

**NATIONAL-LEVEL
COMPARISONS OF MENTAL
HEALTH ESTIMATES FROM
THE NATIONAL SURVEY ON
DRUG USE AND HEALTH
(NSDUH) AND OTHER DATA
SOURCES**

**NSDUH METHODOLOGICAL
REPORT**

Substance Abuse and Mental Health Services Administration
Center for Behavioral Health Statistics and Quality
Rockville, Maryland

September 2018

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NSDUH METHODOLOGICAL REPORT

For questions about this report, available from
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1. Introduction

The National Survey on Drug Use and Health (NSDUH) is a primary source of annual data for population-based prevalence estimates of mental health indicators in the United States. In addition to NSDUH, there are other nationally representative sources of mental health data. In order for policymakers and other data users to make the most effective use of NSDUH data, it is important to understand how NSDUH estimates compare with estimates of similar indicators from other nationally representative data sources. Multiple data sources can be used to obtain a more complete summary of the nation's mental health issues than can any one data source by itself. However, cross-data source comparisons of even similar measures can be challenging because these data sources vary considerably in factors that may affect the estimates, such as time period of data collection, sampling design, mode of data collection, instrumentation, operational definitions, and estimation methodology, including imputation and weighting. Therefore, when estimates of comparable mental health indicators are found to differ between data sources, it can be difficult to delineate which specific methodological differences between the data sources are the cause of the differences in estimates. Carefully constructed analysis of the datasets and the results of previous methodological research may provide clues to explain the differences. Nevertheless, it is important to identify and document differences in estimates and the methods used to produce them, so data users are aware and will know to use caution when reporting results.

The main objective of this methodological report is to provide comparisons between NSDUH and other national data sources for adult and adolescent mental health prevalence estimates, updating a previous report comparing 2009 NSDUH estimates with other data sources (Hedden et al., 2012).¹ In general, comparisons selected for inclusion in the report are limited to those involving measures that can be produced from NSDUH and other nationally representative datasets using the same or nearly the same constructs. For example, the National Health and Nutrition Examination Survey (NHANES) and the Behavioral Risk Factor Surveillance System (BRFSS) include measures of current depression (past 2 weeks and past 30 days for NHANES and BRFSS, respectively), but those estimates are not included in this report because the reference periods do not match the NSDUH reference periods for the NSDUH questions about depression (i.e., past 12 months and lifetime) (Center for Behavioral Health Statistics and Quality [CBHSQ], 2017). Also, except for a few special cases, all estimates compared were for approximately the same time periods of data collection (around 2012). For some comparisons, data were subset to specific subpopulations so the estimates from the compared surveys reflected the same population.

The report describes (1) the survey methodology of NSDUH and other surveys that measure similar mental health concepts, (2) the survey instruments and definitions used for estimates from each data source, and (3) the differences in survey methodology between NSDUH and the other data sources that may contribute to differences among these estimates.

¹ At the time of data analysis for the current report, most of the data sources had supplied for public use a 2012 dataset and/or published estimates. Although more recent NSDUH estimates are now available, the 2012 NSDUH estimates were chosen as the best source of comparison with estimates from other national data sources.

Mental health measures from the 2012 NSDUH that also are available from other data sources include the following:

- lifetime and past year major depressive episode (MDE);
- past month (30 days preceding survey interview) serious psychological distress (SPD);
- past year suicidality (suicidal thoughts, plans, and behaviors);²
- lifetime and past year medical diagnosis of anxiety and depression; and
- past year serious mental illness (SMI) and past year any mental illness (AMI).

Comparison data sources include the following:

- 2001 to 2003 National Comorbidity Survey Replication (NCS-R) and 2001 to 2004 National Comorbidity Survey Adolescent Supplement (NCS-A),
- 2001 to 2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) Wave 1,
- 2012 to 2013 NESARC-III,
- 2011 to 2012 Behavioral Risk Factor Surveillance System (BRFSS),
- 2012 National Health Interview Survey (NHIS),
- 2012 Medical Expenditure Panel Survey (MEPS),
- 2011 to 2012 National Survey of Children's Health (NSCH), and
- 2009 and 2011 Youth Risk Behavior Survey (YRBS).

