy et al. 2016	QED[xcii]	Preescolar en la casa (PelCa, home preschooling program): Group meetings held every two weeks, which include parenting training and practicing training topics with children (Ecuador)	2–7 years after participation in program	0–3	2–5	Mixed[xciii]				NS			
Maalouf and Campello 2014	Pre-post[lxvi]	Strengthening Families and Families and Schools Together (FAST) (9 countries)[lxvi]	Varied	Varied	Varied	+	+			+			
Reyes-Moreno 2011	Pre-post[xciv]	Familias Fuerte Amor y Límites program, which includes group training for both	2 months after program	10–16	10–16					+			

				Age range (years)		Correlated outcomes					Violence and crime		
Abridged citation	Research design	Program and description	Outcome follow-up period	Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
		parents and students (Peru)											
McMillan and Burton 2009	Qualitative	Childrearing with Love (Educando con Amor) program (Guatemala)	16 months after program	0–23[xcv]	0–23[xcv]		+[xcvi]						

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] The authors conducted a systematic review and meta-analysis of 129 studies that evaluated both "homegrown" parenting programs and parenting programs adopted from other countries ("transported"). Of those studies, 125 evaluated programs in HICs, 3 evaluated programs in LMICs (Indonesia, Iran, and Liberia), and 1 evaluated a program in Panama. The studies from Indonesia and Panama are excluded from the summary of results for the meta-analysis/systematic review because they were separately identified in our bibliographic search and so. The study from Iran is excluded from the summary of results because its sample size (24 respondents) does not meet our search criteria for studies using a QED.
[ii] The authors conducted a meta-analysis of 23 studies that evaluated the impact of parenting training programs on parents' attitudes toward abuse, emotional adjustment, and child-rearing skills and on incidence of abuse. Of these, 17 used pre-post designs and 6 used unspecified comparison designs (QED and RCT).
[iii] Program led to reductions in negative parenting and the intensity of problematic behavior, including temper tantrums, refusing to do as asked, stubborn behavior, and not listening. The evaluation also found improvements in the use of positive parenting, but the result was not statistically significant.
[iv] Program led to improvements in anti-social behavior, negative parenting, and indices of child behavior (Eyeberg and VAS).
[v] Program led to improvements in mother reports of child conduct problems but not on behavior reported by teachers.
[vi] Program led to improvements in the use of harsh discipline and use of positive parenting but no improvements in the use of harsh discipline by age or in the use of appropriate discipline.
[vii] Outcome measures were collected within one week of the last session of each group.
[viii] Level 4 Triple-P program led to improvements in frequency of problem behaviors, but the brief parenting session program did not. However, there was no difference between the two programs.
[ix] Program led to improvements in some positive parenting practices at the end of the program, but the study observed no changes in most outcomes at the end of the program and in all outcomes in the 3-month follow-up.
[x] Program led to improvements in five measures of parenting practices: "Stop telling child to do something over and over," "Did something nice for child," "Gave suitable consequences," "Calmed down before disciplined," and "Negotiated good behavior."
[xi] Both programs led to improvements in attitudes toward substance use for all youth and in initiation of sex and substance use for African-American youth but not among white youth. The self-administered program led to improvements in self-reported violence in the past month for African-American youth but not among white youth. The group-based program led to no changes in self-reported violence among all youth. Self-reported violence measured using "the sum of five items, including start a fight, take a handgun to school, hit parents (not playing), hit someone to hurt them."

