Teacher–Child Relationship Quality and Beyond:

Unpacking Quality in Early Head Start Classrooms in 2018

OPRE Report 2022-122

July 2022

Acknowledgements

We (the authors) would like to express our appreciation to our Project Officer, Amy Madigan, to Jenessa Malin and Jacquelyn Gross, and to other federal staff at OPRE and the Office of Head Start. We are grateful to the Mathematica team, including Laura Kalb, Jaimie Grazi, Jessica DeSantis, Sara Skidmore, Veronica Severn, Joan Gutierrez, Nydia Ramos, Season Bedell, Barbara Carlson, Cathy Lu, Sheryl Friedlander, and all field and telephone staff who collected the data. Most of all, we offer our gratitude to the staff, families, and children of the 137 Baby FACES 2018 programs across the country for their cooperation and assistance.

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Contract Number: HHSP233201500035I/HHSP23337006T

Mathematica Reference Number: 50193

Suggested citation:

Xue, Y., Atkins-Burnett, S., Vogel, C., and Cannon, J. (2022). *Teacher–Child Relationship Quality and Beyond: Unpacking Quality in Early Head Start Classrooms in 2018*. OPRE Report 2022-122. Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

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Teacher–Child Relationship Quality and Beyond: Unpacking Quality in Early Head Start Classrooms in 2018

Overview

Introduction

Early care and education experiences characterized by supportive and responsive teacher–child interactions, as well as organized and stimulating environments, are critical for infants and toddlers. During these early years, children depend on relationships with adults for healthy development, and they are sensitive to environmental influences. The quality of relationships and experiences during these early years can have lifelong effects on children.

Early Head Start is a comprehensive, two-generation federal initiative for low-income pregnant women and families who have infants and toddlers ages 3 or younger. The Head Start Program Performance Standards (HSPPS) require center-based and family child care Early Head Start programs to "provide responsive care, effective teaching, and an organized learning environment that promotes healthy development and children's skill growth…" (45 CFR §1302.31).

Purpose

The goal of this report is to provide a descriptive snapshot of overall quality in Early Head Start classrooms, with a focus on the quality of the teacher–child relationship. In addition, we examine how classroom practices and other features of the classroom are associated with teacher–child relationships, and whether teacher–child relationship quality in Early Head Start is associated with infant and toddler outcomes. The findings broaden our knowledge about the quality of teacher–child relationships in early care and education settings and how it might be improved to better support infants and toddlers. Understanding quality in Early Head Start classrooms can help inform training and technical assistance, professional development, and other quality improvement efforts.

Primary research questions

This report addresses five research questions:

1. Who are the children and families in Early Head Start center-based programs, what services do they receive, and who are their teachers?
2. What is the structural quality of Early Head Start classrooms?
   a. What are the qualifications, teaching experience, and beliefs about infant and toddler care and education of Early Head Start teachers?
   b. What are the features of and practices used in Early Head Start classrooms?
3. What is the quality of teacher–child and parent–teacher interactions and relationships in Early Head Start classrooms?
4. How are classroom practices and other aspects of classroom structural quality associated with teacher–child relationship quality?
5. Is the quality of teacher–child interactions and relationships associated with infant and toddler outcomes?

Key findings and highlights

Quality in Early Head Start classrooms:

- Elements of structural quality such as teacher qualifications, curricula and child assessments, group sizes, and child-to-adult ratios are, on average, in line with the Head Start Program Performance Standards (HSPPS) requirements.
- Early Head Start classrooms are well-organized and have a variety of materials available to children.
- Generally, Early Head Start classrooms are in the midrange of quality in teacher–child interactions and practices based on two classroom observation tools, the Classroom Assessment Scoring Systems (CLASS)

and the Quality of Caregiver–Child Interactions for Infants and Toddlers measure (Q-CCIIT). Classrooms tend to provide stronger support for social and emotional development than for language and learning.
- Overall, Early Head Start teachers reported positive relationships with children. Teachers and parents also reported positive relationships with each other.

Factors associated with teacher–child relationship quality and its associations with children's outcomes:
- Some teacher characteristics and classroom practices are associated with teacher–child relationship quality in infant and toddler classrooms in directions consistent with the literature. These factors are a teacher's completion of at least an associate's degree in early childhood education or child development, teachers' mental health, teachers holding evidence-based beliefs about infant and toddler care and education, teachers' job satisfaction, positive parent–teacher relationships, lower child-to-adult ratios, smooth transitions between activities in the classrooms, the variety of materials available to children, and well-organized classrooms.
- However, a few factors are associated with teacher–child relationship quality measures in directions opposite to what the literature has shown. We give some possible interpretations of these unexpected associations and discuss possible next steps for research.
- The analyses linking teacher–child relationship quality with children's outcomes reveal few associations, which may be the result of limitations of the data and measurement issues.

Methods

This report uses data collected from the 2018 round of Baby FACES. Baby FACES 2018 is a nationally representative, descriptive study of Early Head Start programs, centers, teachers and classrooms, and enrolled families and children. The study, conducted at a single point in time, explored classroom processes and teacher–child relationships in depth, using multiple observation-based measures of classrooms and teachers and teacher-report measures. This report includes data from surveys of children's parents, teachers, and center and program directors, as well as teacher reports on children's development.

We calculated descriptive statistics (means and percentages) on the overall quality of Early Head Start classrooms. We also implemented multilevel models to examine factors associated with teacher–child relationship quality, and the associations between observed teacher–child relationship quality and children's outcomes. Analyses are weighted to represent all Early Head Start children and families receiving center-based services and their classrooms, centers, and programs in 2018. However, because the study collected the data before the COVID-19 pandemic, the findings may not be generalizable to the current Early Head Start context.

Recommendations

The findings suggest that Early Head Start classrooms provide strong support for children's social and emotional development. Professional development that builds on the strong support for social and emotional development by using responsive interactions focused on supporting language, literacy, and cognitive development could be an effective way to help programs enhance their quality.

The findings also suggest some possible ways to support responsive relationships in infant and toddler classrooms:
- Greater awareness of how key classroom features and practices support quality may help identify ways to improve. For example, organized classrooms and smooth transitions are associated with quality interactions. This overall strength may provide clues about how to improve times of the day that are more challenging.
- Programs may want to identify and address staff misconceptions about how to support infant and toddler development and provide training and coaching in evidence-based practices for staff who can benefit.
- Programs may also want to consider additional ways to reduce teachers' stress levels, support mental health, and boost their job satisfaction.

Glossary

Baby FACES: Early Head Start Family and Child Experiences Survey.
HSPPS: Head Start Program Performance Standards.

Executive Summary

Early care and education experiences characterized by supportive and responsive teacher–child interactions, as well as organized and stimulating environments, are critical for infants and toddlers. During these early years, children depend on relationships with adults for healthy development, and they are sensitive to environmental influences.[2,3,4,5,6] The quality of relationships and experiences during these early years can have lifelong effects on children.[7,8,9]

Early Head Start programs may offer center-based, home-based (home visiting), or combination of center-based and home-based services to children and families. The Head Start Program Performance Standards (HSPPS) require center-based and family child care Early Head Start programs to "provide responsive care, effective teaching, and an organized learning environment that promotes healthy development and children's skill growth…".[10] The Early Head Start Family and Child Experiences Survey (Baby FACES) Conceptual Framework further illustrates how the quality of these features might relate to infant and toddler outcomes.[11] In this report, we use this Framework to define the quality of Early Head Start center-based services to include structural and process quality dimensions. Understanding these dimensions of quality in Early Head Start classrooms can help inform training and technical assistance, professional development, and other quality improvement efforts.

Overview of Baby FACES study

The Early Head Start Family and Child Experiences Survey (Baby FACES) is a nationally representative, descriptive study of Early Head Start. It was designed to inform national program planning, technical assistance, and research by providing descriptive information about (1) the quality, frequency, and intensity of Early Head Start services; (2) the characteristics, qualifications, and professional supports of the Early Head Start staff; (3) the characteristics of the children and families served; and (4) how Early Head Start children and families are faring in key areas of well-being. It also allows for exploration of associations between the type and quality of Early Head Start services and child and family well-being.

Baby FACES uses a repeated cross-sectional approach to get a comprehensive snapshot of Early Head Start with a nationally representative sample of programs, centers, home visitors, teachers and classrooms, and enrolled families and children in Office of Head Start (OHS) Regions I through X[1]

To add to the knowledge base about Early Head Start classroom quality and to identify possible improvements that might better prepare infants and toddlers for success when they enter school, this report provides a descriptive snapshot of overall quality in Early Head Start classrooms. The report draws on data from a single time point, collected in 2018, from a nationally representative sample of Early Head Start programs, centers, teachers and classrooms, and enrolled families and children in Office of Head Start Regions I through X. The report explores classroom processes and teacher–child relationships in depth, using multiple observation-based measures of classrooms and teachers and teacher-report measures. The report also describes other aspects of classroom quality and the context of Early Head Start classrooms, using data collected from teacher reports on children's development and surveys of children's parents, teachers, and center and program directors. Moreover, we examine how classroom practices and other aspects of classroom quality are associated with teacher–child relationships, and whether teacher–child relationships in Early Head Start are associated with infant and toddler outcomes. Analyses are weighted to represent all Early Head Start children and families receiving center-based services and their classrooms, teachers, centers, and programs. However, because the study collected the data before the COVID-19 pandemic, the findings may not be generalizable to the current Early Head Start context.

This report addresses five research questions:

1. Who are the children and families in Early Head Start center-based programs, what services do they receive, and who are their teachers?
2. What is the structural quality of Early Head Start classrooms?
   a. What are the qualifications, teaching experience, and beliefs about infant and toddler care and education of Early Head Start teachers?
   b. What are the features of and practices used in Early Head Start classrooms?

3. What is the quality of teacher–child and parent–teacher interactions and relationships in Early Head Start classrooms?
4. How are classroom practices and other aspects of classroom structural quality associated with teacher–child interactions and relationship quality?
5. Is the quality of teacher–child interactions and relationships associated with infant and toddler outcomes?

Box ES.1. Overview of key measures used for this report

Teacher–child relationship quality. The Early Head Start Family and Child Experiences Survey 2018 (Baby FACES 2018) documented the processes that support teacher–child relationship quality using two observational measures of teacher–child interactions in each classroom: (1) the Classroom Assessment Scoring System (CLASS), including the CLASS-Infant[12,13] and the CLASS-Toddler,[14] and (2) the Quality of Caregiver–Child Interactions with Infants and Toddlers (Q-CCIIT).[15] Two trained observers rated classroom quality for each classroom during the same observation period, with one observer using the CLASS and the other observer using the Q-CCIIT. In addition, teachers reported on their relationships with each child in the sample using the Student–Teacher Relationship Scale, Short Form (STRS-SF).[16]

The CLASS and the Q-CCIIT measured classroom quality more broadly because the classroom was the focus of measurement, and the observations included all adults who provided direct care during the observation period; the STRS-SF focused on the child's relationship with the teacher who made the ratings.

Parent–teacher relationships. Baby FACES 2018 assessed parent–teacher relationships using the Cocaring Relationship Questionnaire–Adapted (CRQ-Adapted)[17] and the Quality of Parent–Teacher Relationship measure from the National Center for Early Development and Learning (NCEDL) Teacher-Student Report.[18] Teachers completed both measures for the parents of sampled children in their classrooms. The parents of sampled children also responded to the CRQ-Adapted.

Teacher beliefs about infant and toddler care and education. Baby FACES 2018 assessed teacher beliefs using the Teacher Beliefs About Infant and Toddler Care and Education measure[19] in the teacher survey.

Continuity of care practices. Baby FACES 2018 adapted items from a short instrument used in a recent study[20] to measure continuity of care in Early Head Start classrooms. Center directors reported about the use of continuity of care practices.

Infant and Toddler outcomes. Teachers reported on children's language and communication using the MacArthur-Bates Communicative Development Inventories (CDI)[21] and social and emotional development using the Brief Infant Toddler Social Emotional Assessment (BITSEA)[22].

Research Question 1: Who are the children and families in Early Head Start center-based programs, what services do they receive, and who are their teachers?

Early Head Start programs. About one-quarter of Early Head Start programs offer only center-based services, and two-thirds offer center-based and home-based service options to infants and toddlers and their families.

Early Head Start classrooms and teachers. About half of Early Head Start centers have mixed-age classrooms. About 17 percent of classrooms serve primarily infants and 83 percent of classrooms serve primarily toddlers. On average, teachers reported seven children enrolled in each infant classroom and eight children in each toddler classroom. Children spend about 7.7 daily hours in an infant classroom or 7.4 hours in a toddler classroom, on average. Nearly half of infant classrooms and 56 percent of toddler classrooms have two or more lead teachers or co-teachers. Early Head Start teachers are ethnically and linguistically diverse. English is the primary language used in 86 percent of Early Head Start classrooms. Spanish is also used in almost half of the classrooms.

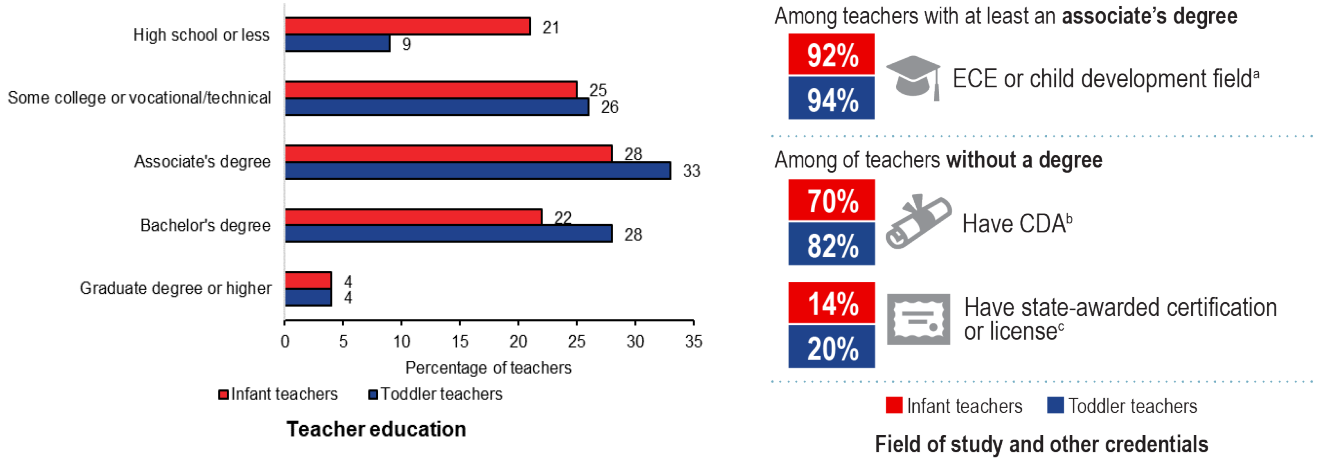
Children and families in Early Head Start centers. Most children (79 percent) receiving center-based services are age 3 or younger. Eight percent of children are 12 months or younger. Children receiving center-based Early Head Start services are ethnically and linguistically diverse. About one-third of the children are Hispanic or Latino, and one-third are non-Hispanic Black or African American. Two of every five families speak a language

other than English in their household. A majority of Early Head Start children live in low-income homes. The median household income in the past year for families in Early Head Start centers is $22,346. Slightly more than 3 of every 5 children's households have incomes below 100 percent of the federal poverty guideline, with an additional 16 percent between 100 and 130 percent of the poverty level. Early Head Start also serves children with special needs, such as infants and toddlers with disabilities or in foster care.