This report has eight chapters and three appendices. An overview of the survey methodology of the 2012 NSDUH and each of the other data sources is presented in Chapter 2. Subsequently, a chapter is devoted to each mental health topic: MDE (Chapter 3), SPD (Chapter 4), suicidality (Chapter 5), medical diagnosis (Chapter 6), and SMI and AMI (Chapter 7). Each of these chapters first describes the specific survey instruments used in each survey, then provides the prevalence estimates with detailed definitions. Each chapter concludes by summarizing differences in survey methods that may explain any observed difference in estimates between surveys. Concluding remarks are given in Chapter 8. A list of contributors to this report is also provided in an acknowledgments section that appears before the appendices. The data provided in Appendix A show the level of agreement between NSDUH's depression module, which assesses MDE by asking about symptoms, and NSDUH's items on the medical diagnosis of mental health conditions. Appendix B provides a summary of the questions that ask about the medical diagnosis of depression and anxiety in the national surveys discussed in this methodological report. Appendix C provides detailed information on the surveys' confidentiality assurances and consent procedures.

² For the NSDUH comparison with YRBS suicidality estimates, combined 2008 to 2012 NSDUH estimates were used due to sample size limitations (see Section 5.1.2).

2. Overview of Survey Methodology by Data Source

This chapter briefly presents key methodological characteristics of each data source, including the survey year, sponsor, sampling design, sample size, consent and confidentiality procedures, mode of administration, and which mental health estimates can be generated from the data. [Table 2.1](#) (adults) and [Table 2.2](#) (adolescents) list details on the survey methodology, including confidentiality assurances and consent procedures, by data source.³ Response rates for each survey are not presented in the tables. Variations in the terminology used (e.g., "response rate" vs. "cooperation rate"), inconsistencies in the response rates given across different publications using the same data source, whether one or two stages of consent (i.e., screener consent and interview consent) were obtained, and unclear reporting of the types of response rates presented (e.g., weighted vs. unweighted, household vs. individual) preclude direct comparisons across data sources. Although specific response rates for each survey are not reported here and compared across data sources, this report does note response rate differences as a reason for differences in estimates reported across data sources.

2.1 NSDUH Methodology Overview

The National Survey on Drug Use and Health (NSDUH) is an annual survey sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA). It is the primary source of statistical information on the use of illegal drugs, alcohol, and tobacco by the civilian, noninstitutionalized population of the United States aged 12 or older and includes assessments of mental health issues, mental health service use, and other health-related behaviors.

2.1.1 Sampling Design

Consistent with previous years, the 2012 NSDUH employed a state-based design with an independent, multistage area probability sample within each state and the District of Columbia. In all states and the District of Columbia, the design oversampled youths and young adults; each state's sample was approximately equally distributed among three age groups: 12 to 17 years, 18 to 25 years, and 26 years or older. The survey was conducted from January through December 2012 with 68,309 completed interviews obtained, including 45,836 interviews with adults aged 18 or older and 22,473 with adolescents aged 12 to 17.

2.1.2 Consent and Confidentiality Procedures

Informed consent for household screening was obtained upon identifying an eligible screening respondent, and a consent was also obtained from individuals selected for interviewing, using scripts describing the study's purpose and confidentiality procedures. For adolescents aged 12 to 17, the interviewer obtained verbal permission from a parent or guardian before contacting the youth for assent.

³ In order not to interrupt the discussion, [Tables 2.1](#) and [2.2](#) are presented at the end of this chapter.

2.1.3 Mode of Administration

NSDUH used computer-assisted interviewing (CAI), with most questions administered via audio computer-assisted self-interviewing (ACASI), which is optimal for asking about sensitive topics such as substance use and mental health.

2.1.4 Mental Health Estimates

Mental health prevalence estimates examined using the 2012 NSDUH for this report include lifetime and past year major depressive episode (MDE), past month serious psychological distress (SPD), past year suicidality (i.e., suicidal thoughts and behaviors), past year serious mental illness (SMI), past year any mental illness (AMI), and lifetime and past year medical diagnosis of depression and of anxiety. Prevalence estimates of past year suicidality are also included, based on 2008 to 2012 combined NSDUH data for comparison with suicidality estimates from the Youth Risk Behavior Survey (YRBS).

