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Leveraging the Behavioral Risk Factor Surveillance System for Disability Research

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The Behavioral Risk Factor Surveillance System (BRFSS) is a public health survey that collects data on U.S. adults' risk behaviors and health practices that can affect their health status. The BRFSS is widely used for public health research but is underutilized for disability research despite its potential to be a flexible, low-cost data source. In this brief, we describe how the BRFSS can be used for disability research using an example of a BRFSS-based disability study conducted in Massachusetts. The study implemented a 'follow-up' survey to the Massachusetts BRFSS and gathered data on the employment-related health insurance needs of persons with disabilities. The survey is available for use by disability researchers and may be obtained from the authors, by request.

BRFSS Overview

The BRFSS is a random-digit dial telephone survey conducted annually by individual states in collaboration with the Centers for Disease Control and Prevention (CDC).¹ The administration of the state surveys is managed by state health departments following CDC guidelines that specify the sampling methodology, data collection and management procedures, quality assurance, weighting methodology, and standard survey content. The survey interviews are conducted either directly by state public health departments or their contractors. De-identified weighted data files are publicly available via the CDC website (see http://www.cdc.gov/brfss/annual_data/annual_2012.html).

The BRFSS questionnaire has three parts: the core component, optional CDC modules, and state-added questions.² The core component, included in every state's survey, consists of questions on health-related perceptions, conditions and behaviors and demographic questions. The optional CDC modules include topic-specific questions (e.g. health care access, mental illness and stigma) that states may choose to include in their surveys; however, states may not alter the content of the questions. State added-questions are state-specific and not standardized across states. The average interview time for the core component is approximately 18 minutes and optional modules and state-specific questions generally add 5 to 10 minutes, in total, to the interview time.

The BRFSS uses a disproportionate stratified sample that represents adults, 18 years of age or older, living in households within states. A new random digit sample, including both landline and cell phone numbers, is selected each year. States may define sub-regions (strata) within their states and disproportionately sample from these regions to ensure that smaller geographic regions are adequately represented. The BRFSS data are weighted to ensure the data are representative of the population of each state. The weighting method reduces non-response bias and allows for the incorporation of cell phone survey data.

The BRFSS includes questions that may be used to identify respondents' disability status. The disability questions have changed over time. Since 2003, two disability questions have been consistently included in the BRFSS core component.

- Are you limited in any way in any activities because of physical, mental, or emotional problems?
- Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone?

In 2013, five of the six disability questions developed by the U.S. Census Bureau for use in the American Community Survey were added to the BRFSS core component.

- Are you blind or do you have serious difficulty seeing, even when wearing glasses?
- Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering or making decisions?
- Do you have serious difficulty walking or climbing stairs?
- Do you have difficulty dressing or bathing?
- Because of a physical, mental, or emotional condition, do you have difficulty doing errands alone such as visiting doctor's office or shopping?

Advantages of BRFSS for Disability Research

The BRFSS data files available from the CDC or state health departments may be used for disability statistics and research. This potential has been described by Erickson and Dumoulin-Smith³ and by Livermore et al.⁴ While the potential of the BRFSS core component is substantial, the flexibility of the BRFSS also provides researchers with the possibility to augment the BRFSS and gather new data. The ability to gather new, research-specific data greatly enhances the BRFSS research potential.

Compared to other national surveys, the BRFSS is unusually flexible in that each state administers identical core component questions with the option of adding CDC optional modules or state-specific questions. The state-specific questions can be used for disability research. In addition, it is possible for states to use the responses to the BRFSS survey to identify a subsample, such as persons with disabilities, for a follow-up survey. In this case, the follow-up survey data could then be linked to the BRFSS data to leverage the rich set of BRFSS demographic and health questions for research purposes.

There are advantages to augmenting the BRFSS to collect new research data compared to the development and implementation of a new survey. Using the BRFSS should be much less expensive than a completely new survey because of the ability to leverage existing BRFSS demographic and health questions, thus reducing the number of new questions needed. Also, a follow-up survey based on a subgroup identified using BRFSS respondents, such as persons with disabilities, would require a much smaller sample size and be much less expensive in comparison to a survey of the general population that then screened out those without disabilities. In addition, the ability to leverage the well-developed state administration of the BRFSS, including the sampling methodology, data collection and management procedures, quality assurance, and weighting methodology should also reduce cost. Leveraging state administration of the BRFSS should also substantially reduce the time from the start of the project to the fielding of the survey compared to the time needed to implement a new survey.

The BRFSS has the potential to support a variety of research designs. Because the BRFSS is designed to be representative of the population within each state, it may be used for research within a single state or in comparative research across states. Because new BRFSS samples are selected each year, the BRFSS is suited to cross-sectional studies, but is not appropriate for longitudinal studies.