Research Question 2: What is the structural quality of Early Head Start classrooms?

Teacher qualifications. Early Head Start teachers' qualifications, on average, exceed the HSPPS requirements (Exhibit ES.1). More than half of infant and toddler teachers have at least a college degree, and most degrees focus on early childhood education or infant and toddler development. Teachers without a postsecondary degree are more likely to have a Child Development Associate credential than a certification or license.

Exhibit ES.1. Qualifications of Early Head Start teachers



Source: Spring 2018 Baby FACES Staff (Teacher) Survey.

Note: Statistics are weighted to represent all Early Head Start teachers. The unweighted sample sizes for teacher education are 148 infant teachers and 704 toddler teachers.

[a] Among teachers with an associate's degree or higher who responded to the question (the unweighted sample sizes are 84 infant teachers and 465 toddler teachers).

[b] Among teachers with less than an associate's degree who responded to the question (the unweighted sample sizes are 64 infant teachers and 235 toddler teachers).

[c] Among teachers with less than an associate's degree who responded to the question (the unweighted sample sizes are 58 infant teachers and 226 toddler teachers).

CDA = Child Development Associate; ECE = early childhood education.

Teacher experience and teacher beliefs about infant and toddler care and education. Early Head Start teachers are experienced in teaching infants and toddlers. Teachers, on average, hold developmentally appropriate, evidence-based beliefs about infant and toddler care and education.

Use of curricula and child assessments in Early Head Start classrooms. The HSPPS include requirements for programs to use a research-based curriculum and to conduct standardized and structured assessments of children. Nearly all teachers use at least one curriculum and child assessment, with most using a single, commercially available one. Creative Curriculum is the most commonly used curriculum in Early Head Start classrooms. The Ages and Stages Questionnaire (ASQ), including the social-emotional version, and Creative Curriculum's Teaching Strategies Gold are the most frequently reported assessments used by Early Head Start teachers.

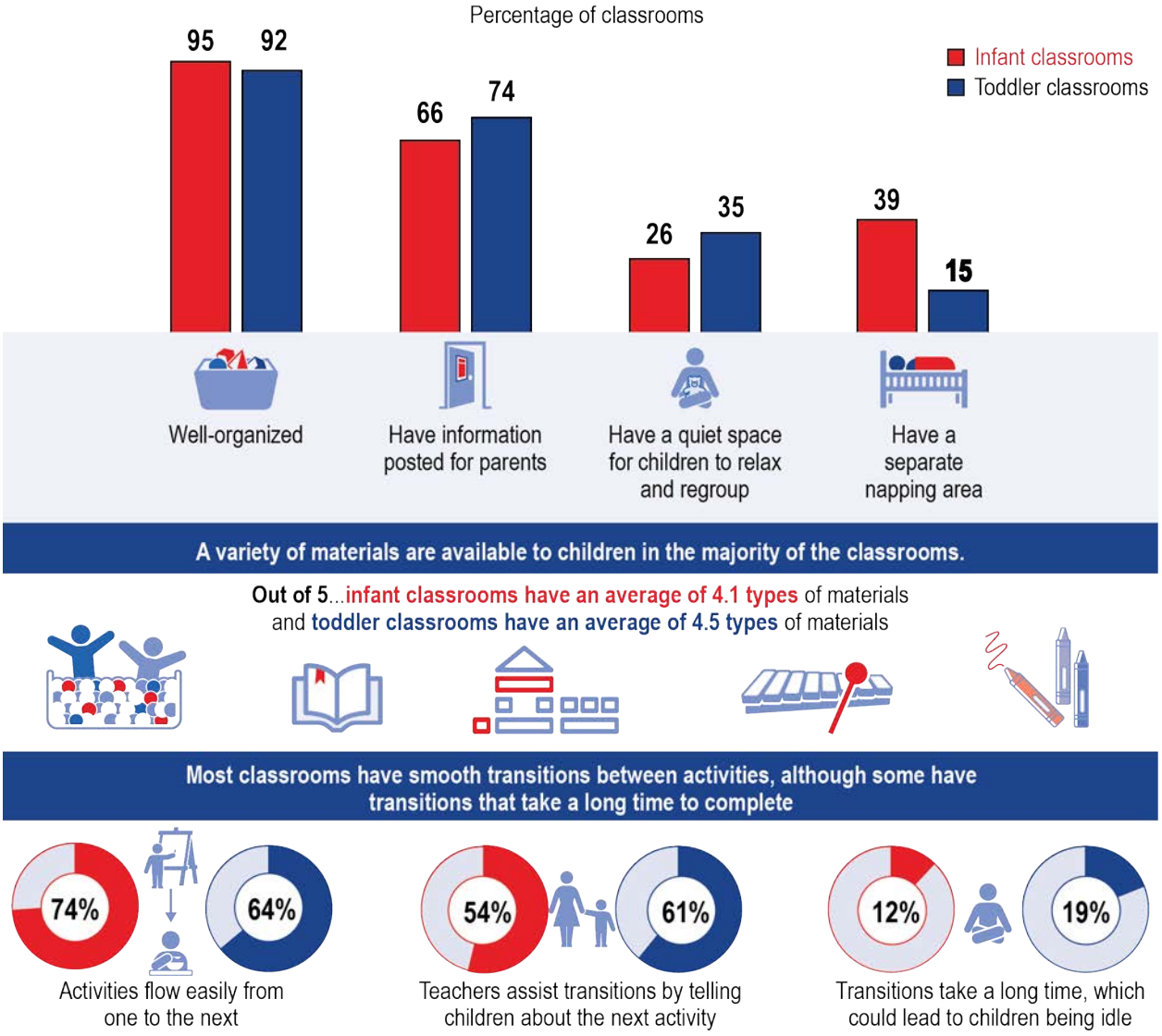
Time spent in child-selected versus teacher-directed activities. Early Head Start classrooms typically devote more time per day to child-selected activities and routine care than to different types of teacher-directed activities.

Child-to-adult ratio and group size. Early Head Start classrooms have group sizes and child-to-adult ratios that meet requirements of the HSPPS. On average, Early Head Start toddler classrooms have an observed group

size of about six children and a child-to-adult ratio of close to three children per adult, with a slightly lower ratio and group size in the infant classrooms than in the toddler classrooms.

Observed classroom features. Observers captured classroom features and practices that might be supportive for responsive relationships (Exhibit ES.2).[23]

Exhibit ES.2. Classroom features in Early Head Start centers



Source: Spring 2018 Baby FACES Classroom Observation.
Note: Statistics are weighted to represent all Early Head Start classrooms. The unweighted sample sizes range from 828 to 854 classrooms.

- A large majority of classrooms (95 percent of infant classrooms and 92 percent of toddler classrooms) are well organized.
- About two-thirds of infant classrooms and three-quarters of toddler classrooms have information posted for parents in or near the classroom and/or in the general area.
- A variety of materials are available to children in the majority of classrooms.
- More than one-quarter of infant classrooms and more than one-third of toddler classrooms have a quiet space for children to relax and regroup.
- More than one-third of infant classrooms and less than one-fifth of toddler classrooms have a separate napping area.

- Most classrooms have smooth transitions between activities, although some have transitions that take a long time to complete.

Continuity of care practices. Continuity of care practices are commonly implemented in Early Head Start centers (Exhibit ES.3). Most centers have policies for keeping teachers and children together. More than half of the centers have teachers and children together throughout children's enrollment in the center. Most centers assign children to a primary teacher. In more than three-quarters of the centers, primary teachers are responsible for most of the care of the child. In about half of the centers, a child typically interacts with one or two teachers each day.

Exhibit ES.3. Continuity of care practices in Early Head Start centers

91%
keep children and teachers together for more than nine months

57%
have teachers and children together throughout the children's enrollment

28%
keep teachers and children together until the child reaches a certain age or milestone

85%
assign children to a primary teacher

78%
have primary teachers responsible for most of the care of the child

49%
have children typically interacting with only one or two teachers each day

46%
have children typically interacting with three or four teachers each day

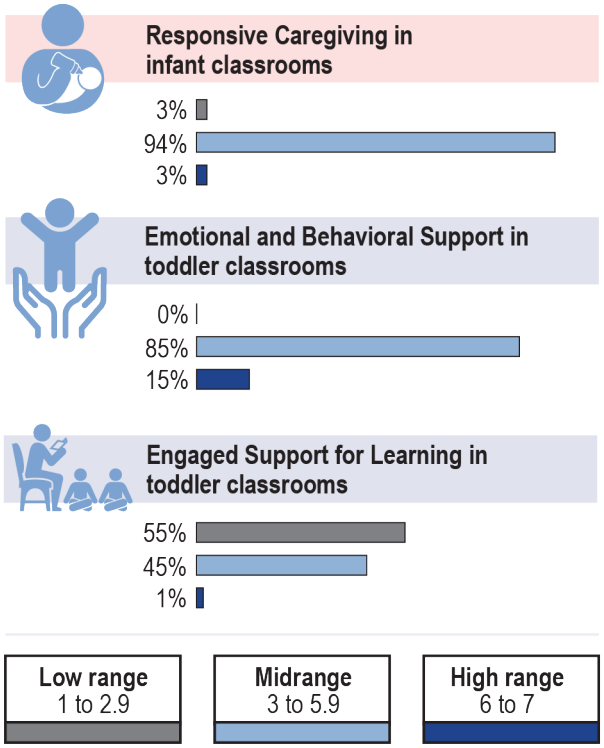
Source: Spring 2018 Baby FACES Center Director Survey.
Note: Statistics are weighted to represent all Early Head Start centers. The unweighted sample sizes range from 432 to 442 Early Head Start centers.

Research Question 3: What is the quality of teacher–child and parent–teacher interactions and relationships in Early Head Start classrooms?

Observed teacher–child relationship quality in Early Head Start classrooms. Generally, Early Head Start classrooms are in the midrange of quality based on classroom observations using the Classroom Assessment Scoring System (CLASS), the Quality of Caregiver-Child Interactions with Infants and Toddlers (Q-CCIIT), and the developers' definitions of scores.

The CLASS-Infant results indicate the average support for early language and learning is in the lower end of the midrange, whereas the average support for positive social and emotional development is in the higher end of the midrange (Exhibit ES.4). On average, toddler classrooms are stronger in support for children's social and emotional development than for language and learning. Using the developer-defined quality range on the CLASS-Infant and CLASS-Toddler domain scores, most (94 percent) of the Early Head Start infant classrooms fall in the midrange of quality in Responsive Caregiving, and all toddler classrooms are of midrange or high range of quality in the Emotional and Behavioral Support domain, with most (85 percent) in the midrange of quality. In contrast, fewer than half (45 percent) of the toddler classrooms are in the midrange of quality in the Engaged Support for Learning domain, and more than half (55 percent) are in the low range.

Exhibit ES.4. Quality range on the CLASS-Infant and CLASS-Toddler domain scores



Source: Spring 2018 Baby FACES Classroom Observation.
Note: Statistics are weighted to represent all Early Head Start classrooms. The unweighted sample sizes are 149 infant classrooms and 713 toddler classrooms.

The Q-CCIIT results also indicate classrooms are strongest in supporting social and emotional development, followed by support for language development. Classrooms are weakest in practices supporting thinking and learning. Most classrooms are in the midrange or high range of quality in Support for Social-Emotional Development (91 percent of infant and 93 percent of toddler classrooms) and Support for Language and Literacy Development (77 percent of infant and 87 percent of toddler classrooms), with the majority in the midrange. In contrast, a lower proportion of classrooms (54 percent of infant and 66 percent of toddler classrooms) are in the midrange or high range of quality in Support for Cognitive Development, with most in the midrange.

Teacher reports of relationships with children. Early Head Start teachers reported positive relationships with infants and toddlers, with high levels of closeness and low levels of conflict with children.

Parent–teacher relationships. Parents and teachers reported positive relationships with each other.

Research Question 4: How are classroom practices and other aspects of classroom structural quality associated with teacher–child relationship quality?

We conducted hierarchical linear modeling (HLM) analyses (separately for infant and toddler classrooms) to examine the factors that might be associated with teacher–child relationship quality, while controlling for teacher, center, and program characteristics. The teacher–child relationship quality measures that we examined include classroom observations of teacher–child interactions (the CLASS and Q-CCIIT) and teacher reports on their relationship with the child (the Student–Teacher Relationship Scale, Short Form [STRS-SF]).

We found the following:

- Some teacher characteristics and classroom practices are associated with teacher–child relationship quality in the expected direction of the association based on prior findings in the literature. These factors with expected associations with teacher–child relationship quality are as follows:

  - Classrooms with smooth transitions between activities have higher CLASS-Infant scores, CLASS-Toddler scores, and Q-CCIIT scores in toddler classrooms.
  - Classrooms that offer greater variety of materials to children have higher CLASS-Toddler scores.
  - Well-organized classrooms have higher CLASS-Toddler and Q-CCIIT scores in toddler classrooms, and lower levels of teacher-reported conflict with children in infant classrooms.
  - Higher child-to-adult ratios in the classrooms are associated with lower CLASS-Toddler scores (but unexpectedly, lower levels of teacher reports of teacher conflict with children in toddler classrooms. This latter finding is opposite to the Baby FACES hypothesis).
  - Teachers who have at least an associate's degree in early childhood education or a child development field receive higher ratings on Q-CCIIT in toddler classrooms than those who do not have a degree in early childhood education or child development.
  - Teachers with higher levels of depressive symptoms have lower Q-CCIIT scores in both infant and toddler classrooms.
  - Teachers reporting stronger agreement with beliefs about the importance of relationship and responsiveness have higher CLASS-Toddler scores and reported lower levels of conflict with children in infant classrooms.
  - Teachers reporting greater job satisfaction have higher Q-CCIIT scores in toddler classrooms.
  - Teachers reporting higher levels of support from parents have higher Q-CCIIT scores in both infant and toddler classrooms, and also reported lower levels of conflict between the teacher and the children in infant classrooms.
  - Stronger teacher-reported endorsement of how parents care for their child is associated with lower observed quality for Q-CCIIT in both infant and toddler classrooms and the CLASS-Toddler in toddler classrooms. The Endorsement scale rates the teacher's perception of the parent's patience, attentiveness and devotion to the child. Prior research sometimes found positive associations and sometimes negative associations with this endorsement of parents scale.

- A few factors are associated with at least one of the teacher–child relationship quality measures in a direction opposite to expectations, based on what is reported in other research:
  - Teacher's completion of a bachelor's degree or higher is associated with lower levels of teacher's report of closeness with children in infant classrooms and lower scores in the CLASS-Toddler emotional and behavioral support in toddler classrooms. This might suggest some misalignment between the CLASS ratings and current higher education programs. Future research could also further unpack the finding by looking at whether the link depends on other factors such as teacher's job satisfaction.
  - The teachers' reports of greater coaching support for teacher–child interactions are associated with higher levels of teacher-reported conflict with children in infant classrooms. This might be because teachers who struggle with caring for infants might seek out and receive greater coaching support in this area.
  - Higher levels of continuity of care practices and the teacher's beliefs about the role of the adult in child learning are associated with lower CLASS-Toddler scores on support for learning in toddler classrooms.
- Factors that are not associated with teacher–child relationship quality include teacher having a Child Development Associate (CDA) credential, years of experience in Early Head Start, frequency of receiving support from a coach, teacher receiving training from program on teacher–child interactions, and group size.

Research Question 5: Is the quality of teacher–child interactions and relationships associated with infant and toddler outcomes?