2.1.5 Mental Health Surveillance Study (MHSS) Follow-Up Study

From 2008 to 2012, a subset of adult NSDUH respondents aged 18 or older participated in the Mental Health Surveillance Study (MHSS), a clinical interview to assess the presence of selected past year mental disorders. The primary purpose of this follow-up study was to refine the model-based indicators of mental illness that are produced annually using NSDUH's full adult sample. Direct estimates of disorders from the MHSS are not included in this report, but national estimates of specific mental health disorders from the MHSS have been published previously (Karg et al., 2014). The MHSS methodology is presented here to provide information about how the AMI and SMI variables in NSDUH were created based on the MHSS clinical interview data.

The MHSS clinical sample included 5,653 adults selected from all adult participants in NSDUH who completed the interview in English from 2008 to 2012. Trained clinical interviewers administered semistructured diagnostic interviews to this subsample via telephone to assess the presence of selected past year mental disorders, including mood disorders, anxiety disorders, eating disorders, substance use disorders (SUDs), intermittent explosive disorder, and adjustment disorder, as well as a measure of global functional impairment. The mental disorder and functional impairment clinical data were used to determine AMI and SMI status for each MHSS respondent. A statistical model was then developed using the MHSS data that used variables collected in the main NSDUH survey to predict having AMI and SMI as determined by the clinical interviews. This model was applied to the NSDUH adult sample to produce predicted probabilities of having mental illness for each respondent. Cut points, determined in the clinical sample, were then applied to the predicted values to determine indicators of having AMI and SMI. This approach enabled the annual NSDUH to yield nationally representative estimates of AMI and SMI without requiring all NSDUH respondents to complete a structured diagnostic interview.

Further details on MHSS clinical study recruitment, sampling, and weighting procedures for 2008 to 2012 can be found in the MHSS operations report and the MHSS design and estimation report (Center for Behavioral Health Statistics and Quality [CBHSQ], 2014a, 2014b).

2.2 NCS-R and NCS-A Methodology Overview

The National Comorbidity Survey Replication (NCS-R) was conducted from 2001 to 2003 and was a replication of the National Comorbidity Survey (NCS) (Kessler et al., 1994). Funded by the National Institute of Mental Health (NIMH), National Institute on Drug Abuse (NIDA), and the William T. Grant Foundation, the study was designed to measure the prevalence of mental illnesses and substance abuse or dependence in the U.S. population.

The National Comorbidity Survey Adolescent Supplement (NCS-A) was a nationally representative survey of adolescents aged 13 to 17 conducted in 2001 to 2004. The NCS-A is similar in many ways to the adult NCS-R, but there are differences both in diagnoses and in several domains of questioning about risk factors and social consequences.

2.2.1 Sampling Design and Questionnaire

The NCS-R was conducted among a newly recruited (not the original NCS sample), nationally representative, multistage, clustered-area probability sample of adults aged 18 or older. The study obtained 9,282 completed interviews. The survey was administered in two parts. Part I included the core diagnostic assessment administered to all respondents. Part II assessed additional disorders and correlates and was administered to respondents who met the lifetime criteria for a Part I disorder ($n = 4,235$) and an additional probability subsample of other Part I respondents ($n = 1,457$).

The NCS-A ($n = 10,148$) was carried out in a dual-frame sample that included a household subsample (adolescent residents of the households that participated in the NCS-R) and a school subsample (Kessler et al., 2009).

2.2.2 Consent and Confidentiality Procedures

Verbal informed consent was obtained from respondents via in-person contact in the household for both the NCS and NCS-R.

For the NCS-A, interviewers obtained written informed consent from parents and written informed assent from adolescents upon making in-person contact. Only after the parent provided signed informed consent was any contact made with the adolescent. Interviews were never conducted with a nonemancipated adolescent unless at least one parent or guardian was present in the home during the interview. An advance letter was sent to the household before interviewer contact explaining the study and answering questions about confidentiality (Kessler et al., 2009).

2.2.3 Mode of Interview

Interviews for the NCS-R and NCS-A were conducted using a computer-assisted personal interviewing (CAPI) methodology. Also, the NCS-A incorporated parent responses from a separate self-administered paper-and-pencil questionnaire designed to assess the adolescent's mental health ($n = 6,491$) (Merikangas et al., 2010).