A Research Example: The Employment-Related Health Insurance Needs Survey

To illustrate the potential to augment the BRFSS and collect new data for disability research, we describe the process we undertook to implement a BRFSS-based follow-up survey in Massachusetts, the Employment-Related Health Insurance Needs Survey (EHINS). The survey was part of a study conducted by the University of Massachusetts Medical School (UMMS) and funded under the Social Security Administration's Disability Research Consortium (DRC). A prior Massachusetts focus group study described the health insurance needs of persons with disabilities.⁵ The purposes of the EHINS was to follow-up on the focus group study by quantifying the health insurance needs of employed and potentially employed Massachusetts persons with disabilities using a survey method. As we describe below, the Massachusetts BRFSS was augmented to collect the needed research data.

Initial Assessment of Survey Options

The first step was an assessment of the options for the EHINS survey. A representative sample of working-age persons with disabilities in Massachusetts was needed. The Massachusetts BRFSS was a potential option because the sample is representative of the Massachusetts working-age population, and with the addition of the ACS disability questions in 2013, was well suited to identifying persons with disabilities. The alternative would be to conduct a new survey that would both identify persons with disabilities and collect the EHINS data. However, this would be prohibitively expensive because of: 1) the large general population sample size needed to reach an adequate number of persons with disabilities and the cost of screening out those without disabilities, and 2) the costs associated with designing and administering a new survey, such as purchasing a sample of phone numbers, designing a sample plan, establishing data management and collection procedures, selecting a survey vendor, and designing a weighting methodology. Additionally, the amount of time required to develop a new survey was likely to be lengthy compared to the BRFSS option; this was an additional advantage to the BRFSS.

Because of cost and time considerations, use of the Massachusetts BRFSS was desirable. However, the existing Massachusetts BRFSS would not meet all the research requirements for the EHINS because it does not include questions to quantify health insurance needs of persons with disabilities. If the Massachusetts BRFSS were to be used, additional questions would be needed.

Collaboration with the Massachusetts Department of Public Health

Given the advantages of using the BRFSS, our next step was to determine if it would be possible to collaborate with the Massachusetts Department of Public Health (MDPH) and use the BRFSS as a source of study data. MDPH agreed to collaborate. We identified the BRFSS questions that could be used as criteria to identify a sample of persons with disabilities and MDPH estimated the anticipated number of respondents that would be identified using these questions. We described the types and number of survey questions that would be needed for the EHINS and estimated that the average interview would be in the range of 15 to 20 minutes. Given the added length of the interview, MDPH recommended conducting a follow-up survey rather than adding questions to the Massachusetts BRFSS.

In the follow-up survey approach, persons meeting the sample criteria for the EHINS are identified during the BRFSS interview and are asked if they are willing to participate in a follow-up survey. Persons that agreed to participate are called back at a later time for the EHINS survey interview.

Survey Design and Administration

Once our collaboration with MDPH was established, we began the survey design and administration tasks. Many of the survey design and administration tasks associated with the BRFSS follow-up are identical to the tasks that would otherwise occur if the EHINS were implemented as a stand-alone survey; however, there were some differences, as described in the remainder of this section.

Sample Design: The EHINS leveraged the BRFSS sample design and there was no need for a new sample design; however, there were some tasks associated with defining the EHINS sample. We assessed whether the BRFSS sample design would meet the purpose of the study, identified the BRFSS questions that would be used to identify the subsample for the EHINS, and determined whether the BRFSS sample size would be adequate.

Question Design: The tasks to design the survey questions were identical to a stand-alone survey with the exception of leveraging existing BRFSS questions. The BRFSS includes a number of demographic and health questions that were needed for the study. We assessed whether a comparable question existed on the BRFSS; when a comparable question existed, it was not included on the EHINS follow-up. This reduced the number of EHINS questions and consequently reduced the interview time and survey costs.

Data Collection: The data collection and management procedures were also different compared to a stand-alone survey. Data collection and management tasks include specifying the calling schedules, disposition codes, strategies to convert initial refusals into completed interviews, and steps to protect confidentiality of data. To ensure comparability between the BRFSS data and the EHINS follow-up data, the BRFSS data collection and management procedures were used for the EHINS and there was no need to develop separate procedures.

Weighting: The task of developing a weighting method also differed from a stand-alone survey. The BRFSS uses a two-stage weighting method and the EHINS used comparable weighting method to maintain consistency with the BRFSS.

Contractor: The final difference was the selection of a contractor to conduct the survey. To eliminate the need to share respondents' personally identifiable information with us and to facilitate efficient coordination between the BRFSS and the EHINS administration, MDPH required that the EHINS be conducted by the contractor for the Massachusetts BRFSS. Thus, we did not need to procure and select a survey contractor.

Summary

The BRFSS is a public health survey that has the potential to be a flexible, low-cost data source for disability research. This brief described how the BRFSS can be augmented and used to collect new data for disability research using an example of a BRFSS-based disability study

conducted in Massachusetts. The brief includes an overview of the BRFSS design and administration, an explanation of the advantages of using the BRFSS for disability research, a description of the collaboration we established with the Massachusetts Department of Public Health to conduct a BRFSS-based study, and an account of the differences in the survey design and administration tasks for a BRFSS-based follow-up survey compared to a stand-alone survey.

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