We examined how observed teacher–child relationship quality measures are associated with teacher-reported measures of infant and toddler vocabulary and communicative skills, social and emotional competence and problem behaviors in Early Head Start. We explored whether reaching a specified level of quality (thresholds)

would show a stronger positive association with children's developmental outcomes. We tested thresholds at or near cut points that defined high quality according to measure developers and previous research.

Our analyses reveal few associations between observed quality measures and child outcomes. We did not find any associations in the threshold analysis in either infant or toddler classrooms. We examined linear associations of observed teacher–child relationship quality measures and found no associations for infant classrooms. We found only two associations for toddler classrooms: children in classrooms with higher CLASS-Toddler Emotional and Behavioral Support ratings or higher Q-CCIIT Support for Language and Literacy Development ratings have lower Brief Infant-Toddler Social and Emotional Assessment (BITSEA) Problem scores, on average.

Summary and implications

The findings demonstrate that Early Head Start teachers are highly qualified and experienced with a strong foundation in child care and teaching practices that are developmentally appropriate for infants and toddlers. Nearly all Early Head Start teachers use at least one curriculum and child assessment tool. Group sizes, child-to-adult ratios, and other classroom features lay a foundation for high quality teacher–child relationships in Early Head Start classrooms. The findings also suggest that Early Head Start classrooms provide strong support for children's social and emotional development. Support for language and learning, however, is not as strong as support for social and emotional development. Professional development that builds on strong support for social and emotional development by using responsive interactions focused on supporting language, literacy, and cognitive development could be an effective way to help programs enhance their quality.

Identifying factors associated with teacher–child relationship quality can point to possible ways to support responsive relationships in infant and toddler classrooms in Early Head Start:

- Work to improve classroom quality might need to be coupled with work to improve classroom features and other practices (for example, providing various materials and opportunities for learning and ensuring smooth transitions between activities).
- Programs might want to identify and address staff misconceptions about how to support infant and toddler development and provide training and coaching in evidence-based practices for staff who can benefit.
- Programs might also want to consider ways to address teachers' stress levels and mental health needs and boost their job satisfaction.

The analyses linking teacher–child relationship quality with teacher-reported children's outcomes reveal few associations, which may be a result of the limitations of the data and measurement issues.

The analyses in this report have the following limitations:

- The data used for the analyses represent a single point in time from prior to the COVID-19 pandemic. The data can provide estimates only of concurrent associations of teacher–child relationship quality with teacher background characteristics and classroom features and practices; the data also demonstrate the concurrent associations of relationship quality with infant and toddler outcomes.
- These analyses cannot address causality questions or serve as evidence of program impacts.
- Because of the single time point, we could not control for prior scores on the outcomes of interest in the analyses of the associations with child outcomes. Thus, we only examine associations with developmental status rather than change over time in child outcomes.
- All child outcome measures are based on teacher reports. Teacher reports of child outcomes can be influenced by teachers' observation and assessment skills, interpretations of what is asked, and differences in how leniently they rate children.

Future research should consider the use of experimental or quasi-experimental designs using sensitive and reliable measurements to better understand associations between teacher–child interactions and children's development.

Teacher–Child Relationship Quality and Beyond: Unpacking Quality in Early Head Start Classrooms in 2018

Introduction

Prior research has found that early care and education experiences characterized by supportive and responsive teacher–child interactions, as well as organized and stimulating environments, can have meaningful impacts on children's outcomes, particularly for children who experience risks such as poverty.[25,26,27,28] These experiences during the first three years of life might be especially critical. During these early years, children show rapid and dramatic changes in cognitive, language, social and emotional, and physical development. Infants and toddlers are also dependent upon relationships with adults for healthy development and are sensitive to environmental influences.[29,30,31,32,33] The quality of relationships and experiences during the earliest years can have lifelong effects on development and learning.[34,35,36]

Early Head Start is a comprehensive, two-generation federal initiative for low-income, pregnant women and families who have infants and toddlers ages 3 or younger. The Head Start Program Performance Standards (HSPPS) require center-based and family child care Early Head Start programs to "provide responsive care, effective teaching, and an organized learning environment that promotes healthy development and children's skill growth…".[37] The Early Head Start Family and Child Experiences Survey (Baby FACES) Conceptual Framework further illustrates how the quality of these features might relate to infant and toddler outcomes.[38] In this report, we use the Framework to define the quality of Early Head Start center-based services to include structural and process quality dimensions.

Overview of Baby FACES study

The Early Head Start Family and Child Experiences Survey (Baby FACES) is a nationally representative, descriptive study of Early Head Start. It was designed to inform national program planning, technical assistance, and research by providing descriptive information about (1) the quality, frequency, and intensity of Early Head Start services; (2) the characteristics, qualifications, and professional supports of the Early Head Start staff; (3) the characteristics of the children and families served; and (4) how Early Head Start children and families are faring in key areas of well-being. It also allows for exploration of associations between the type and quality of Early Head Start services and child and family well-being.

Baby FACES uses a repeated cross-sectional approach to get a comprehensive snapshot of Early Head Start with a nationally representative sample of programs, centers, home visitors, teachers and classrooms, and enrolled families and children in Office of Head Start (OHS) Regions I through X.[24]

This report uses data from the 2018 round, which explored classroom processes and teacher–child relationships in depth, using multiple observation-based measures of classrooms and teachers and teacher-report measures. In addition, this report includes data from surveys of children's parents, teachers, and center and program directors, as well as teacher reports on children's development. In Box 1, we briefly describe the measures of teacher–child relationship quality, parent–teacher relationship quality, teacher beliefs, and infant and toddler outcomes. Additional details about these and other measures are available in Appendix A and B. The data are weighted to represent all Early Head Start children and families and their classrooms, centers, and programs in Regions I through X. However, because the study collected the data before the COVID-19 pandemic, the findings may not be generalizable to the current Early Head Start context.

Structural quality is reflected in the characteristics of staff and classrooms that might influence children's outcomes directly or indirectly by providing a foundation for high quality teacher–child interactions and relationships. Teacher qualifications, teachers' beliefs about children's education and care, child-to-adult ratio, and group size all contribute to structural quality. **Process quality** encompasses the interactions and relationships between teachers and children. Understanding these dimensions of Early Head Start classroom quality can help inform training and technical assistance, professional development, and other quality improvement efforts.

This report uses Baby FACES 2018 data to provide a descriptive snapshot of overall quality in Early Head Start classrooms, with a focus on teacher–child relationship quality. In addition, we examine how classroom practices and other aspects of classroom quality are associated with teacher–child relationships and whether teacher–child relationships in Early Head Start are associated with infant and toddler outcomes. These findings broaden our knowledge about the quality of teacher–child relationships in infant and toddler settings, and how they might be improved to better prepare infants and toddlers for later school success.

This report addresses five research questions:

1. Who are the children and families in Early Head Start center-based programs, what services do they receive, and who are their teachers?
2. What is the structural quality of Early Head Start classrooms?
   a. What are the qualifications, teaching experience, and beliefs about infant and toddler care and education of Early Head Start teachers?
   b. What are the features of and practices used in Early Head Start classrooms?
3. What is the quality of teacher–child and parent–teacher interactions and relationships in Early Head Start classrooms?
4. How are classroom practices and other aspects of classroom structural quality associated with teacher–child relationship quality?
5. Is the quality of teacher–child interactions and relationships associated with infant and toddler outcomes?

Research Question 1: Who are the children and families in Early Head Start center-based programs, what services do they receive, and who are their teachers?

Early Head Start programs

Early Head Start, a federal initiative begun in 1995, has grown from the initial 68 grantees to nearly 1,200 grantees serving more than 166,000 low-income, pregnant women and families with infants and toddlers age 3 or younger nationwide.[39]

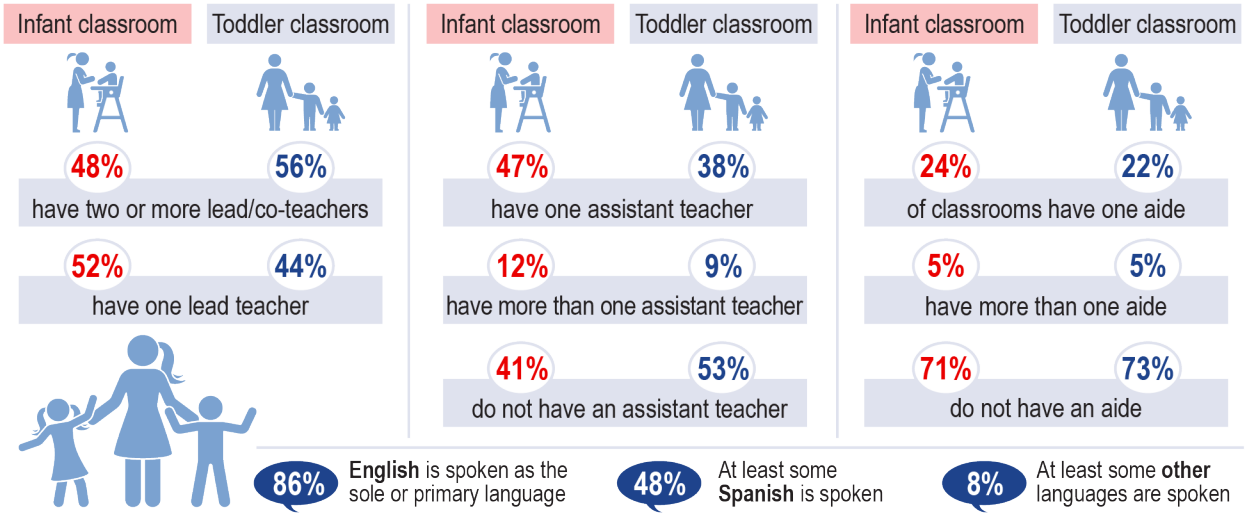
Most Early Head Start programs offer center-based services. In 2018, about one-quarter (22 percent) of the programs offered only center-based services, and about two-thirds (61 percent) offered center-based or home-based service options to infants and toddlers and their families. More than half (55 percent) of Early Head Start families receive only center-based services; far fewer (11 percent) receive both center- and home-based services.

Early Head Start classrooms and teachers

About half (49 percent) of Early Head Start centers have mixed-age classrooms. We categorized classrooms as infant classrooms if more than half of the children in the classroom are younger than 16 months old. About 17 percent of classrooms serve primarily infants and 83 percent of classrooms serve primarily toddlers. On average, teachers reported 7 children enrolled in each infant classroom (ranging from 3 to 9 children) and 8 children in each toddler classroom (ranging from 1 to 20 children). On average, children spend about 7.7 daily hours in an infant classroom (ranging from 5 to 11 hours) or 7.4 hours in a toddler classroom (ranging from 3 to 12 hours).

Staffing patterns vary across classrooms.[40] Although some classrooms are supported by assistant teachers or aides, others are not. English is the primary language used in most Early Head Start classrooms. Spanish is also used in almost half of the classrooms (Exhibit 1).

Exhibit 1. Staffing patterns and language spoken in infant and toddler classrooms



Source: Spring 2018 Baby FACES Staff (Teacher) Survey.

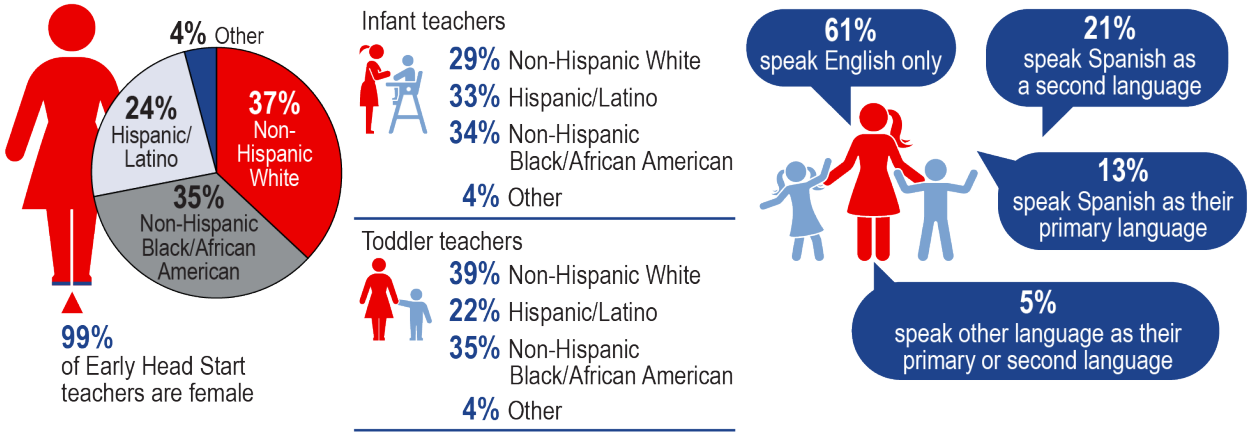
Note: Statistics are weighted to represent all Early Head Start classrooms. The unweighted sample sizes range from 832 to 855 classrooms.

Early Head Start classrooms are categorized as infant classrooms if more than half of the children in the classroom were younger than 16 months. The classrooms are categorized as toddler classrooms if more than half of the children were between the ages of 16 months and 36 months.

The HSPPS require that a qualified teacher be assigned to each group of no more than four infants and toddlers. Although HSPPS do not distinguish between "lead teacher" and "assistant teacher" for infant/toddler classroom settings, practices vary at the local level, and many programs still use the terms.

Early Head Start teachers are ethnically and linguistically diverse (Exhibit 2).

Exhibit 2. Characteristics of Early Head Start teachers



Source: Spring 2018 Baby FACES Staff (Teacher) Survey.

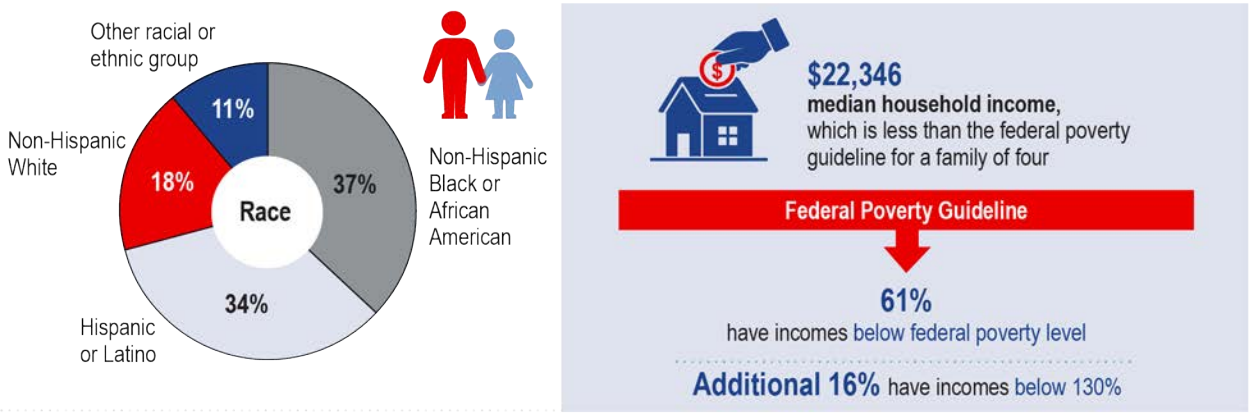
Note: Statistics are weighted to represent all Early Head Start teachers. The unweighted sample sizes range from 849 to 852 teachers.

Children and families in Early Head Start centers

Most children (79 percent) receiving center-based services are age 3 or younger. Eight percent of children are 12 months or younger; about one quarter (26 percent) are between 13 months and 24 months; less than half (44 percent) are between 25 months and 36 months. Slightly more than one-fifth were older than 3 years but younger than 4 (21 percent).