xii RCT clustered at the school-level. Both program and comparison groups received "keepin' it REAL," a youth substance abuse prevention program.
xiii Sample includes Mexican-born parents of 7th grade students living in the United States.
xiv Program led to improvements in self-reported use of positive parenting practices.
xv Attrition of respondents invited to participate in evaluation was very high (36%).
xvi Program led to improvements in self-pride and sexual self-concept (including positive body image and reliance on sexual social comparison) and in use of positive parenting practices (including nurturance, monitoring, and consistent inductive discipline; as well as socialization that transmits norms, values, and expectations regarding alcohol use, sexual behavior, and race-related issues).
xvii Study found no impact of program on scholastic competence.
xviii Program led to improvements in attention problems but no changes in likelihood of being anxious or being withdrawn or in social competence.
xix Program led to improvements in aggressive behavior, social problems, and externalizing behavior but no changes in rule-breaking behavior or internalizing behaviors.
xx Program led to improvements in parent-child relationship but no improvements in child behavior.
xxi Program included 14 semi-structured sessions with groups of 5 to 7 couples focused on parenting skills.
xxii Program led to reductions in an index of inhibitory control, attention focusing, and attention shifting and in an index of callous/unemotional traits.
xxiii Program led to reductions in negative/inconsistent parenting.
xxiv Program led to reductions in child behavioral problems, as measured through the Eyberg Child Behavior Inventory.
xxv Attrition of respondents invited to participate in evaluation was very high (36%).
xxvi The program included 7 sessions with parents and children focused on "how to deal with stress, anger and peer pressure, and improving relationships and communication within families" and "parenting skills and interpersonal and personal competencies among children" (Public Health England 2014).
xxvii Program led to lower incidence of (1) ever drinking alcohol, (2) every drinking alcohol without permission, (3) ever being drunk, (4) ever smoking cigarettes, and (5) every using marijuana.
xxviii Sample includes Indonesian parents of children aged 2–12 years living in Australia.
xxix Program led to improvements in children's emotional maladjustment and behavioral scales and use of dysfunctional parenting practices.
xxx Program led to improvements in supportive emotion socialization and emotional socialization by mothers, but the study found no changes for fathers.
xxxi Systematic review identified 20 systematic reviews/meta-analyses and 8 comprehensive reviews from 2000 to March 2016. Most of the identified studies included evaluations from HICs, with only 2 of the 18 including evaluations from LMICs. One (Knerr et al. 2013) focused on evaluations of programs in LMICs, while the other (Chen and Chan 2016) included 2 evaluations of programs in LMICs (of 37 studies reviewed).
xxxiiThe reviews consisting of studies from HICs found mixed results for child maltreatment and the use of positive vs. harsh/violent/abusive parenting practices, with some evidence of positive results and some evidence of no impacts.
xxxiii The authors conducted a systematic review of evaluations of programs that were focused on families (as opposed to children alone), included delinquency or antisocial behavior as outcomes, used an experimental design or a QED using matching, and included at least 50 individuals. The identified studies included 9 evaluations of parenting programs with "short-term" outcomes (see note cd) and 1 evaluation with "long-term" outcomes.
xxxiv The study defines "short-term" outcomes as those up to 2 years after the treatment and "long-term" outcomes as those 3 or more years after the treatment.
xxxv For evaluations with "short-term" outcomes, the ages at time of program range from 2 to 8 years and the ages at time of measurement range from 1 to 14 years.
xxxvi The evaluators found positive impacts in 6 of 8 evaluations of behavior problems and no significant impact in one evaluation of aggression.
xxxvii Systematic review identified studies of 8 parenting programs.
xxxviii Parent-centered programs include those that "utilize home visitation, couples or group education, peer or one-on-one support, and referrals" and "focus on harsh or dysfunctional parenting, violent discipline and child maltreatment, as well as partner communication, anger management, and healthy masculinities" (Lundgren and Amin 2015).
xxxix Authors describe strong impacts from HICs on conduct disorders, antisocial behaviors, and child behavior problems and mixed evidence of reductions in dysfunctional parenting behavior.
xl Systematic review identified 6 experimental and 1 quasi-experimental studies of parenting programs in HICs that met our search criteria.
xli Parenting programs include ACT (2 studies), Positive Parenting Program (4 studies), and Strong Families (1 study).
xlii Children's ages across 7 studies ranged from 0 to 8 years (all studies included children at least 3 years of age).

xliii Two studies (one RCT and one QED) found positive impacts on measures of social competence, depression, anxiety, peer acceptance (RCT), and hyperactivity (QED). Five studies (four RCTs and one QED) found positive impacts on a number of family environmental factors: positive parenting - harsh discipline, nurturing/warm parenting, aggressive/violent parenting, dysfunctional parenting maltreatment; parent-child relationship - conflict, communication, bonding). One experimental study found positive impacts on measures of relationships with peers. Three studies (two RCT and one QED) found positive impacts on risk and protective behaviors (i.e., conduct problems, child behavior problems, aggression, hostility), and one experimental study found no significant impact on child behavior.