2.2.4 Mental Health Estimates

Published NCS-R mental health estimates that were compared with NSDUH's estimates from the NCS-R include past year MDE, past year suicidality (included only in the Part II sample), past year SMI, and past year AMI. The NCS-A includes a measure of past year MDE that was compared with NSDUH's estimate.

2.3 NESARC Methodology Overview

The National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) (Waves 1 and 2) was conducted by the U.S. Bureau of the Census for the National Institute on Alcohol Abuse and Alcoholism (NIAAA) using CAPI. Wave 1 was conducted in 2001 to 2002, and the second wave was conducted in 2004 to 2005. Mental disorder and SUD questions in the questionnaires used at Waves 1 and 2 were based on the diagnostic criteria put forth in the 4th edition, text revision, of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR) (American Psychiatric Association [APA], 2000). The primary purpose of NESARC was to measure alcohol use disorders and their associated disabilities in the national population in Wave 1 and to follow changes over time for respondents in Wave 2.

NESARC-III was sponsored by NIAAA and conducted by Westat. It was a separate study from the first two waves of NESARC. Although its objectives and content areas were similar to those of Waves 1 and 2, NESARC-III was not a follow-up study. Data collection for NESARC-III was completed between April 2012 and June 2013 and focused primarily on assessing disorders using criteria in the 5th edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) (APA, 2013). Because of significant methodological and measurement differences between NESARC-III and earlier waves of the study, any changes in estimates across waves of the NESARC are difficult to interpret (Gruca, Agrawal, Krauss, Cavazos-Rehg, & Bierut, 2016). That is, it is not known whether the changes detected in estimates are due to the methodological or measurement differences between the two NESARC surveys or true changes in the phenomena over time.

2.3.1 Sampling Design

The NESARC sample was designed to longitudinally survey adults aged 18 or older in the civilian, noninstitutionalized population of the United States, including adults living in noninstitutional group quarters. The final sample size for Wave 1 was 43,093 respondents, and the final sample size of Wave 2 was 34,653.

As did NESARC's Waves 1 and 2, NESARC-III represented the noninstitutionalized, civilian population aged 18 or older living in the United States, including individuals living in noninstitutional group quarters. The final sample size was 36,309 respondents.

2.3.2 Consent and Confidentiality Procedures

All potential NESARC respondents were informed in writing about the nature of the survey, the statistical uses of the survey data, the voluntary aspect of their participation, and the federal laws that provide for the confidentiality of identifiable survey information. Respondents who consented to participate after receiving this information were interviewed (Grant & Dawson, 2006).

2.3.3 Mode of Administration

The 2001 to 2002 NESARC Wave 1 and the 2012 to 2013 NESARC-III utilized a fully structured CAPI instrument for data collection.

2.3.4 Mental Health Estimates

The mental health prevalence estimates that were compared with NSDUH's from the 2001 to 2002 NESARC Wave 1 and from the NESARC-III are lifetime and past year MDE. The 2004 and 2005 NESARC Wave 2 was a follow-up study to Wave 1 and focused only on the time since the baseline interview, so those data are not included in this report.

2.4 BRFSS Methodology Overview

The Behavioral Risk Factor Surveillance System (BRFSS) is a state-based system of health surveys that collect information on health risk behaviors, clinical preventive practices, and health care access and use primarily related to chronic diseases and injury. BRFSS was established by the Centers for Disease Control and Prevention (CDC) in 1984. The CDC developed a standard core questionnaire for states to use to provide data that could be compared across states and combined for multistate estimates. CDC also coordinates development of supplemental modules that states can opt to include in their surveys; provides monetary, technical, and methodological assistance to states; and publishes annual BRFSS main findings reports.

2.4.1 Sampling Design and Questionnaire

BRFSS started in 1984 and has, since 1994, collected data from all 50 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and Guam using a computer-assisted telephone interviewing (CATI) design. States conduct monthly telephone surveys of noninstitutionalized adults aged 18 or older using random-digit dialing (RDD) methods.