Children in Early Head Start centers are ethnically and linguistically diverse. A majority of children live in low-income homes (Exhibit 3). Less than half (40 percent) of the families speak a language other than English in their household. Nearly one quarter (23 percent) of children's parents have at least a college degree; about 3 of every 10 parents (29 percent) have either a vocational or technical school education or some college education but no degree; 3 of every 10 parents (30 percent) have a high school diploma or equivalent. The remainder (18 percent) of parents do not have a high school diploma.

Exhibit 3. Child race/ethnicity and household income



Source: Spring 2018 Baby FACES Parent Survey.

Note: Statistics are weighted to represent all children in Early Head Start centers. The unweighted sample sizes range from 1,588 to 1,688 children.

The mean household income is $28,196 (standard error = $862), and the reported response range is $1,000 to $260,000. The data file includes three potential outliers that are $250,000 or greater. These might also be errors, but we retained them for transparency. These potential outliers do not impact the median reported in the exhibit.

Box 1. Overview of key measures used for this report

Teacher–child relationship quality. Baby FACES 2018 assessed teacher–child relationship quality using two observational measures in each classroom: (1) the Classroom Assessment Scoring System (CLASS), including the CLASS-Infant[41,42] and the CLASS-Toddler[43], and (2) the Quality of Caregiver–Child Interactions with Infants and Toddlers (Q-CCIIT).[44] Two trained observers rated classroom quality for each classroom during the same observation period, with one observer using the CLASS and the other observer using the Q-CCIIT. In addition, teachers reported on their relationships with each child in the sample using the Student–Teacher Relationship Scale, Short Form (STRS-SF).[45]

The CLASS-Toddler includes seven dimensions in two domains: (1) Engaged Support for Learning and (2) Emotional and Behavioral Support. The CLASS-Infant includes four dimensions in one domain of Responsive Caregiving. The four dimensions for the CLASS-Infant are relational climate, teacher sensitivity, facilitated exploration, and early language support. Relational climate refers to the connections, emotions, and respect communicated by teachers and infants' responses to these interactions. Teacher sensitivity reflects teachers' awareness of and responsiveness to infants' verbal and nonverbal cues. Facilitated exploration refers to teachers' facilitation of experiences and interactions that support infants' engagement and development. Early language support refers to the extent to which teachers encourage infants' early language development by using language stimulation and language facilitation techniques. The dimensions are defined by observable indicators at three points along a 7-point scale, with ratings reflecting scores in the low (1 to 2.9), mid (3 to 5.9), and high (6 to 7) ranges of quality based on developer definitions.

The Q-CCIIT measures caregivers' support for social-emotional development, cognitive development, and language and literacy development, as well as areas of concern for physical and emotional safety. The scores for the domains are the means of items in each domain rated along a 7-point scale with observable indicators defined at four points. In consultation with the developers, we used the following cut points for quality ranges: low (1 to 2.9), mid (3 to 4.9), and high (5 to 7).

The STRS-SF assesses teachers' perceptions of their relationships with children in two subscales: (1) Closeness and (2) Conflict. The Closeness subscale measures the extent to which a teacher believes that his or her relationship with a child is characterized by warmth, affection, and open communication. The Conflict subscale assesses the degree to which a teacher believes that his or her relationship with a particular child is characterized by negativity. Teachers rated the items on a 5-point scale, with higher scores on the subscales indicating higher levels of closeness or conflict with the child.

The CLASS and the Q-CCIIT measured classroom quality overall because the classroom was the focus of measurement, and the observations included all adults who provided direct care during the observation period; the STRS-SF focused on the child's relationship with the teacher who made the ratings.

Parent–teacher relationships. Baby FACES 2018 assessed parent–teacher relationships using the Cocaring Relationship Questionnaire–Adapted (CRQ–Adapted)[46] and the Quality of Parent–Teacher Relationship measure from the National Center for Early Development and Learning (NCEDL) Teacher–Student Report[47]. Teachers completed both measures for the parents of sampled children in their classrooms. The parents of sampled children also responded to the CRQ–Adapted.

The CRQ–Adapted measures parent–teacher relationships on the following dimensions: (1) Support, (2) Endorsement, (3) Undermining, and (4) Agreement. Higher scores on the Support, Endorsement, and Agreement subscales indicate more positive relationships, and higher scores on the Undermining subscale indicate more difficult relationships.[48]

The NCEDL Quality of Parent–Teacher Relationship measure assesses the teacher's perception of the quality of the relationship that the teacher has with the parent of each sampled child in the classroom. Constructs include relationship satisfaction, emotional tone, level of trust, clarity of communication, agreement, parent appreciation, and parent support and cooperation. Teachers rated the items on a 4-point scale, with higher scores representing more positive parent–teacher relationships.

Teacher beliefs about infant and toddler care and education. Baby FACES 2018 assessed teacher beliefs using the Teacher Beliefs About Infant and Toddler Care and Education measure[49] in the teacher survey. This measure has two subscales: (1) teacher beliefs about the importance of relationship and responsiveness, and (2) teacher beliefs about the role of the adult in child learning. Higher scores indicate more developmentally appropriate, evidence-based beliefs about infant and toddler care and education.

Continuity of care practices. Baby FACES 2018 adapted items from a short instrument used in a recent study[50] to measure continuity of care in Early Head Start classrooms. The measure asked center directors about their policies and practices regarding continuity of care, such as how frequently children transition to new caregivers and whether the caregiver transitions with the children to a new classroom. Higher scores indicate stronger use of continuity of care practices. A developer defined cutoff score of 6 points or more (out of 10 possible points) indicates that the center implements continuity of care practices.

Infant and Toddler outcomes. Teachers reported on children's language and communication using the MacArthur-Bates Communicative Development Inventories (CDI)[51] and social and emotional development using the Brief Infant Toddler Social Emotional Assessment (BITSEA)[52]. The CDI assesses children's early receptive and expressive language and communication skills in English. The BITSEA assesses social and emotional competencies as well as social and emotional and behavior problems.

Research Question 2. What is the structural quality of Early Head Start classrooms?

Research Question 2a: What are the qualifications, teaching experience, and beliefs about infant and toddler care and education of Early Head Start teachers?

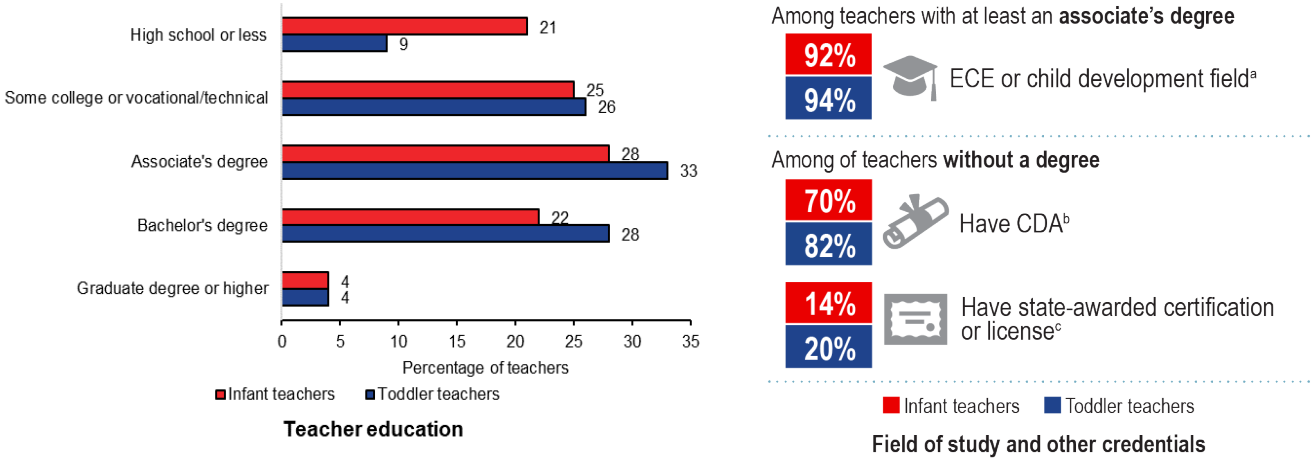
Teacher education and experience and teacher beliefs about infant and toddler care and education are fundamental to the quality of services delivered to children and families and might be important supports for teacher–child relationship quality. Prior research shows that these factors are linked to teacher–child relationships.[53,54,55] The HSPPS require that teachers have at least a Child Development Associate (CDA) credential and either training or coursework in early childhood development, with a focus on infants and toddlers.[56]

Teacher qualifications

Most teachers have a college degree with a focus on early childhood education or infant and toddler development. More than half of infant and toddler teachers have at least an associate's degree. About one-quarter of infant teachers and one-third of toddler teachers have at least a four-year college degree. Among teachers with an associate's degree or higher, most teachers indicated that they have a degree with a specific focus on early childhood education or infant and toddler development (Exhibit 4).

A larger percentage of teachers without a postsecondary degree have a CDA credential than a certification or license (Exhibit 4).

Exhibit 4. Qualifications of Early Head Start teachers



Source: Spring 2018 Baby FACES Staff (Teacher) Survey.

Note: Statistics are weighted to represent all Early Head Start teachers. The unweighted sample sizes for teacher education are 148 infant teachers and 704 toddler teachers.

[a] Among teachers with an associate's degree or higher who responded to the question (the unweighted sample sizes are 84 infant teachers and 465 toddler teachers).

[b] Among teachers with less than an associate's degree who responded to the question (the unweighted sample sizes are 64 infant teachers and 235 toddler teachers).

[c] Among teachers with less than an associate's degree who responded to the question (the unweighted sample sizes are 58 infant teachers and 226 toddler teachers). A state-awarded certification or license could be a preschool, infant/toddler, family child care or home-based certification, or license.

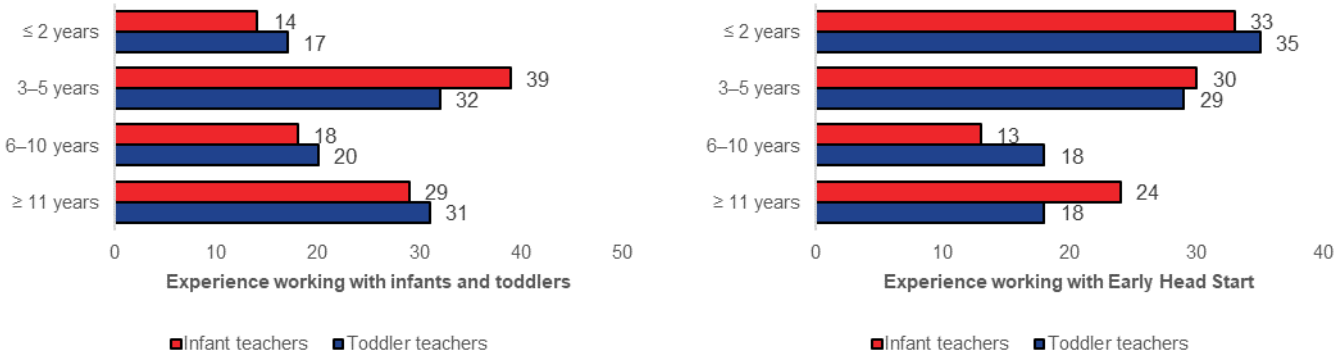
CDA = Child Development Associate; ECE = early childhood education.

Teacher experience

Early Head Start teachers are experienced in teaching infants and toddlers. Teachers in infant and toddler classrooms have worked with infants and toddlers for an average of 10.5 and 8.9 years, respectively, and have worked in Early Head Start for an average of 6.8 and 6 years, respectively. Fourteen percent of teachers in infant classrooms and 17 percent of teachers in toddler classrooms are in their first two years of working with infants and toddlers. Nearly one-third of teachers in infant (29 percent) and toddler classrooms (31 percent) have more

than 10 years of experience working with infants and toddlers. About one-third of teachers in infant (33 percent) and toddler classrooms (35 percent) are in their first two years teaching Early Head Start. Twenty-four percent of teachers in infant classrooms and 18 percent of teachers in toddler classrooms have more than 10 years of experience teaching Early Head Start (Exhibit 5).

Exhibit 5. Experience of Early Head Start teachers



Source: Spring 2018 Baby FACES Staff (Teacher) Survey.

Note: Statistics are weighted to represent all Early Head Start teachers. The unweighted sample sizes for teacher education are 147 infant teachers and 698 toddler teachers.

Teacher beliefs about infant and toddler care and education

Teachers hold developmentally appropriate, evidence-based beliefs about infant and toddler care and education. On average, teachers' scores for the importance of relationship and responsiveness and the role of the adult in child learning were above 5 on a scale of 1 to 6 (with 1 = very strongly disagree and 6 = very strongly agree). The average scores are 5.5 and 5.4 on the importance of relationship and responsiveness for teachers in infant and toddler classrooms, respectively, and 5.5 and 5.6 on the role of the adult in child learning for teachers in infant and toddler classrooms, respectively. Thus, most teachers strongly agree with the statements about how to best care for and support infant and toddler development and strongly disagree with practices that are ineffective or inappropriate.

Research Question 2b: What are the features of and practices used in Early Head Start classrooms?

The HSPPS require programs to use a research-based curriculum and to support staff in its effective implementation.[57] The HSPPS also require programs to conduct standardized and structured assessments of children.[58] Using curricula and assessments that are aligned with program standards can support children's learning in early childhood.[59,60] Other classroom structural factors such as the child-to-adult ratio and classroom features and practices are also associated with teacher–child relationships in the classrooms and children's development.[61,62,63] Research suggests that classrooms allocating more time to child-selected activities than teacher-directed activities provide a greater variety of learning activities for children.[64] However, teachers typically provide more support to children's concept development during teacher-directed activities compared to child-selected activities.[65] Continuity of care has also been strongly promoted as a best practice for infant and toddler care,[66,67] although the results from a handful of studies examining its associations with child outcomes have been mixed.[68,69,70]

Use of curricula and child assessments in Early Head Start classrooms

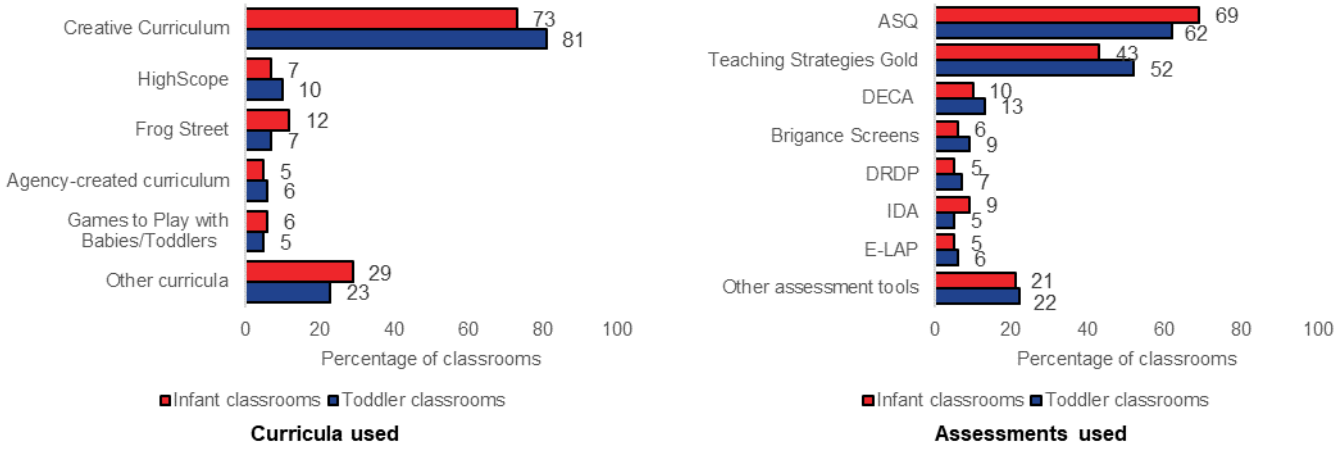
Nearly all teachers use at least one curriculum, with most using a single, commercially available one. Almost universally, teachers in infant classrooms (95 percent) and in toddler classrooms (97 percent) use at least one curriculum, whereas about one-fifth of infant classrooms (19 percent) and less than one-fifth of toddler classrooms (15 percent) use a combination of curricula.