xliv Authors do not present ages for children of parents receiving training, but parents are aged 19 years or older, including 3 who are 50 years or older.

xlv Study found improvements over time in parents having appropriate expectations of children, having empathy, and supporting use of corporal punishment and in reversals of parent-child relationships and children's power and independence being restricted.

xlvi Study observed a decrease in emotional problems, behavioral problems, and dysfunctional parenting practices at 3 weeks and 3 months.

xlvii No evidence of impacts of program on use of discipline practices or measures of abuse.

xlviii Identified in a systematic review conducted by Bacchus et al. (2017), which identified five experimental, two pre-post, and two qualitative studies of programs focused on reducing intimate partner violence and child maltreatment in LMICs. We exclude the two pre-post studies because they were independently identified by our bibliographic search (Cluver et al. 2016, Cluver et al. 2017), and we exclude the two qualitative studies because they focused on 18 year old fathers. Two of the experimental studies evaluated parenting programs (Sim et al. 2014a, Sim et al. 2014b), two of the experimental studies evaluated community outreach and awareness programs (Kyegombe et al. 2015, Abramsky et al. 2014/Abramsky et al. 2016), and one evaluated a program that included both parenting components and community outreach and awareness components (Ashburn et al. 2016).

xlix Program led to increased rejection of physical punishment and confidence in dealing with children without using threats, shouting or beating but no changes in physical punishment at 4-month follow-up. However, all three measures improved by 8- to 12- month follow-ups.

l This study is an updated, published version of a study we identified in our grey literature search (not cited). Parental training program led to improvements in math scores but not in language scores, school enrollment, or school attendance (multiple measures).

li Program led to improvements in helping children with homework; opening children's notebook in past 2 months; times per week talking to children about school; and times per week talking to friends or family about children's education but led to no changes in times per week taking children to school; visiting school in past 3 months; visiting children's school to discuss the child's studies, attend a parent-teach meeting, or to inquire or complain about lack of teacher effort; and knowing how often children receive homework. The program also led to a greater likelihood of having a pen or pencil and a newspaper or magazine at home but led to no changes in having school books, slate, or other books or comics at home.

lii Identified in a systematic review conducted by Baker-Henningham and López Bóo (2010), which identified twelve evaluations of parenting programs focusing on disadvantaged children (two in LAC and ten in LMICs). Of these, ten studies evaluated the impact on cognitive skills, and nine of these found positive impacts. Educational outcomes were more mixed with positive findings for grades in 1- and 6-year follow-ups and college attendance in a 22 year follow-up but no significant impacts on academic achievement in a 1 year follow-up. Of the seventeen studies, four evaluated outcomes correlated with violence and crime. One study (Ertem et al. 2006) targeted children under 3 years of age and therefore was not eligible for the search. The other three studies are experimental evaluations of parenting programs in South Africa (Magwaza and Edwards 1991), Ethiopia (Klein and Rye 2004), and Turkey (Kagitcibasi et al. 2001).

liii Program led to improvements in frequency and quality of communication between parents and children around sex-related communication.

liv Program led to reductions in dysfunctional parenting practices and parent-child conflict.

lv Program did not lead to improvements in cognitive measures.

lvi Program led to improvements in caregiver and child reports of use of harsh punishments by one-month follow-up. A 6-month follow-up of the program group found that changes observed in outcomes between baseline and one-month follow-up did not diminish over time.

lvii Identified in systematic reviews conducted by Leijten et al. (2016) (see footnote 2) and Bacchus et al. (2017) (see footnote 49).

lviii This study presents the results of an experimental evaluation of the Parents Make a Difference program in Liberia conducted by Sim et al. (2014). The program consisted of 10 weekly group parenting workshops and one home visit "targeting behavioral skills and knowledge related to parenting, cognitive stimulation and malaria prevention."

lix Program did not lead to improvements in reading ability.

lx Program led to improvements in parent-child relationships and use of authoritative parenting (vs. authoritarian or permissive parenting) but no change in use of authoritarian parenting.

lxi Program led to significant improvements in (1) family having rules against youth drinking alcohol and (2) parents allowing youth to drink by time they are seniors. However the study found no significant changes in (1) parents wanting young people drinking, (2) youth would be punished if parents found out about drinking, (3)

parents talk about drinking with youth, (4) alcohol use in the last week, (5) alcohol use in the last month, (6) alcohol use over lifetime, or (7) binge drinking in the last two weeks.