The BRFSS design allows states to add optional modules as supplements to the core modules administered in all states. With funding support from SAMHSA, the CDC introduced an optional anxiety and depression module in 2006, and although the module was not a part of BRFSS in 2012, a total of 12 states included the module in 2011. The anxiety and depression module originally contained questions assessing medical diagnosis of anxiety and depression (two individual questions asking about each of these conditions). In 2011, medical diagnosis of depression was instead added to one of the core modules assessing several chronic health conditions. This core module was administered in all states in 2012, yielding data from 467,333 respondents. In 2007, SAMHSA funded a mental illness and stigma module, and a total of 13 states included the module in 2012. The mental illness and stigma module contained questions assessing past month psychological distress (Kessler-6 [K6]). BRFSS estimates in this methodological report were obtained using public use files downloaded from the CDC website (CDC, 2017a).

In 2011, cellular telephone-only households were added to improve survey coverage of the telephone population and to address differences in characteristics found between cellular telephone-only and landline populations. Data included in this report were collected in 2011 to 2012; nevertheless, sample coverage remains different from address-based samples because an

estimated 2.1 percent of households had no telephone service in July to December of 2012 (Blumberg & Luke, 2013).

2.4.2 Consent and Confidentiality Procedures

In order to maintain consistency across states, the CDC sets standard protocols for BRFSS data collection, including telephone interviewer scripts describing confidentiality. BRFSS telephone interviewers obtain verbal consent by reading a brief script describing the survey and the confidentiality of survey information. Respondents are told that no last names, addresses, or other personal information are requested, they are not required to answer any question they do not want to answer, and that they can end the interview at any time.

2.4.3 Mode of Administration

Interviews for BRFSS are conducted using CATI methodology.

2.4.4 Mental Health Estimates

Mental health estimates that were compared with NSDUH's estimates include past month SPD, lifetime medical diagnosis of anxiety, and lifetime medical diagnosis of depression. Due to the difference in reference period between BRFSS and NSDUH for MDE measures (past 2 weeks and past 30 days vs. past year, respectively), this report does not include comparisons of estimates of MDE between these two studies.

2.5 NHIS Methodology Overview

The National Health Interview Survey (NHIS) is conducted by the National Center for Health Statistics (NCHS), which is part of the CDC. The NHIS is a continuous nationally representative sample survey that collects data on all ages of the U.S. population using personal household interviews through an interviewer-administered CAPI system. The U.S. Census Bureau has been the data collection agent for the NHIS since the survey began in 1957.

2.5.1 Sampling Design and Questionnaire

In 2012, the sample included 34,525 respondents aged 18 or older and 4,653 adolescents aged 12 to 17 (NCHS, Division of Health Interview Statistics, 2013). For the Sample Adult questionnaire, one adult per family (the "sample adult") is randomly selected with enhanced chances of selection for black, Hispanic, or Asian persons aged 65 years or older. This individual responds for himself or herself to the questions in that section unless he or she is physically or mentally unable to do so, in which event a knowledgeable proxy is allowed to answer for the sample adult (468 cases in 2012). For the Sample Child questionnaire, one child aged 17 or younger is randomly selected by computer, and an adult respondent knowledgeable about the sampled child's health is asked questions about that child (NCHS, Division of Health Interview Statistics, 2013).

2.5.2 Consent and Confidentiality Procedures

An advance letter is sent to each household address selected for participation and describes the study's purpose, procedures, voluntary nature, and confidentiality. Interviewers

obtain verbal consent upon arrival at the household after showing a Census Bureau ID, describing the study's procedures and confidentiality, and providing another copy of the advance letter.

2.5.3 Mode of Administration

The NHIS uses a CAPI system to survey individuals in households.

2.5.4 Mental Health Estimates

The survey provides national estimates of a broad range of health measures, including health status and health care access. Mental health estimates from the NHIS that were compared with NSDUH's estimates include past month SPD, lifetime medical diagnosis of depression, and past year medical diagnosis of depression.

2.6 MEPS Methodology Overview

The Medical Expenditure Panel Survey (MEPS) began in 1996 and is sponsored by the Agency for Healthcare Research and Quality (AHRQ). It is a set of large-scale surveys of families and individuals, their medical providers (e.g., doctors, hospitals, pharmacies), and employers across the United States. MEPS collects data on the specific health services that Americans use, how frequently the services are used, the cost of these services, and how they are paid for, as well as data on the cost, scope, and breadth of health insurance held by and available to U.S. workers.