Creative Curriculum is the most commonly used curriculum in Early Head Start classrooms. Considerably fewer teachers reported using HighScope, Frog Street, or Games to Play with Babies/Toddlers. A small number

(about 5 percent) of teachers reported using an agency-created curriculum. Other curricula are each used by less than 5 percent of teachers (collapsed in the figure as "Other curricula") (Exhibit 6).

Teachers predominantly use two child assessments.[71] Almost all teachers in infant and toddler classrooms (97 percent) reported using child assessments. The Ages and Stages Questionnaire (ASQ), including the social-emotional version, and Creative Curriculum's Teaching Strategies Gold are used by most Early Head Start teachers. Some teachers (about 5 percent to 13 percent) reported using at least one of five other assessments tools: (1) Devereux Early Childhood Assessment (DECA), (2) Brigance Screens, (3) Desired Results Developmental Profiles (DRDP), (4) Infant-Toddler Developmental Assessment (IDA), and (5) Early Learning Accomplishment Profile (E-LAP). Other assessment tools are each used by less than 5 percent of the teachers (collapsed in the figure as "Other assessment tools") (Exhibit 6).

Exhibit 6. Curricula and assessments used in Early Head Start infant and toddler classrooms



Source: Spring 2018 Baby FACES Staff (Teacher) Survey.

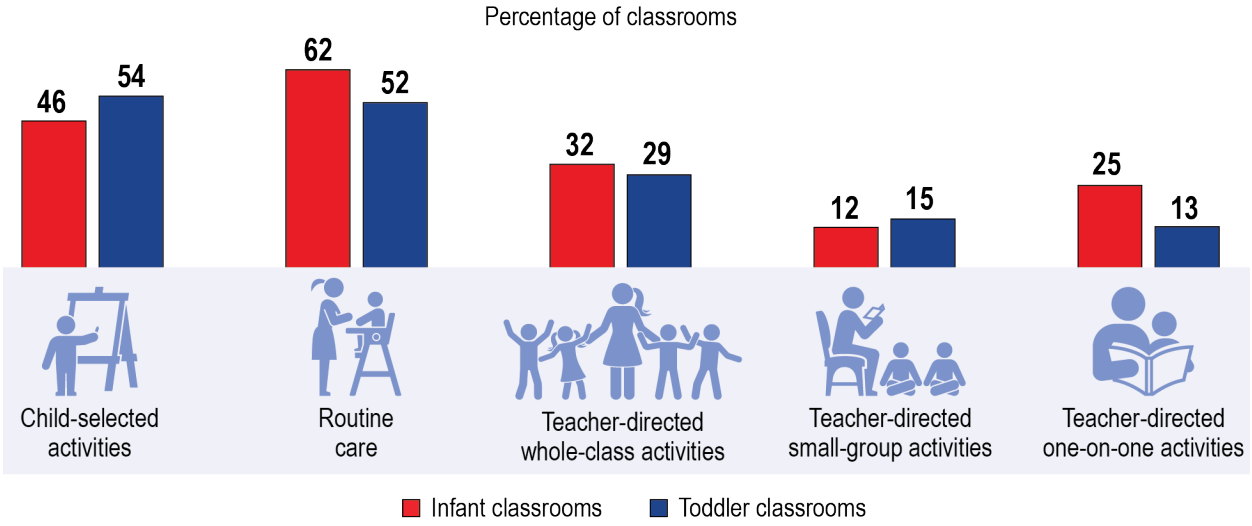
Note: Statistics are weighted to represent all Early Head Start teachers. The unweighted sample sizes are 147 infant teachers and 702 toddler teachers for use of curricula and 145 infant teachers and 697 toddler teachers for use of assessments. The percentages in the figure add to more than 100 percent because teachers reported on all curricula and assessments they used in their classrooms.

ASQ = Ages and Stages Questionnaire, including ASQ: Social-Emotional; DECA = Devereux Early Childhood Assessment; DRDP = Desired Results Developmental Profiles; E-LAP = Early Learning Accomplishment Profile; IDA = Infant-Toddler Developmental Assessment.

Time spent in child-selected versus teacher-directed activities

Early Head Start classrooms typically devote more time to child-selected activities and routine care than to different types of teacher-directed activities. Compared to toddler classrooms, teachers in infant classrooms reported spending more time per day on routine care and teacher-directed one-on-one activities and less time on child-selected activities (Exhibit 7).

Exhibit 7. Percentage of classrooms spending at least two hours per day on various activities



Source: Spring 2018 Baby FACES Staff (Teacher) Survey.

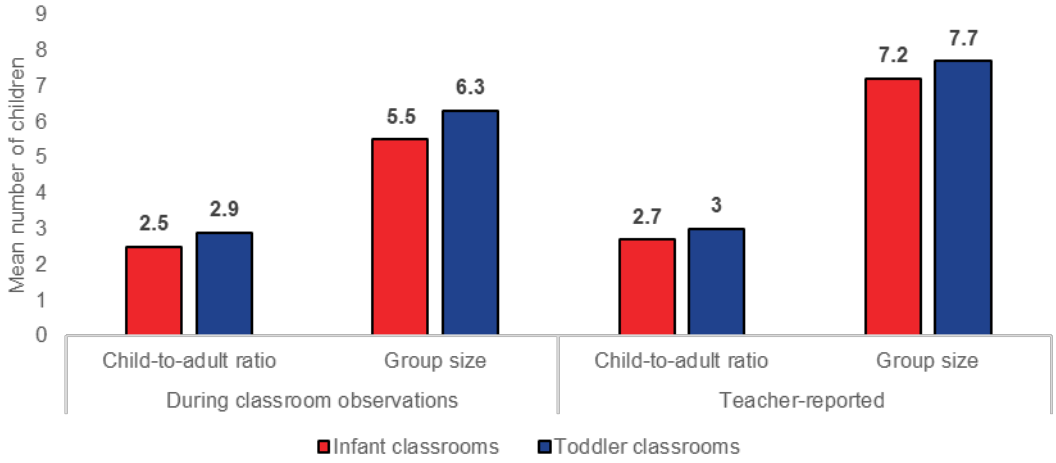
Note: Statistics are weighted to represent all Early Head Start teachers. The unweighted sample sizes range from 146 to 148 for teachers in infant classrooms and from 697 to 704 for teachers in toddler classrooms.

Figure shows the percentage of classrooms that spend two hours or more per day on each type of activity, according to teacher reports. Teachers were asked how they spent a typical day in their classroom, not including lunch or nap breaks.

Child-to-adult ratio and group size

Early Head Start classrooms have group sizes and child-to-adult ratios in-line with HSPPS. On average, Early Head Start toddler classrooms have an observed group size of about six children and a child-to-adult ratio of close to three children per adult during the classroom observations, with a slightly lower ratio and group size in the infant classrooms than in the toddler classrooms (Exhibit 8). The numbers of children enrolled in the classrooms according to teacher reports are higher than the observed group sizes, but the child-to-adult ratios are close. These numbers meet the new HSPPS of having no more than eight children with two teachers or no more than nine children with three teachers for classes serving children younger than 36 months.

Exhibit 8. Child-to-adult ratio and group size in Early Head Start infant and toddler classrooms



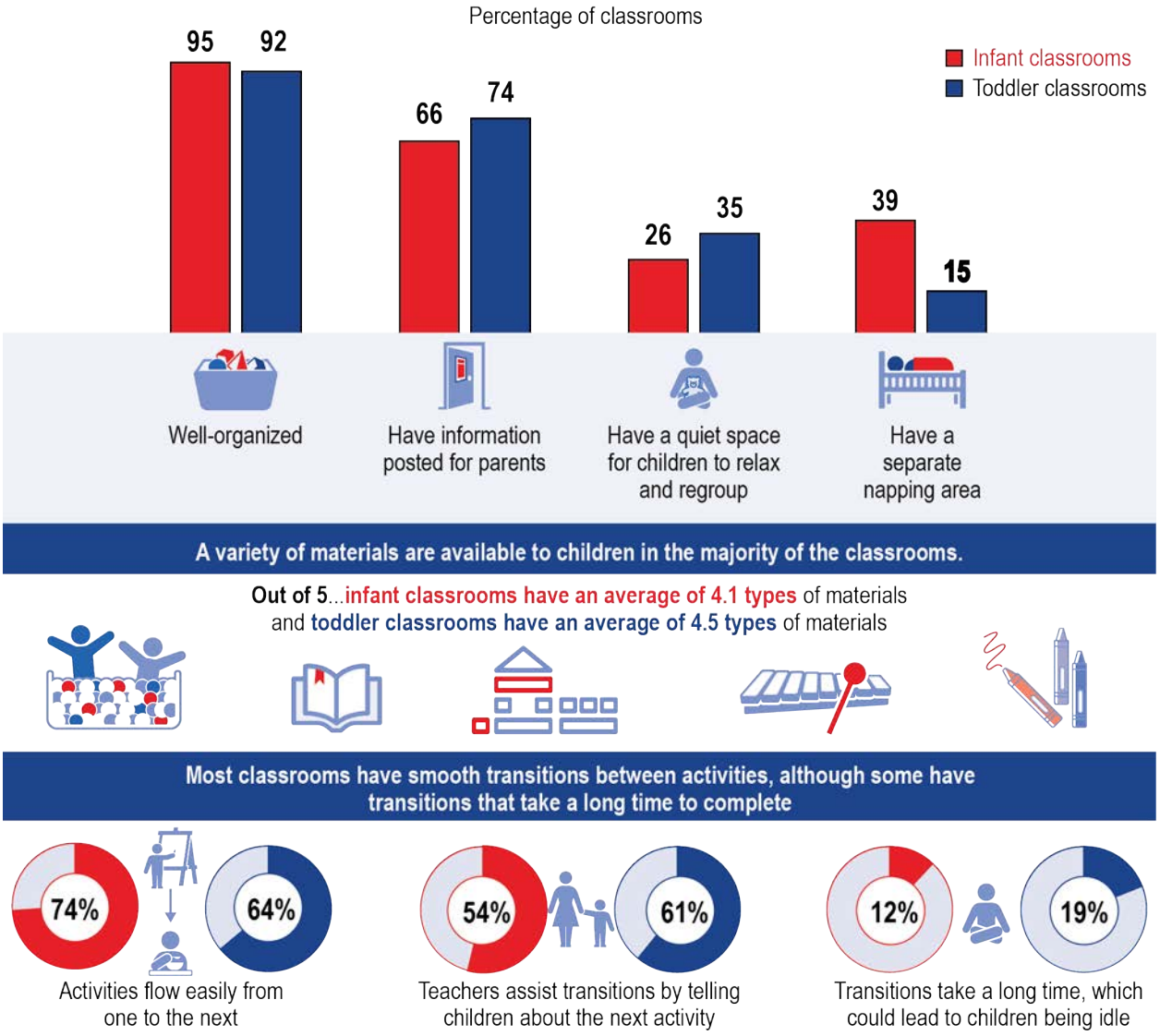
Source: Spring 2018 Baby FACES Classroom Observation and Staff (Teacher) Survey.

Note: Statistics are weighted to represent all Early Head Start classrooms. The unweighted sample size is 149 for infant classrooms and 715 for toddler classrooms.

Observed classroom features

Observers captured classroom features and practices[72] in addition to teacher–child interactions during classroom observations. The results show that Early Head Start classrooms are well organized and have a variety of materials available to children (Exhibit 9).

Exhibit 9. Classroom features in Early Head Start centers



Source: Spring 2018 Baby FACES Classroom Observation.

Note: Statistics are weighted to represent all Early Head Start classrooms. The unweighted sample sizes range from 828 to 854 classrooms.

Continuity of care practices in Early Head Start centers

Early Head Start centers commonly implemented continuity of care practices (Exhibit 10). On average, centers score 8 out of 10 on the measure of continuity of care practices.[73] Nearly all centers (95 percent) have continuity of care classrooms.[74]

Exhibit 10. Continuity of care practices in Early Head Start centers

91%
keep children and teachers together for more than nine months

57%
have teachers and children together throughout the children's enrollment

28%
keep teachers and children together until the child reaches a certain age or milestone

85%
assign children to a primary teacher

78%
have primary teachers responsible for most of the care of the child

49%
have children typically interacting with only one or two teachers each day

46%
have children typically interacting with three or four teachers each day

Source: Spring 2018 Baby FACES Center Director Survey.

Note: Statistics are weighted to represent all Early Head Start centers. The unweighted sample sizes range from 432 to 442 Early Head Start centers.

Research Question 3: What is the quality of teacher–child and parent–teacher interactions and relationships in Early Head Start classrooms?

Warm and responsive relationships with caregivers are critical for the healthy development of infants and toddlers.[75] Thus, relationship-based care practices are a priority area for practice and policy in early care and education settings for infants and toddlers.[76] Parent–teacher relationships also have been associated with child outcomes.[77,78,79] Therefore, a key focus of Baby FACES 2018 is to explore how Early Head Start services support infant and toddler growth and development in the context of nurturing, responsive relationships. In this section, we discuss what relationship quality looks like in Early Head Start classrooms.

Observed teacher–child relationship quality in Early Head Start classrooms

Generally, Early Head Start classrooms are in the midrange of quality based on classroom observations. Two separate classroom observations, the Classroom Assessment Scoring Systems (CLASS) and the Quality of Caregiver-Child Interactions for Infants and Toddlers (Q-CCIIT) measure, reveal midrange classroom quality in Early Head Start.

CLASS-Infant and CLASS-Toddler results. On average, Early Head Start classrooms are in the midrange of quality, as assessed with the Infant and Toddler versions of CLASS[80] (Exhibit 11). For the CLASS-Infant, the mean scores in the Facilitated Exploration and Early Language Support dimensions (3.8 and 3.6, respectively) are in the lower end of the midrange, whereas the mean scores in the Relational Climate and Teacher Sensitivity dimensions (5.4 and 5.2, respectively) are in the higher end of the midrange. On average, toddler classrooms are stronger in the Emotional and Behavioral Support domain than in the Engaged Support for Learning domain, with mean scores of 5.4 (in the high end of the midrange) and 3.0 (in the low end of the midrange), respectively. The pattern of lower scores in the CLASS-Toddler Engaged Support for Learning domain and in the CLASS-Infant Facilitated Exploration and Early Language Support dimensions is similar to findings for the Instructional Support domain in studies that used the CLASS-Pre-K—for example, FACES[81] and the Chicago Program Evaluation Project[82] also report lower mean scores for supporting children's language and learning (1.9 and 3.0, respectively). This pattern suggests that the average teachers in infant, toddler, and preschool settings face

similar challenges in their attempts to provide high quality support for language and learning. However, there is a very broad range of quality in infant and toddler language and learning support for these classrooms, ranging from 1 to 7 in the domains and dimensions. Although it is hard to meet high quality standards in these areas throughout the day, some teachers do manage to provide consistently high-quality support to infants and toddlers.