lxii Study used a matched comparison group design.

lxiii Program led to fewer conduct problems but no change in prosocial behaviors.

lxiv Program led to improvements in use of less severe physical discipline.

lxv The two reviews that included evaluations of programs in LMICs found (1) a negative correlation between parenting programs and the use of harsh discipline and (2) evidence of reductions in child maltreatment, which were larger than reductions from similar parenting programs in HICs.

lxvi Identified by a systematic review conducted by Pisani Altafim and Martins Linhares (2016), which identified one experimental study of a parenting program in Iran that met our search criteria and one pre-post study of parenting program across nine countries, including 6 LMICs (Serbia, Kazakhstan, Kyrgyzstan, Turkmenistan, Tajikistan, and Uzbekistan) and 3 LAC countries (Panama, Honduras, and Guatemala).

lxvii Study found improvements in alcohol consumption; drug use; depression; and in adolescent reports of "physical abuse, emotional abuse, and neglect"; positive and involved parenting; poor monitoring, inconsistent discipline; use of corporal punishment; and social support provided by caregivers. The study also found a non-significant reduction in sexual abuse (the underlying prevalence was very low).

lxviii Study found improvements in use of positive parenting and in violent/abusive discipline from both parents and children (but the changes in discipline did not remain significant with Bonferroni correction).

lxix Study found improvements in perceived amount of social support by adolescents.

lxx Study found reductions in adolescent aggressive behavior and rule-breaking behavior as reported by caregivers but not by adolescents.

lxxi Study found improvements in parent-child relationship (reported by children), positive parenting, parental monitoring, and parental communication with children about risky sexual behaviors but no improvements in parent-child relationship reported by parents.

lxxii Study found reductions in child behavior problems and troublesome home situations in all three follow-up surveys.

lxxiii The first comparison group received adolescent risk reduction program (like program group) paired with career development video, the second comparison group received the adolescent risk reduction program alone, and the third comparison group received the existing Bahamian Health and Family Life Education Curriculum.

lxxiv Program led to improvements in parent reports of parent-child communication about sex at 12 months but not at 6 months. No change in parental monitoring.

lxxv Both program and comparison groups participated in Prospera, a conditional cash transfer program.

lxxvi Study found improvements in whether parents conducted play activities (EI combined with promotion) and in frequency parents conducted play activities (both EI and EA combined with promotion).

lxxvii Sample attrition was fairly high and increased with each follow-up wave: 13 percent at 2 weeks, 19 percent at 3 months, 30 percent at 6 months.

lxxviii Program led to improvements in scale measuring use of dysfunctional parenting practices (including laxness, over-reactivity, and hostility sub-scales) and in incidence and intensity of child behavior problems (measured using Eyberg Child Behavior Inventory Intensity Scale and Problem Scale) in all three follow-up periods.

lxxix Both program and comparison groups received community activities.

lxxx Both programs resulted in improvements in incidence of domestic violence and the use of violent child discipline.

lxxxi Average age was 14.5 years at start of program, 15 years at 6-month follow-up, 15.5 years at 1-year follow-up, and 16 years at 18-month follow-up.

lxxxii Program led to improvements in parent-adolescent communication around sexual risk at 12- and 18-month follow-ups relative to only receiving adolescent sexual risk program. There was also improvements in parental monitoring at 18-month follow-up relative to only receiving adolescent sexual risk program. However there was no significant difference with the comparison group receiving both adolescent sexual risk program and career video, so it is unclear whether the content of the video had an impact separate from the presentation of any video. There were also no significant impacts at 6 months.

lxxxiii Program led to improvements in academic and cognitive measures, including receptive vocabulary, expressive vocabulary, working memory, IQ, phonological short-term memory, and interactive reading.

lxxxiv RCT clustered at level of child care center. Both program and comparison groups received standard child care.

lxxxv Program led to improvements in social-emotional competence, use of physical punishment, and attention problems and aggressive behavior.

lxxxvi Originally designed as a clustered RCT but very high attrition led to a change to a QED using propensity score matching on parents.

lxxxvii Parenting workshops focused on consequences of risky sexual behavior, prevention methods, self-esteem, and parent-child communication.

lxxxviii Average age at time of program was approximately 15.2 years and at time measurement was approximately 15.8 years.

lxxxix Program related to reductions in adolescents initiating sexual relations.