2.6.1 Sampling Design and Questionnaire

The MEPS sample is drawn from a nationally representative subsample of households that participated in the prior year's NHIS; thus, the NHIS and MEPS panel data can be linked for analysis. For the Household Component, participants are interviewed five times over a 2½ year period. These five interviews yield 2 years of information on the use of and expenditures for health care, sources of payment for that health care, insurance status, employment, health status, and health care quality. The Self-Administered Questionnaire (SAQ) component that contains questions related to past month SPD is administered to all household respondents aged 18 or older once per year.

2.6.2 Consent and Confidentiality Procedures

For the Household Component, verbal consent is obtained using procedures similar to the NHIS. When a household is first contacted about participation in MEPS, the respondent is provided with a document called "Important Information about Your Participation in MEPS." This handout provides all of the necessary information for providing consent to participate, including a description of the kinds of data that will be collected.

2.6.3 Mode of Administration

MEPS currently contains a Household Component, which uses a CAPI system to survey individuals in households; this information is supplemented by data from their medical providers. In addition to the CAPI survey of individuals in households, MEPS uses mail-back

self-administered paper-and-pencil questionnaires (the SAQ) for questions that may be unreliable if answered by a proxy during the MEPS core household interview. This includes the K6 scale that is used to assess past month SPD (Kessler et al., 2003).

2.6.4 Mental Health Estimates

MEPS public use data files were used to produce estimates of past month SPD. The analytic sample used to estimate SPD was drawn from respondents eligible to receive the SAQ and who completed *all* SPD items on the SAQ. In the 2012 MEPS sample, 27,386 individuals were eligible to receive the SAQ, of whom 91.7 percent (25,110 individuals) completed the survey. Past month SPD is the only mental health estimate from MEPS that was compared with NSDUH's estimates.

2.7 NSCH Methodology Overview

The National Survey of Children's Health (NSCH) was sponsored by the U.S. Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA), and interviewed selected respondents immediately after they completed the NCHS's National Immunization Survey.

2.7.1 Sampling Design

Households were contacted using RDD methods, which included landline telephones and cellular telephones, and were eligible for the survey if at least one child aged 0 to 17 years lived in the household. If more than one child lived in the household, one child was randomly selected to be the subject of the interview. A parent or guardian with knowledge of the health of the sampled child responded to the interview questions (CDC, n.d.; U.S. HHS, HRSA, Maternal and Child Health Bureau [MCHB], 2014). The majority of respondents were mothers (68.6 percent) or fathers (24.2 percent), whether biological, step, foster, or adoptive. A total of 95,677 interviews were completed in 2011 and 2012, including 34,601 sample children who were aged 12 to 17. Public use data files are provided on the CDC's website, including sampling weights that yield nationally representative estimates (CDC, 2017b).⁴

2.7.2 Consent and Confidentiality Procedures

Verbal informed consent was obtained via CATI using a script describing the NSCH research and confidentiality procedures and requesting to record the interview.

2.7.3 Mental Health Estimates

Mental health estimates from the NSCH that were compared with NSDUH's estimates include adolescent lifetime medical diagnosis of depression and adolescent lifetime medical diagnosis of anxiety disorder.

⁴ The NSCH and the National Survey of Children with Special Health Care Needs (NS-CSHCN) have been redesigned to become a single survey, also called the National Survey of Children's Health. The new survey is being conducted annually, with the first data collected in 2016.

2.8 YRBS Methodology Overview

The Youth Risk Behavior Survey (YRBS) is a biannual survey sponsored by the CDC and provides estimates of behavioral health risk factors among high school students in the United States.

2.8.1 Sampling Design

The YRBS uses a three-stage cluster sample design to produce a nationally representative sample of students in grades 9 through 12 who attend public and private schools. The survey is self-administered in classrooms during the spring semester of odd-numbered years. The estimates included in this report were generated from public use YRBS data files from 2009 and 2011 that were downloaded from the CDC's website (CDC, 2018b). The full sample sizes were 16,410 in 2009 and 15,425 in 2011.

2.8.2 Consent and Confidentiality Procedures

The YRBS employs passive parental consent in most schools. This process allows parents to opt their student out if they wish, but consent is assumed if no parental response is obtained.

2.8.3 Mode of Administration

Interviews for YRBS are conducted using self-administered paper-and-pencil interviews (PAPIs).