The CLASS-Infant scores in Early Head Start classrooms are similar to those reported by the CLASS-Infant developer.[83] However, toddler classrooms score more favorably on both domains and on a majority of the dimensions on the CLASS-Toddler compared to the mean scores reported by the developer.[84,85] Toddler classrooms in Baby FACES 2018 have scores similar to those in a prior study—Baby FACES 2009[86]—in the Emotional and Behavioral Support domain, but they score lower in the Engaged Support for Learning domain.[87]

Exhibit 11. Quality of teacher–child interactions in Early Head Start classrooms, as measured by the CLASS-Infant and CLASS-Toddler

CLASS measure	Sample size	Mean (SE)	Reported response range
What are the mean CLASS-Infant[a] scores?			
Responsive Caregiving	149	4.52 (0.08)	2.31–6.69
Relational Climate	149	5.39 (0.06)	3.00–7.00
Teacher Sensitivity	149	5.18 (0.09)	2.25–7.00
Facilitated Exploration	149	3.84 (0.13)	1.75–6.50
Early Language Support	149	3.64 (0.13)	1.50–7.00
What are the mean CLASS-Toddler[b] scores?			
Emotional and Behavioral Support[c]	713	5.37 (0.03)	3.15–6.85
Engaged Support for Learning	713	2.96 (0.05)	1.08–6.25

Source: Spring 2018 Baby FACES Classroom Observation.

Note: Statistics are weighted to represent all Early Head Start classrooms.

The sample size column presents unweighted sample sizes to identify the number of classrooms with valid data on each of the constructs or scores out of a total sample of 149 classrooms for CLASS-Infant and 715 classrooms for CLASS-Toddler.

See Box 1 for descriptions of the CLASS-Infant and CLASS-Toddler measures and Appendix B for reliability estimates of the CLASS-Infant and CLASS-Toddler measures.

[a] Used in classrooms where a majority of the children are newborns to 15 months. Possible scores range from 1 to 7.

[b] Used in classrooms where a majority of the children are between the ages of 16 months and 36 months. Possible scores range from 1 to 7.

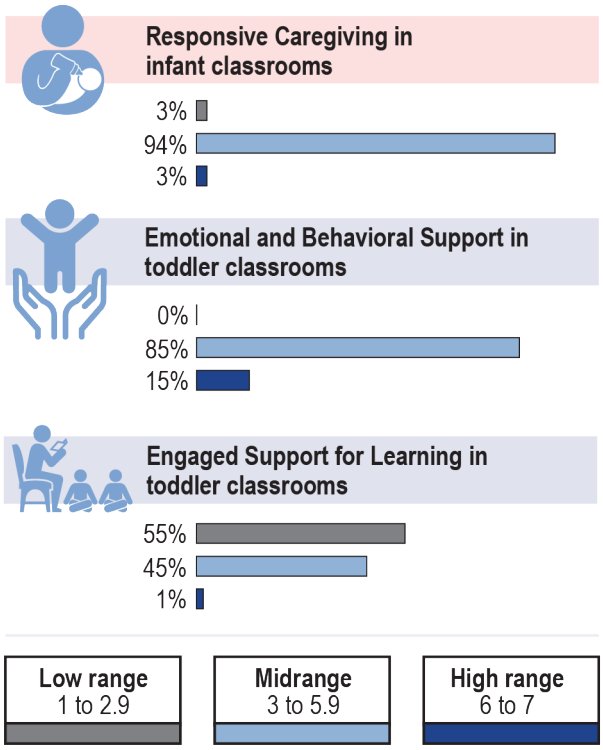
[c] Low mean scores in the Negative Climate dimension indicate that interactions characterized by negativity were seldom observed. This dimension was reverse coded when calculating the domain score for Emotional and Behavioral Support.

CLASS = Classroom Assessment Scoring System; SE = standard error.

Using the developer-defined quality range on the CLASS-Infant and CLASS-Toddler domain scores (illustrated in Exhibit 12), most (94 percent) of the infant classrooms fall in the midrange of quality in Responsive Caregiving, whereas a small proportion (3 percent)[88] fall in the low or high ranges of quality (Exhibit 12). All toddler classrooms are in the midrange or high range of quality in the Emotional and Behavioral Support domain, with most (85 percent) in the midrange of quality. Less than one-fifth (15 percent) of the classrooms are rated as 6 or higher in this domain, which is a lower proportion than the nearly one-quarter (24 percent) of toddler classrooms in Baby FACES 2009 that were rated as 6 or higher in this domain.[89]

In contrast, fewer than half (45 percent) of the toddler classrooms are in the midrange of quality in the Engaged Support for Learning domain, whereas more than half (55 percent) are in the low range. Only a tiny fraction (1 percent)[90] of the toddler classrooms demonstrate high quality in this domain. In comparison, Baby FACES 2009 found that more than half (57 percent) of toddler classrooms were in the midrange of quality in the Engaged Support for Learning domain, more than one-third (41 percent) were in the low range, and a scant proportion (2 percent) earned a high quality rating in this domain.

Exhibit 12. Quality range on the CLASS-Infant and CLASS-Toddler domain scores



Source: Spring 2018 Baby FACES Classroom Observation.
Note: Statistics are weighted to represent all Early Head Start classrooms. The unweighted sample sizes are 149 infant classrooms and 713 toddler classrooms.

Q-CCIIT results. Early Head Start classrooms are in the midrange of quality, on average, as measured by the Q-CCIIT.[91] Across infant and toddler classrooms, the mean scores range from 3.0 to 4.3 (out of 7) in the Q-CCIIT domains (Exhibit 13). In parallel with the results from the psychometric field study of the Q-CCIIT,[92] classrooms are strongest in the Support for Social-Emotional Development domain and weakest in the Support for Cognitive Development domain. The observed range of quality is broad for each of the domains, ranging from less than 2 to more than 6 in all domains and dimensions. Also similar to the results in the psychometric field study of the Q-CCIIT, infant classrooms score slightly lower than toddler classrooms do in all the domains (Exhibit 13). Infant and toddler classrooms have similar scores in Areas of Concern.

Exhibit 13. Quality of teacher–child interactions in Early Head Start classrooms, as measured by the Q-CCIIT, across all classrooms and in infant and toddler classrooms

Measure	Sample size	Mean (SE)	Reported response range
What are the mean Q-CCIIT scores across all classrooms?			
Support for Social-Emotional Development	862	4.23 (0.05)	1.74–6.92
Support for Cognitive Development	862	3.33 (0.05)	1.14–6.26
Support for Language and Literacy Development	862	3.77 (0.05)	1.42–6.38
Areas of Concern[a]	855	0.03 (0.03)!	-0.33–3.25
What are the mean Q-CCIIT scores in infant classrooms?			
Support for Social-Emotional Development	149	4.16 (0.10)	1.94–6.72
Support for Cognitive Development	149	3.01 (0.08)	1.14–5.76
Support for Language and Literacy Development	149	3.40 (0.08)	1.43–6.18
Areas of Concern[a]	147	-0.02 (0.04)!	-0.33–2.25
What are the mean Q-CCIIT scores in toddler classrooms?			
Support for Social-Emotional Development	713	4.25 (0.05)	1.74–6.92
Support for Cognitive Development	713	3.40 (0.05)	1.25–6.26
Support for Language and Literacy Development	713	3.85 (0.05)	1.42–6.38
Areas of Concern[a]	708	0.04 (0.03)!	-0.33–3.25

Source: Spring 2018 Baby FACES Classroom Observation.

Note: Statistics are weighted to represent all Early Head Start classrooms and children.

The sample size column presents unweighted sample sizes to identify the number of classrooms with valid data on each of the constructs or scores out of a total sample of 864 classrooms (149 infant classrooms and 715 toddler classrooms).

Possible scores range from 1 to 7 for all the Q-CCIIT scales except Area of Concern.

Infant classrooms have a majority of children who are newborns to 15 months. Toddler classrooms have a majority of children who are between the ages of 16 months and 36 months.

See Appendix B for reliability estimates of the Q-CCIIT measures.

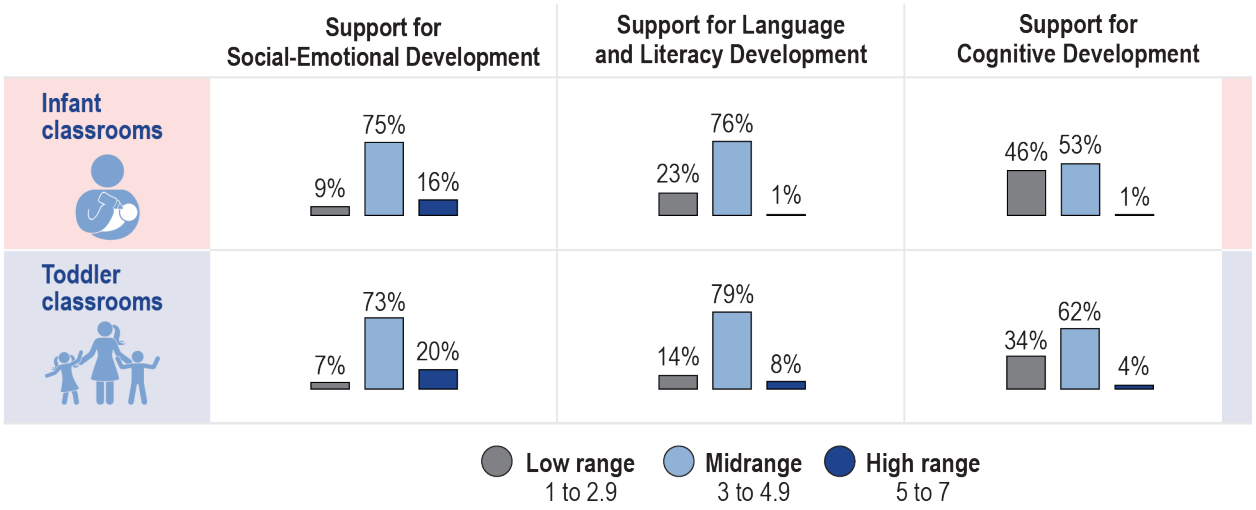
[a] The Areas of Concern score is a *z*-score because the items are on different scales.

! Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent of the estimate.

Q-CCIIT = Quality of Caregiver-Child Interactions with Infants and Toddlers; SE = standard error.

The distributions of Q-CCIIT classroom quality ranges (Exhibit 14) show a pattern similar to that for the mean scores. Most Early Head Start classrooms are in the midrange or high range of quality in Support for Social-Emotional Development (91 percent of infant and 93 percent of toddler classrooms) and Support for Language and Literacy Development (77 percent of infant and 87 percent of toddler classrooms). In contrast, a lower proportion of classrooms (54 percent of infant and 66 percent of toddler classrooms) are in the midrange or high range of quality in Support for Cognitive Development. One-fifth or fewer of the infant classrooms (16 percent) and toddler classrooms (20 percent) are rated in the high range of quality in Support for Social-Emotional Development. Compared to Support for Social-Emotional Development, fewer classrooms score in the high range of quality in Support for Language and Literacy Development (1 percent[93] of infant and 8 percent of toddler classrooms) and Support for Cognitive Development (1 percent[94] of infant and 4 percent of toddler classrooms).

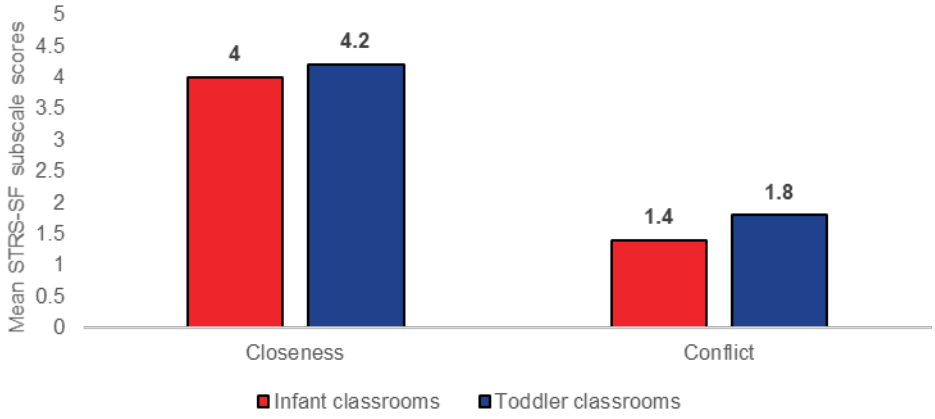
Exhibit 14. Quality range on the Q-CCIIT domain scores



Teacher-reported teacher–child relationships

Early Head Start teachers reported positive relationships with infants and toddlers, as measured by the Student–Teacher Relationship Scale, Short Form (STRS-SF)[95] (Exhibit 15). The scores indicate high levels of closeness (mean scores of 4.0 and 4.2 in the Closeness subscale for infant and toddler classrooms, respectively) and low levels of conflict (mean scores of 1.4 and 1.8 in the Conflict subscale for infant and toddler classrooms, respectively) out of a possible score of 5. The mean scores of the closeness and conflict with children are similar to the levels of teacher–child relationships reported by preschool teachers.[96]

Exhibit 15. Teacher–child relationship quality in Early Head Start classrooms, as reported by teachers



Source: Spring 2018 Baby FACES Staff (Teacher) Child Report.

Note: Teachers rated 15 items on a scale from 1 to 5, with 1 indicating the statement definitely does not apply to the teacher's relationship with a child, and 5 indicating the statement definitely applies. Statistics are weighted to represent children in Early Head Start classrooms.

The sample sizes are 372 children in infant classrooms and 1,747 children in toddler classrooms. Teachers in infant classrooms worked in classrooms where a majority of the children were newborns to 15 months. Teachers in toddler classrooms worked in classrooms where a majority of the children were between age 16 and 36 months.

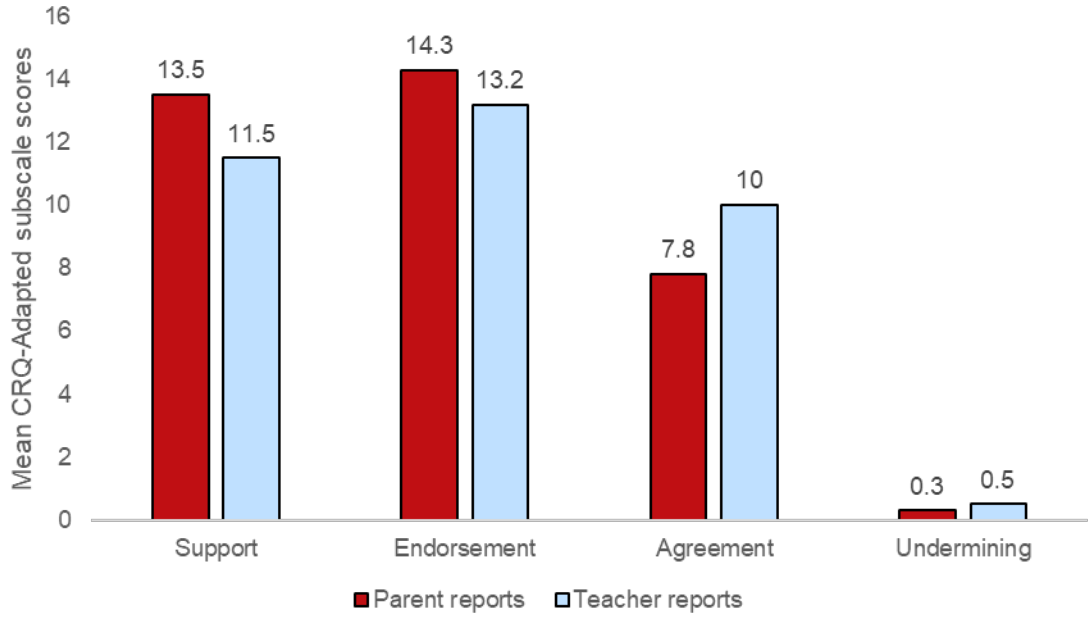
STRS-SF = Student–Teacher Relationship Scale, Short Form.