[xc] The evaluation was originally designed as an RCT but high attrition in the first wave led the authors to use a quasi-experimental difference-in-difference design for their impact evaluation.

[xci] Program led to no changes in an index of parenting practices or in social skills by both the 1- and 2-year follow-ups. In fact, two of the twelve practices that make up the parenting practice index became worse for the treatment group by the 2-year follow-up (none of the twelve practices demonstrated significant treatment effects by the 1-year follow-up).

[xcii] The comparison group was formed using applicants who applied in 2012, but it seems possible those applicants are systematically different than applicants who chose to apply in previous years (2005-2011). This is consistent with the authors' findings that the control sample was more likely to work and work fulltime than the program sample.

[xciii] Parents in the program group felt that their children liked school more than parents in the control group, but there was no difference among children's responses.

[xciv] Identified in a systematic review conducted by Atizenzo et al. (2015), which identified six studies of community engagement in LAC. Of these, only the study conducted by Reyes-Moreno (2011) included a target program as a significant component of the program (as opposed to a minor component of a multicomponent program).

[xcv] Specific ages not provided by the authors.

[xcvi] Twelve of fifteen parents who had previously used a belt to punish children had stopped using it by 1-year follow-up.

APPENDIX Z:

COMMUNITY OUTREACH AND AWARENESS PROGRAMS

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This appendix provides information from the foundational literature on the impact of education-focused community outreach and awareness programs on academic achievement, with additional information on the studies summarized in Chapter XXV, Table XXV.2.

Impacts of community outreach and awareness programs on standard education outcomes

We found evidence from LMICs and LAC countries that community outreach and awareness programs can improve academic outcomes, but several recent experimental studies found that community outreach and awareness programs do not add additional benefits to academic outcomes when paired with other education programs. Meta-analyses of 10 studies conducted by Snilstveit et al. (2016) found positive impacts on enrollment, grade completion, and language arts scores, but the study found no impacts on attendance or dropout, and the impacts estimated for enrollment were driven by only 2 of the 10 studies. In addition, experimental studies of community outreach and awareness programs paired with literacy and teacher training programs have failed to find consistent impacts on academic outcomes. An experimental evaluation in Uganda found that the impacts of a literacy curriculum program increased with the inclusion of a community engagement component, but the difference was not statistically significant (Oketch et al. 2012). The same study also evaluated the same program in Kenya and found no additional impacts of a community engagement component. An experimental study of the community action component of the Leer Juntos program in Guatemala found no additional impacts of the community action component on reading ability when combined with a teacher training program (relative to teacher training alone) and potentially negative impacts on fluency measures among girls (Lugo-Gil et al. 2019). Finally, an experimental study of the Literacy Boost program in Rwanda by Friedlander and Goldenberg (2016) evaluated the impact of community engagement activities paired with teacher training and found no additional impacts of the community engagement activities on grade repetition and grade promotion.

Appendix Table Z.1. Community outreach and awareness programs

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
HICs (no evidence located on impacts on violence, crime, and correlated outcomes in HICs)													
LMICs													
Adorna et al. 2011	Qualitative	Presenting audio-video productions focused on child rights, education, and health to communities (Mozambique)	At end of program	0–23	0–23				+[i]				
		Community theatre focused on issues affecting children and women, including girls' education and violence prevention (Mozambique)	At end of program (8 years after implementation)	16+	16+				+[ii]				
UNICEF 2017b	Qualitative	Multicomponent program, "Improving street-working children's access to education and livelihood support for their families," which included an awareness raising campaign of children's rights (Afghanistan)	At end of program	Children	Children		+[iii]		+[iii]				
USAID 2013a	Qualitative	Multicomponent program, Opportunities for Vulnerable Children Program, which	10 months after program	Children [iv]	Children [iv]		+[v]	+[v]	+[v]				

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
		included community awareness raising of inclusive education through radio and television talk shows and enrollment drives (Indonesia)											
LAC (no evidence located on impacts on violence, crime, and correlated outcomes in LAC)													