2.8.4 Mental Health Estimates

The YRBS mental health estimates that were compared with NSDUH's estimates are suicidal thoughts, plans, and attempts in the past 12 months, as well as medical attention resulting from a past year suicide attempt. The YRBS has four questions that assess suicidal thoughts, plans, attempts, and medical treatment for a suicide attempt among high school students.

The NSDUH questions assessing suicidality are asked only of respondents aged 18 or older. Because the YRBS is a high school survey, NSDUH estimates of suicidality used for comparison with YRBS estimates in this report were limited to those aged 18 or older who reported that they were registered in high school at the time of the survey. For comparability with these NSDUH estimates, the YRBS estimates of suicidality included in this report are limited to data from high school students aged 18 or older at the time of the interview. Due to the resulting small sample size, 2008 to 2012 combined NSDUH data were used for these estimates, resulting in a sample of about 4,300. The YRBS estimates are based on combined 2009 and 2011 data, with sample size of 4,822.

2.9 Methodological Differences among Surveys

General methodological differences between the different sources of data about adults are discussed and summarized in [Table 2.1](#). [Table 2.2](#) contains a summary of the available sources of data about adolescents. Differences in estimates may occur because the survey methodology differs between the surveys. That is, the surveys discussed here vary considerably in general methodological factors that may affect the estimates, such as time period of data collection, sampling design, questionnaire wording, and mode of survey administration. For example, mail-back questionnaires potentially result in lower response rates compared with telephone or in-person surveys. As the response rate decreases, the probability samples are less likely to be representative of the larger population, decreasing the generalizability of the findings. Survey response rates are not compared systematically in this report because of the variation in how they are computed across surveys. However, as a consequence of the study design, response rates can affect the interpretation of estimates across studies. Another consideration is that telephone survey samples have less coverage than address-based survey samples, although this has improved with the inclusion of cellular telephone numbers.

Context effects may result in different estimates for different surveys, even when using the same instruments. Context effects are changes in the responses to a given question because of its placement in the questionnaire. A context effect may occur when the response to a question is affected by information that is not part of the question itself. For example, the content of a preceding question may affect the interpretation of a subsequent question. Alternatively, a respondent may answer a subsequent question in a manner that is consistent with responses to a preceding question if the two questions are closely related to each other. As an example, it was found in the 2008 NSDUH that the inclusion of new items to assess global functional impairment and suicidality before the questions on depression altered the estimates of adult MDE relative to previous years, even though the depression questions themselves did not change (see Appendix B in Office of Applied Studies, 2009).

The following chapters contain discussions of the specific methodological differences among the surveys that may affect estimates of mental health indicators and cross-survey comparability. It should be noted that each data source uses a variety of methods; therefore, it is unlikely that any single difference in methodology fully explains the differential estimates of mental health indicators between data sources. In some instances, there are specific differences in how different surveys assess the mental health measures, including the instruments used, operational definitions, and estimation methodologies. Because differences are specific to each measure, such differences are discussed in the following chapters, which first introduce the survey instruments and estimation methodology for each measure and conclude by describing the differences in survey methodology between the 2012 NSDUH and other selected data sources that could have an impact on estimates of mental health indicators.

Table 2.1 Comparison of Survey Methodology across National Data Sources: Adults

Survey	Main Sponsor/ Data Collection Agency	Year of Mental Health Prevalence Estimates¹	Sampling Design and Representation	Sample Size	Survey Mode	Confidentiality Assurances and Consent Procedures²
NSDUH ³	SAMHSA/ RTI International	2012	National probability sample of the U.S. civilian, noninstitutionalized population aged 12 or older National, state	45,836	ACASI	Informed consent for screening is obtained upon interviewer contact with a dwelling unit resident and identification of an eligible screening respondent. If one or two persons are selected based on the screener, then each sampled person provides consent. Adults aged 18 or older are read the introduction and informed consent scripts describing the study's purpose and confidentiality procedures and are provided the study's description to keep.
NCS-R	NIMH/ University of Michigan Survey Research Center	2001 to 2003	Multistage, clustered-area probability sample of U.S. adults (18 years or older) Part I administered to all participants, and Part II administered to all who met lifetime criteria for a Part I disorder plus a probability subsample of others National	9,282 (Part I) 5,692 (Part II)	CAPI	Interview described verbally and verbal informed consent obtained from selected respondents via in-person household contact. Prior to interviewer first contact, advance letters and study fact brochures were sent to each household.
NESARC Wave 1	NIAAA/ U.S. Census Bureau	2001 to 2002	National sample of the noninstitutionalized population of U.S. adults (18 years or older) National	43,093	CAPI	Within a sampled household or group quarters, one person aged 18 or older was selected to participate in the interview. Each selected adult was provided with written material to inform him or her about the nature of the survey, statistical uses of the survey data, voluntary nature of participation, and federal laws on confidentiality. Respondents who consented to participate after receiving this information were interviewed.