Parent–teacher relationships

Parents and teachers reported positive relationships with each other, as measured by the Cocaring Relationship Questionnaire–Adapted (CRQ-Adapted). Parents and teachers indicated high levels of support, endorsement, and agreement and low levels of undermining (Exhibit 16).

Teachers also reported that they have positive relationships with parents, giving the relationships high ratings for satisfaction, emotional tone, level of trust, clarity of communication, agreement, parent appreciation, and parent support and cooperation, as assessed by the NCEDL Quality of Parent–Teacher Relationship measure. The mean score on the measure is 3.6 out of 4, with higher scores indicating more positive parent–teacher relationships.

Exhibit 16. Quality of the parent–teacher relationship in Early Head Start, as reported by parents and teachers



Source: Spring 2018 Baby FACES Staff (Teacher) Child Report and Parent Survey.

Note: Scores range from 0 to 15 for Support and Endorsement and 0 to 12 for Undermining for both parents and teachers. Scores for Agreement range from 0–9 for parents and 0–12 for teachers. Statistics are weighted to represent teachers and parents from Early Head Start classrooms.

The unweighted sample sizes range from 1,705 to 1,754 for parent reports and 2,108 to 2,111 for teacher reports.

CRQ-Adapted = Cocaring Relationship Questionnaire-Adapted.

Research Question 4: How are classroom practices and other aspects of classroom structural quality associated with teacher–child relationship quality?

Previous research shows that teacher–child relationship quality tends to be greater in settings with lower child-to-adult ratios and smaller group sizes and for teachers with higher levels of education and training, higher levels of job satisfaction, and stronger beliefs about developmentally appropriate practices.[97,98,99,100,101,102,103,104,105,106,107,108] But teacher–child relationship quality tends to be lower for teachers with more depressive symptoms.[109,110] There is also some evidence for stronger teacher–child relationships when parent–teacher relationships are more positive.[111,112] In addition, the Baby FACES 2018 Conceptual Framework based on the literature suggests teacher–child relationship quality is strongest when classroom features and practices include a wide variety of materials available to children, smooth transitions between activities, and professional development focused on teacher–child interactions.[113] We conducted hierarchical linear modeling (HLM) analyses (separately for infant and toddler classrooms) to examine the factors that might be associated with teacher–child relationship quality, while controlling for teacher, center, and program characteristics. The teacher–child relationship quality measures that we examined include classroom observations (the CLASS and Q-CCIIT) and teacher reports on their relationship with the child (the STRS-SF). Box 3 lists all the factors and the expected direction of the association based on prior findings in the literature. Box 4 lists the covariates included in each of the models. Appendix A describes in detail the methods for the analysis, the factors examined, and the covariates in the models.

Box 3. Factors examined in the models and expected direction of association with relationship quality

Teacher variables

- Has a bachelor's degree or higher (+)
- Has at least an associate's degree in early childhood education (+)
- Has a Child Development Associate credential (+)
- Years of experience in Early Head Start (+)
- Teacher holds evidence-based beliefs about infant and toddler education and care (+)
- Job satisfaction (+)
- Depressive symptoms (CESD-R scores) (-)
- Teacher-reported parent–teacher relationship quality (CRQ-Adapted scale scores aggregated to the classroom level) (+)
- Professional development and training
  - Frequency of receiving support from a coach (+)
  - Teacher perception of support provided by coach on teacher–child interactions (+)
  - Teacher received training from program on teacher–child interactions (+)

Classroom variables

- Child-to-adult ratio in the classroom (-)
- Group size (-)
- Variety of materials available to children (+)
- Smooth transitions between activities in the classroom (+)
- Classrooms are well-organized (+)

Center variables

- Continuity of care practices (+)

Note: A plus (+) or minus (-) sign indicates the expected direction of association with positive teacher–child relationship quality based on the literature. A plus sign indicates positive associations; a minus sign indicates negative associations.

Box 4. Covariates in the models

- Teacher/classroom level
  - Teacher's race and ethnicity
  - Teacher speaks a language other than English
- Center level
  - Center size
- Program level
  - Program approach (center-based versus multiple service options)
  - Program size
  - Program metropolitan status
  - Whether the program has a high percentage of families with multiple demographic risks
  - Whether the program has a high percentage of families who have any psychological risks

Exhibit 17a and Exhibit 17b summarize the factors associated with observed teacher–child relationship quality and teacher-reported teacher–child relationships, respectively, controlling for other variables in the models. The detailed regression coefficients and standard errors for the model results are in Appendix D.

Exhibit 17a. Factors associated with observed teacher–child relationship quality

Teacher–child relationship quality measures	Factors associated with observed teacher–child relationship quality	Covariates associated with observed teacher–child relationship quality
CLASS-Infant		
Responsive Caregiving	• Smooth transitions between activities (+0.49)	
CLASS-Toddler		
Emotional and Behavioral Support	• Variety of materials available to children (+0.11) • Smooth transitions between activities (+0.58) • Teacher beliefs – Importance of relationship and responsiveness (+0.09) • Child-to-adult ratio (-0.15) • Teacher-reported parent–teacher relationship quality – Endorsement (-0.09) • Teacher has a bachelor's degree or higher (-0.16)	• Program has 25 percent or more of families with any psychological risks (-0.34)
Engaged Support for Learning	• Variety of materials available to children (+0.17) • Well-organized classroom (+0.26) • Smooth transitions between activities (+0.45) • Teacher beliefs – Importance of relationship and responsiveness (+0.15) – Role of the adult in child learning (-0.08) • Teacher-reported parent–teacher relationship quality – Endorsement (-0.09) • Continuity of care practices (-0.08)	
Q-CCIIT (infant classrooms)		
Support for Social-Emotional Development	• Teacher depressive symptoms (-0.37) • Teacher-reported parent–teacher relationship quality – Endorsement (-0.24)	
Support for Cognitive Development	• Teacher depressive symptoms (-0.30)	• Black or African American (+0.42) • Hispanic or Latino (+0.58)
Support for Language and Literacy Development	• Has at least an associate's degree in early childhood (+0.39) • Teacher depressive symptoms (-0.31) • Teacher-reported parent–teacher relationship quality – Endorsement (-0.27)	• Other race (+0.84)
Q-CCIIT (toddler classrooms)		
Support for Social-Emotional Development	• Job satisfaction (+0.08) • Well-organized classroom (+0.28) • Smooth transitions between activities (+0.24) • Teacher-reported parent–teacher relationship quality – Support (+0.08)	• Center size (-0.14)
Support for Cognitive Development	• Job satisfaction (+0.09) • Smooth transitions between activities (+0.22) • Teacher-reported parent–teacher relationship quality – Support (+0.08) – Endorsement (-0.10)	• Black or African American (-0.19)
Support for Language and Literacy Development	• Smooth transitions between activities (+0.22) • Teacher-reported parent–teacher relationship quality – Support (+0.10) – Endorsement (-0.09)	• Black or African American (-0.26) • Center size (-0.11)

Note: Infant classrooms have a majority of children who are newborns to 15 months. Toddler classrooms have a majority of children who are between the ages of 16 months and 36 months.

A plus sign (+) indicates positive associations. A minus sign (–) indicates negative associations. Covariates not included indicate no association. Numbers in parentheses are standardized regression coefficients.

Parent–teacher relationship quality was measured with four subscales from the Cocaring Relationship Questionnaire-Adapted.

CLASS = Classroom Assessment Scoring System; Q-CCIIT = Quality of Caregiver–Child Interactions with Infants and Toddlers.

Factors associated with CLASS scores

Only one factor is associated with the CLASS-Infant. Smooth transitions between activities in the classrooms are associated with higher Responsive Caregiving scores.

For the CLASS-Toddler, a few factors are associated with both Emotional and Behavioral Support and Engaged Support for Learning. Teachers or classrooms receive higher ratings in these CLASS-Toddler domains when each of the following conditions exists:

- Classrooms offer more variety in the materials that are available to children.
- Transitions between activities in the classrooms are smooth.
- Teachers having stronger agreement with beliefs about the importance of relationship and responsiveness.

Stronger teacher-reported endorsement of how parents care for their children (measured by the CRQ-Adapted) is associated with lower ratings in both Emotional and Behavioral Support and Engaged Support for Learning domains. This contradicts findings in the literature that show positive associations of parent–teacher relationships and teacher–child relationship quality.[114]

There are some other factors each associated with one of the domains:

- Well-organized classrooms have higher scores in Engaged Support for Learning.
- Classrooms with higher child-to-adult ratios have lower scores in Emotional and Behavioral Support.
- Teachers who have a bachelor's degree or higher have lower scores in Emotional and Behavioral Support than those who do not hold a four-year degree. This contradicts the literature that shows better teacher–child relationship quality for teachers with a bachelor's degree than those without degrees.[115]
- Classrooms in centers that implement more continuity of care practices have lower scores in Engaged Support for Learning, which contradicts the literature that shows continuity of care practices associated with better teacher–child relationship quality.[116]
- Teachers reporting stronger evidence-based beliefs about the role of the adult in child learning have lower scores in Engaged Support for Learning. This contradicts the literature that shows positive associations between teachers' beliefs about children's education and care and teacher–child relationship quality.[117]

Among the covariates in the model, classrooms in programs with 25 percent or more of families having any psychological risks have lower scores on average in Emotional and Behavioral Support. Exhibit D.1 in Appendix D has the detailed regression coefficients and standard errors.

Factors associated with the Q-CCIIT scores

In infant classrooms, the following factors are associated with the Q-CCIIT scores:

- Teachers who have at least an associate's degree in early childhood education or a child development field receive higher ratings in Support for Language and Literacy Development than those who do not hold a degree in early childhood education or child development.
- Higher levels of teacher depressive symptoms are associated with lower scores in all three Q-CCIIT domains.
- Teachers reporting greater endorsement of how parents care for their children have lower ratings in Support for Social-Emotional Development and Support for Language and Literacy Development. This contradicts the literature on positive associations of parent–teacher relationships with teacher–child relationship quality.[118]

Among the covariates in the models for infant classrooms, Black or African American teachers and Hispanic or Latino teachers have stronger support for cognitive development than White teachers do. Teachers of other races also have stronger support for language and literacy development than White teachers do. The detailed regression coefficients and standard errors are in Exhibit D.2a, Appendix D.

In toddler classrooms, the following factors are associated with the Q-CCIIT scores:

- Classrooms with smooth transitions between activities receive higher ratings in all three Q-CCIIT domains: Support for Social-Emotional Development, Support for Language and Literacy Development, and Support for Cognitive Development.

- Classrooms that are well organized have higher scores in Support for Social-Emotional Development.
- Teachers who report greater job satisfaction receive higher ratings in Support for Social-Emotional Development and Support for Cognitive Development.
- Consistent with the literature on positive associations of parent–teacher relationships with teacher–child relationship quality,[119] teachers who report higher levels of support from parents receive higher ratings in all three Q-CCIIT domains.
- Teachers reporting greater endorsement of how parents care for their children have lower scores in Support for Cognitive Development and Support for Language and Literacy development. The literature on parent–teacher relationship identifies positive associations of parent–teacher relationships with teacher–child relationship quality.[120]

Looking at the covariates in the models for toddler classrooms, Black or African American teachers provide weaker support for cognitive and language and literacy development than White teachers do. The larger the center size is, the lower the classroom scores are in Support for Social-Emotional Development and Support for Language and Literacy Development. The detailed regression coefficients and standard errors are in Exhibit D.2b, Appendix D.

Factors associated with teacher-reported teacher–child relationships (STRS-SF scores)

In infant classrooms, the following factors are associated with Closeness with children:

- Teachers reporting greater support from parents reported higher levels of closeness with children.
- Teachers who hold a bachelor's degree or higher reported higher levels of closeness with children.

In infant classrooms, the following factors are associated with Conflict with children:

- Teachers in well-organized classrooms reported lower levels of conflict with children.
- Teachers reporting stronger evidence-based beliefs about the importance of relationship and responsiveness reported lower levels of conflict with children.
- Teachers reporting greater support from parents reported lower levels of conflict with children.
- Teachers with higher levels of depressive symptoms reported higher levels of conflict with children.
- Teachers receiving a lot of support from a coach on teacher–child interactions reported higher levels of conflict with children. This contradicts the literature that shows positive associations of professional development with relationship quality.[121]

For the covariates in the models for infant classrooms, Hispanic and Latino teachers reported higher levels of closeness with children than White teachers did. Teachers in larger centers reported lower levels of closeness with children than teachers in smaller centers. Teachers in programs that offered multiple service approaches reported lower levels of conflict with children. Teachers in larger programs reported lower levels of conflict than teachers in smaller programs did. Teachers in programs with 25 percent or more of families with any psychological risks reported higher levels of conflict than those in programs in which less than 25 percent of families have any psychological risks. Exhibit D.3a in Appendix D shows the detailed regression coefficients and standard errors.

In toddler classrooms, the following factors are associated with Closeness with children:

- Teachers reporting stronger agreement with evidence-based beliefs about the role of the adult in child learning reported higher levels of closeness with children.
- Teachers reporting greater endorsement of how parents care for their children or greater support from parents reported higher levels of closeness with children.
- Teachers with higher levels of depressive symptoms reported lower levels of closeness with children.

In toddler classrooms, the following factors are associated with Conflict with children:

- Teachers reporting greater endorsement of how parents care for their children or greater agreement with parents reported lower levels of conflict with children.
- Teachers reporting more undermining from parents reported higher levels of conflict with children.
- Teachers with higher levels of depressive symptoms reported higher levels of conflict with children.
- Teachers in classrooms with higher child-to-adult ratios reported lower levels of conflict with children, which contradicts the literature that shows the benefit of lower ratios in more positive teacher–child relationship quality.[122,123]

For the covariates in the models for toddler classrooms, teachers who speak a language other than English reported lower levels of closeness with children than teachers who speak English only. Black or African American teachers reported lower levels of conflict with children than White teachers did. Exhibit D.3b in Appendix D has the detailed regression coefficients and standard errors.

Also in contrast to expectations, factors that are not associated with any of the teacher–child relationship quality measures include the teacher having a Child Development Associate (CDA) credential, having more years of experience in Early Head Start, receiving support more frequently from a coach, receiving training on teacher–child interactions, and group size.