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] Authors conclude that program is an effective means of communicating knowledge about youth issues, including education, to communities in remote areas.
[ii] Program associated with increased sensitivity among community members about issues related to girls' education and violence prevention among youth.
[iii] The use of hitting as punishment for children was lower among parents who participated in the awareness campaign. Nearly all parents in program reported stronger community support for their children as a result of the program.
[iv] Specific age range of target children at time of outcome measurement is not specified, but the children consist of primary and secondary school-aged children.
[v] Program associated with parents feeling less afraid to bring disabled children into public and to school, parents feeling more knowledgeable and able to interact in a positive way with their disabled children, and other students and community members becoming more accepting of students with disabilities.

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APPENDIX AA:

SCHOOL-BASED MANAGEMENT PROGRAMS

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This appendix provides information from the foundational literature on the impact of school-based management programs on academic achievement, with additional information on the studies summarized in Chapter XXVI, Table XXVI.2.

Impacts of school-based management programs on standard education outcomes

We found a large body of evidence, almost exclusively from LMICs and LAC, which presents a mixed picture of the impact of school-based management (SBM) programs on academic outcomes but found strong evidence that SBM may be less effective in poorer areas with lower local capacity. Snilsveit et al. (2016) conducted a systematic review and meta-analyses of education programs in LMICs and LAC and identified evaluations of 12 SBM programs, most of which transferred authority to a school management committee (SMC) and included capacity-building component for stakeholders. Their meta-analyses found no impact on educational outcomes, including enrollment, drop out, completion, math scores, language scores, composite scores, and grade completion (although the evaluations of program in LAC—Brazil and Mexico—did find positive impacts on grade completion). A review conducted by Carlitz (2016) also found limited evidence of positive impacts of decentralized school management, including SMCs, on academic outcomes in LAC.

Other meta-analyses and reviews, however, found evidence of positive impacts. A meta-analysis of 26 studies conducted by Carr-Hill et al. (2015) found significant positive impacts of decentralized school decision-making on grade repetition, math scores, language scores, aggregate scores, as well as positive but insignificant impacts on drop-out. These impacts on scores were largely drive by lower-middle income countries. The authors also investigated the impact of decentralized decision-making with other elements and found mixed results with the addition of grant provision, training for teachers or school management committees (SMCs), accountability mechanisms, and elections for SMCs. A review conducted by Barrera-Osorio et al. (2009) found evidence of improvements in schooling outcomes (repetition rates, failure rates, dropout rates) but not test scores, whereas Bruns et al. (2011) found improvements in test scores, drop out, and repetition rates but only after 5 years. We identified eight experimental studies (Banerjee et al. 2010, Blimpo and Evans 2011, Carneiro et al. 2015, Di Gropello and Marshall 2005, Duflo et al. 2015, Glewee and Maiga 2010, Kozuka 2018, Lassibille et al. 2010, Pradhan et al. 2011) and ten quasi-experimental studies (Galiani et al. 2008, Gertler et al. 2012, Jimenez and Sawada 1999, Khattri et al. 2012, Santibañez et al. 2014, Sawada and Ragatz 2005, Skoufias and Shapiro 2006, Umansky and Vegas 2007, Yamauchi 2014) of SBM programs from LMICs and LAC that found similarly mixed results.

As suggested by Snilsveit et al. (2016), the inconsistency we observe in results across studies may be due to differences between programs and local context, including differences in implementation, the amount of resources available to local school system, local capacity and human capital, and the time since the program was implemented. For example, King and Özler (2000) found a positive relationship between de facto local autonomy and math and Spanish scores in Nicaragua but no relationship with de jure autonomy, which suggests that variation in implementation quality and improvements in autonomy may lead to substantial variation in impacts on academic outcomes. Among their results, Snilsveit et al. (2016) found examples of factors that could reduce the effectiveness of SBM programs such as inconsistent engagement by parents in school management or oversight and variation in whether SMCs spend resources in ways that maximize returns to learning outcomes (for example, favoring construction over learning materials or teacher training).

Likely as a result of many of the differences discussed above, we found strong evidence of evidence that poorer communities often fail to benefit from SBM programs as much as wealthier communities (Galiani and Perez-Truglia 2011). This finding is supported by quasi-experimental studies of SBM

programs in Mexico and Argentina conducted by Gertler et al. (2012) and Galiani et al. (2008), respectively, who both found improvements in academic outcomes but not among children in the poorest communities. A correlational study by Hanusek et al. (2001) provide additional supporting evidence: although the authors find is a positive relationship between the share of schools with autonomy and student achievement in high income/higher performing countries, the relationship is negative among students in lower income/lower performing countries.

Appendix Table AA.1. School-based management programs

Abridged citation	Research design	Program and description	Outcome follow-up period	Age range (years)		Correlated outcomes					Violence and crime		
				Program	Outcome	Social-emotional skills	Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
HICs (no evidence located on impacts of school-based management programs on violence, crime, and correlated outcomes in HICs)													
LMICs													
Beasley and Huillery 2016	RCT	Annual cash grants provided to school committees in primary schools (Niger)[i]	1 year after implementation	6–12	6–12			Mixed [ii]					
Blimpo and Evans 2011	RCT	Whole School Development, which included grant provision and school management training for school staff and community members (The Gambia)	3–4 years after implementation	Primary school students	Primary school students			+					
		Grant provision only (The Gambia)	3–4 years after implementation	Primary school students	Primary school students			NS					
Duflo et al 2015	RCT	SBM training (combined with contract teacher program, Extra Teacher Program) (Kenya)[iv]	2 years after implementation	5–14	7–16			Mixed [iv]					
Chen 2011	Correlational	SBM (Indonesia)	n/a	6–12	6–12			+					

				Age range (years)		Social-emotional skills	Correlated outcomes				Violence and crime		
Abridged citation	Research design	Program and description	Outcome follow-up period	Program	Outcome		Family environment	School environment	Community environment	Risky and protective behaviors	School violence	Violent crime	Non-violent crime
LAC													
Di Gropello and Marshall 2005	QED[vi]	Proyecto Hondureño de Educación Comunitaria (PROHECO): SBM program that established community schools in rural areas (Honduras)[vii]	4 years after implementation	Primary and secondary school students	Primary and secondary school students			NS					
Sawada and Ragatz 2005	QED[viii]	Educación con Participación de la Comunidad (EDUCO): SBM program that established community-run schools in rural areas (El Salvador)	6 years after implementation	Primary and secondary school students	Primary and secondary school students[ix]			+					
Umansky and Vegas 2007	QED[x]	PROHECO: SBM program in that established community-run schools in rural areas (Honduras)	2–3 years after implementation	Primary and secondary school students	Primary and secondary school students			+[xi]					

Notes: + = Significant positive impact; - = Significant negative impact; Mixed = Mixed impact; NS = No significant effect found (outcome was tested); blank cell = impact not tested or not reported; HIC = high income country; LMIC = low- and middle-income country; LAC = Latin American and Caribbean; RCT = randomized control trial. "Research design" column provides study design details that refer to the methods used to test outcomes of interest.

[i] Annual cash grants were US$209 per school on average (or US$1.83 per student). School committees included 5 elected members and the school director and had been created by Ministry of Education in previous year.

[ii] Program led to reductions in teacher effort but increase in teacher attendance in one-teacher schools.

[iii] Study evaluated (1) program providing contract teachers and (2) school-based management activities paired with program providing contract teachers compared to control schools.

[iv] Adding school-based management to contract teacher program led to improvements in contract teachers being present at school but not among non-contract teachers. The study findings also show improvements in teachers being present in class, but the improvement was only marginally significant for non-contract teachers and not significant for contract teachers.

[v] The study used a Heckman selection correction model with the presence of potable water and other community services as instruments to address endogenous placement of schools. However, as the authors and Channa and Faguet (2012) suggest, the data collection was inconsistent, which may compromise the identification strategy. Channa and Faguet (2012) also note that other authors have brought up questions about the strength of the instruments (Gertler et al 2007).

[vi] In PROHECO schools, unlike traditional schools, the power to set budgets, maintain school infrastructure, and manage personnel lies with a school council.

[viii] The study used a propensity score matching design with a Heckman selection correction model to address endogenous placement of schools.

[ix] Average age of children was 10.58 years.

[x] The study used a propensity score matching design.

[xi] Program led to reductions in teacher absences/school closings.

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