Exhibit 17b. Factors associated with teacher-reported teacher–child relationships

Teacher–child relationship quality measures	Factors associated with teacher-reported teacher–child relationships	Covariates associated with teacher-reported teacher–child relationships
STRS-SF (infant classrooms)		
Closeness	• Teacher has a bachelor's degree or higher (+0.40) • Teacher-reported parent–teacher relationship quality – Support (+0.32)	• Hispanic or Latino (+0.43) • Center size (-0.11)
Conflict	• Teacher beliefs – Importance of relationship and responsiveness (-0.14) • Well-organized classroom (-0.41) • Teacher-reported parent–teacher relationship quality – Support (-0.12) • Teacher depressive symptoms (+0.13) • Teacher perception of support provided by a coach on teacher–child interactions (+0.32)	• Program multiple approach (-0.21) • Program size (-0.001) • Program has 25 percent or more of families with any psychological risks (+0.37)
STRS-SF (toddler classrooms)		
Closeness	• Teacher beliefs • Role of the adult in child learning (+0.11) • Teacher-reported parent–teacher relationship quality – Support (+0.16) – Endorsement (+0.11) • Teacher depressive symptoms (-0.09)	• Speaks a language other than English (-0.15)
Conflict	• Child-to-adult ratio (-0.07) • Teacher-reported parent–teacher relationship quality – Endorsement (-0.18) – Agreement (-0.12) – Undermining (+0.08) • Teacher depressive symptoms (+0.13)	• Black or African American (-0.20)

Note: Infant classrooms have a majority of children who are newborns to 15 months. Toddler classrooms have a majority of children who are between the ages of 16 months and 36 months.
A plus sign (+) indicates positive associations. A minus sign (–) indicates negative associations. Numbers in parentheses are standardized regression coefficients.
Parent–teacher relationship quality was measured with four subscales from the Cocaring Relationship Questionnaire-Adapted.

STRS-SF = Student–Teacher Relationship Scale, Short Form.

Research Question 5: Is the quality of teacher–child interactions and relationships associated with infant and toddler outcomes?

Previous studies have found modest associations between classroom process quality and child outcomes, with most assuming a linear relationship.[124] It is possible that the associations between quality and child outcomes are different above a certain threshold of quality. Prior research has demonstrated a possible threshold in the associations between quality and preschool children's outcomes[125,126,127] and outcomes of infants and toddlers,[128] suggesting that the associations with child outcomes might be stronger in classrooms with higher quality.

We examined how observed teacher–child relationship quality measures are associated with teacher-reported measures of infant and toddler outcomes in Early Head Start. Using HLM, we explored thresholds at or near cut points that defined high quality according to measure developers and previous research.[129] Cut points may be shifted lower based on the score distributions so that the higher category has at least 25 percent of the classrooms.[130,131] For example, for the Engaged Support for Learning dimension of the CLASS-Toddler, the analysis of the Baby FACES 2009 data adjusted the cut points from 3 to 4 rather than from 5 to 6.[132]

Our analyses reveal few associations between observed quality measures and child outcomes. We did not find any associations in the threshold analysis in either infant or toddler classrooms. When examining linear associations of observed teacher–child relationship quality measures, there are no associations for infant classrooms and only two associations for toddler classrooms: children in classrooms with higher CLASS-Toddler Emotional and Behavioral Support ratings or higher Q-CCIIT Support for Language and Literacy Development ratings on average have lower Brief Infant-Toddler Social and Emotional Assessment (BITSEA) Problem scores (Exhibit 18). Exhibit E.1 in Appendix E presents detailed regression coefficients and standard errors for the linear associations.

Exhibit 18. Summary of associations between classroom observation measures and teacher-reported outcomes

	Test of linear associations		
	English CDI	BITSEA Competence	BITSEA Problem
CLASS-Infant			
Responsive Caregiving	ns	ns	ns
CLASS-Toddler			
Emotional and Behavioral Support	ns	ns	sig (-0.07); $p < 0.05$
Engaged Support for Learning	ns	ns	ns
Q-CCIIT (infant classrooms)			
Support for Social-Emotional Development	ns	ns	ns
Support for Cognitive Development	ns	ns	ns
Support for Language and Literacy Development	ns	ns	ns
Q-CCIIT (toddler classrooms)			
Support for Social-Emotional Development	ns	ns	ns
Support for Cognitive Development	ns	ns	ns
Support for Language and Literacy Development	ns	ns	sig (-0.06); $p < 0.05$

Note: Infant classrooms have a majority of children who are newborns to 15 months. Toddler classrooms have a majority of children who are between the ages of 16 months and 36 months.

A minus sign (-) indicates negative associations. Covariates not included indicate no association. Numbers in parentheses are standardized regression coefficients.

BITSEA = Brief Infant-Toddler Social and Emotional Assessment; CDI = MacArthur-Bates Communicative Development Inventories; CLASS = Classroom Assessment Scoring System; ns = no association; Q-CCIIT = Quality of Caregiver–Child Interactions with Infants and Toddlers; sig = association.

Summary and Implications

Structural quality in Early Head Start classrooms

Early Head Start teachers are highly qualified and experienced with a strong foundation in child care and teaching practices that are developmentally appropriate for infants and toddlers.

- Most Early Head Start teachers have at least an associate's degree, a CDA, or a teaching certificate or license.
- More than 90 percent of the teachers with a college degree have a specific focus on early childhood education or infant and toddler development for their highest degree.
- On average, Early Head Start teachers have about 10 years of experience working with infants and toddlers.
- Infant and toddler teachers strongly agree with evidence-based beliefs about infant and toddler care and education and strongly disagree with ineffective or inappropriate practices.

Nearly all Early Head Start teachers use at least one curriculum and one child assessment tool.

- Creative Curriculum is the most commonly used curriculum.
- The ASQ and the Creative Curriculum's Teaching Strategies Gold are the most commonly used child assessments in Early Head Start.

Group sizes, child-to-adult ratios, and other classroom features lay a foundation for high quality teacher–child relationships in Early Head Start classrooms.

- Group sizes and child-to-adult ratios are low in Early Head Start classrooms. On average, classrooms have fewer than eight children and ratios of three children per adult.
- Most classrooms are well organized, offer a variety of materials to children, and create smooth transitions between activities. However, less than 40 percent of the classrooms have a quiet space or napping area for children.
- Early Head Start classrooms commonly implement continuity of care practices.
- The teachers, on average, reported spending more time on child-selected activities and routine care than on teacher-directed activities.

Process quality in Early Head Start classrooms

Overall, Early Head Start teachers provide strong support for children's social and emotional development and have positive relationships with children. Teachers and parents also report positive relationships with each other.

- Observations in Early Head Start classrooms indicate that, on average, the quality of support for development is in the midrange.
- Compared with other domains, Early Head Start classrooms are strongest in providing support for children's social and emotional development, the basis for positive early development.
- Support for language and learning is not as strong as the support for social and emotional development—a pattern found in other early childhood studies.[133, 134, 135, 136] Professional development that builds on strong support for social and emotional development by using responsive interactions focused on supporting language, literacy, and cognitive development could be an effective way to help programs enhance their quality.

Factors associated with teacher–child relationship quality

Some teacher characteristics and classroom practices are associated with observed classroom quality in ways consistent with hypotheses.

- In infant classrooms, classroom quality is higher when transitions between activities are smooth, and when teachers have at least an associate's degree in early childhood and reported lower levels of depressive symptoms.
- In toddler classrooms, classroom quality is higher when transitions between activities in the classrooms are smooth, classrooms are well organized, a variety of materials are available to children, child-to-adult ratios are smaller, teachers hold stronger beliefs about the importance of relationship and responsiveness, teachers are more satisfied with their job, and teachers reported higher levels of support from parents.

A few factors are associated with observed classroom quality in ways that are inconsistent with hypotheses.

- For infant and toddler classrooms, classroom quality is lower for teachers reporting greater endorsement of how parents care for their children on the CRQ-Adapted. Although unexpected, associations with this scale in prior research are sometimes positive and sometimes negative. One possible explanation for this finding is that on the Endorsement scale, the teacher rates how much the parent attends to and is willing to make sacrifices for the child rather than directly measuring the relationship; one hypothesis is that teachers may be providing higher quality care when they perceive that parents are impatient or unable to pay attention to their infants or toddlers. Alternatively, teachers who provide higher quality care may be more stringent in how they rate the attention that parents provide to children. A recent study in preschools also found unexpected associations with the teacher-reported Endorsement scale. The risk of expulsion is higher with greater endorsement of parents while the risk is low with greater support and agreement. The authors posit that endorsement is a unique dimension that may be related to a teacher's level of empathy for parents.[137]
- For toddler classrooms, support for emotional and behavioral regulation as rated on the CLASS-Toddler Emotional and Behavioral Support is lower for teachers with a bachelor's degree or higher than for teachers without a higher education degree. This association is surprising given that 9 of every 10 teachers of toddlers who have at least a bachelor's degree reported that their highest degree focused on early childhood education or infant/toddler development. Review of the highest scoring categories for the dimensions in the CLASS-Toddler Emotional and Behavioral Support domain could help in understanding any misalignment between the ratings and current higher education programs. For example, a rating of 7 on the teacher Sensitivity dimension has some behavior examples in the manual[138] that might imply that a sensitive teacher fixes children's problems, and that children depend on the teacher to fix things that make them unhappy. Some curricula and higher education programs encourage promoting more independence in problem solving, particularly in the toddler years. Similarly, in Regard for Child Perspectives, higher scores are given for making all materials accessible to the child, but some approaches to supporting language development encourage teachers to offer language opportunities by placing some materials within sight, but out of reach of the child. The link between teacher's degree and Emotional and Behavioral Support might also depend on other factors such as teacher's job satisfaction.

- For toddler classrooms, ratings on CLASS-Toddler Engaged Support for Learning are lower for classrooms in centers where more continuity of care practices are implemented, and for teachers who hold stronger beliefs about the role of the adult in children's learning. It is not clear why continuity of care is negatively associated with Engaged Support for Learning. Only this measure of teacher–child relationship quality is negatively associated with continuity of care and teacher beliefs about the role of the adult in children's learning. Teacher beliefs about their role in children's learning are positively associated with the teacher-reported relationship quality with children. The negative association with the CLASS-Toddler might signal a difference between how the CLASS-Toddler describes Engaged Support for Learning and how the measure of teacher beliefs defines the role of the adult in children's learning. Both the teacher beliefs about the role of the adult and Engaged Support for Learning domain include a focus on providing challenges and scaffolding children's

experiences. The role of the adult in children's learning includes several items focused on supporting infant development that may not be as familiar to toddler teachers.

Some findings about factors associated with teacher-reported relationships with children are consistent with the Baby FACES hypotheses.

- Teachers reporting more positive relationships with children have higher levels of education, lower levels of depressive symptoms, more positive parent–teacher relationships, and stronger beliefs about the importance of relationship and responsiveness and the role of the adult in child learning, and are also in well-organized classrooms.

Some findings are not consistent with the Baby FACES hypotheses.

- Teachers in infant classrooms who reported having received more support from their coach on teacher–child interactions also reported higher levels of conflict with children. One possible explanation for this finding is that teachers who struggle with caring for infants might seek out and receive greater coaching support in this area.
- Teachers in toddler classrooms with higher child-to-adult ratios reported lower levels of conflict with children. This finding may indicate that programs assign their highest quality teachers to the larger classrooms and/or that these teachers employ proactive classroom management strategies.

Associations of teacher–child relationship quality with child outcomes

The analyses linking teacher–child interactions and relationship quality with teacher-reported child outcomes reveal few associations.

- Consistent with Baby FACES hypotheses, higher teacher–child relationship quality was linked to fewer teacher-reported problem behaviors in toddler classrooms. These are the only associations identified from these analyses. The lack of findings may be a result of limitations of the data. For example, data were collected at a single time-point and cannot be used to examine change in child outcomes that may manifest over time. Further, findings may reflect the difficulty of reliably and validly measuring child outcomes in infants and toddlers.

Limitations

The major limitation of the analyses in this report is that data represent a single point in time in a descriptive study. This is particularly relevant for the multivariate analyses that examine factors associated with teacher–child relationship quality and that examine links between teacher–child relationship quality and child outcomes. The data provide estimates only for the concurrent associations of teacher–child relationship quality with teacher background characteristics and classroom features and practices, and the concurrent associations of relationship quality with infant and toddler outcomes, rather than how these factors are related or might influence each other over time.

Given the cross-sectional design, we could not control for prior scores on the outcomes of interest in the analyses of the associations with child outcomes. Moreover, we could not draw conclusions about the direction of the associations. For example, although we can look at concurrent associations between teacher–child relationship quality and infant and toddler outcomes, the findings could be misleading. That is, children in high quality classrooms might have better outcomes because of exposure to high quality classrooms and interactions at an earlier time. Children who enter the program with higher skills might elicit more positive interactions with the adults in the classroom.

These analyses cannot address causality or serve as evidence of program impacts. Therefore, we cannot make any claims that selected teacher background characteristics or experience with professional development and

training lead to better teacher–child relationship quality, nor can we attribute child outcomes to teacher–child relationship quality in Early Head Start.

In addition, all child outcome measures are based on teacher reports. Teacher reports can be influenced by teachers' observation and assessment skills, interpretations of what is asked, and differences in how leniently they rate children. Prior studies on teacher reports of children's skills and knowledge in preschool found that a larger proportion of the variance in children's outcomes was attributable to the teacher (and a smaller proportion to the individual children) than was found in direct assessments of those children at the same time point.[139] To detect associations, measurement of outcomes needs to be more precise—that is, less influenced by assessor or rater effects or other sources of error.

Future research

To examine the potential influences of teacher and classroom characteristics and classroom quality on child outcomes, longitudinal data are warranted. To examine impacts, an experimental or quasi-experimental design is needed. As noted above, future research would benefit from collecting data on children's learning and development using reliable direct assessments that are sensitive to change across time. Direct assessments of very young children are limited, making it more challenging to examine infant and toddler outcomes in relation to classroom quality across a program year.

Future research is also needed to examine some of the unexpected findings discussed above. For example, are toddler teachers in classrooms with larger child-to-adult ratios using more proactive classroom management? Does the link between teacher's degree and Emotional and Behavioral Support depend on factors such as teacher's job satisfaction? These and other potential moderators should be investigated.

Conclusion

The findings in this report suggest possible ways to support responsive relationships in infant and toddler classrooms. Greater awareness of how key classroom features and practices support quality may help identify ways to improve. For example, organized classrooms and smooth transitions are associated with quality interactions. This overall strength may provide clues about how to improve times of the day that are more challenging. Programs might want to identify and address staff misconceptions about how to support infant and toddler development and provide training and coaching in evidence-based practices for staff who can benefit. Programs might also consider additional ways to reduce teachers' stress levels, improve mental health, and boost their job satisfaction.

Baby FACES 2018 products

Baby FACES 2018 data are archived at the Child and Family Data Archive, Inter-University Consortium for Political and Social Research (ICPSR), University of Michigan. Users can freely access the User's Guide, but an application is required for access to the restricted data.

This report and other reports and briefs using Baby FACES 2018 data sponsored by the Office of Planning, Research, and Evaluation are available at https://www.acf.hhs.gov/opre/project/early-head-start-family-and-child-experiences-study-baby-faces.

Endnotes

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[88] The estimate is unstable because the standard errors represent more than 30 percent of the estimate and should be interpreted with caution.

[89] Vogel et al. 2015.

[90] The estimate is unstable because the standard errors represent more than 30 percent of the estimate and should be interpreted with caution.

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[136] Vogel et al. 2015.

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[138] Examples include: "Children frequently approach teacher for comfort when they are having a hard time," "When a child is struggling with an activity, such as getting a truck from under the shelf, the teacher responds with assistance: 'Jack, let's see if I can help you get your truck' [or] 'Let's see if we can find some other ones.'"

[139] Moiduddin, E., S. Atkins-Burnett, Y. Xue, P. Caronongan, E. Smith, and M. Induni. "Results of Activities Informing the Performance-Based Contract Between First 5 LA and LAUP." Final report submitted to First 5 LA. Washington, DC: Mathematica Policy Research, 2010.