See notes at end of table.

(continued)

Table 2.1 Comparison of Survey Methodology across National Data Sources: Adults (continued)

Survey	Main Sponsor/ Data Collection Agency	Year of Mental Health Prevalence Estimates¹	Sampling Design and Representation	Sample Size	Survey Mode	Confidentiality Assurances and Consent Procedures²
NESARC-III	NIAAA/ Westat	2012 to 2013	National sample of the noninstitutionalized population of U.S. adults (18 years or older) National	36,309	CAPI	The CAPI instrument included a consent module containing information on the study's purpose, statistical uses of the survey data, federal laws on confidentiality and data privacy, risks and benefits of participation, and contact information for further questions. The sample person was asked to indicate whether he or she (1) agreed to participate in the interview and provide a saliva sample, (2) agreed to participate in the interview only, or (3) preferred not to participate. For the recontact module, the sample person was asked if he or she would participate in a follow-up survey if selected.
BRFSS	CDC/ individual states	2012 where data are available; 2011 otherwise	RDD survey of noninstitutionalized adults National estimate for lifetime medical diagnosis of depression; some state estimates available for other measures	467,333 in 2012, ⁴ 54,923 in 2011 ⁵	CATI	Verbal consent is obtained. Telephone interviewer reads brief script describing survey and states, "I would like to ask some questions about health and health practices." The script continues to describe confidentiality and state that no last names, addresses, or other personal information are requested, that respondents are not required to answer any question they do not want, and that they can end the interview at any time. Respondents are provided the appropriate state telephone number for any additional questions.
NHIS	NCHS/ U.S. Census Bureau	2012	Household, multistage probability sample of civilian, noninstitutionalized U.S. population National	34,525	CAPI	Verbal consent is obtained by the interviewer in the household. An advance letter is sent to each household address selected for participation and describes the study's purpose, procedures, voluntary nature, and confidentiality; the interviewer obtains verbal consent upon arrival at a household and provides another copy of the advance letter.
MEPS	AHRQ/ Westat	2012	Panel survey with a household component drawn from a nationally representative subsample of households that participated in the prior year's NHIS National	21,765 ⁶	CAPI, SAQ for K6 items	Verbal consent is obtained by the interviewer, using procedures similar to the NHIS. When a household is first contacted, the respondent is given a document called "Important Information about Your Participation in MEPS." This handout provides all of the necessary information for providing consent to participate, including a description of the kinds of data that will be collected.

See notes at end of table.

(continued)

Table 2.1 Comparison of Survey Methodology across National Data Sources: Adults (continued)

Survey	Main Sponsor/ Data Collection Agency	Year of Mental Health Prevalence Estimates¹	Sampling Design and Representation	Sample Size	Survey Mode	Confidentiality Assurances and Consent Procedures²
YRBS	CDC/ ICF Macro, Inc.	2009 and 2011	Nationally representative sample of students in grades 9 through 12 who attend public and private schools in the United States	4,822 ⁷	PAPI	The YRBS employs passive parental consent in most schools, which allows parents to opt their student out if they wish, but consent is assumed if no parental response is obtained.

ACASI = audio computer-assisted self-interviewing; AHRQ = Agency for Healthcare Research and Quality; BRFSS = Behavioral Risk Factor Surveillance System; CAPI = computer-assisted personal interviewing; CATI = computer-assisted telephone interviewing; CDC = Centers for Disease Control and Prevention; K6 = Kessler-6 scale; MEPS = Medical Expenditure Panel Survey; NCHS = National Center for Health Statistics; NCS-R = National Comorbidity Survey Replication; NESARC = National Epidemiologic Survey on Alcohol and Related Conditions; NHIS = National Health Interview Survey; NIAAA = National Institute on Alcohol Abuse and Alcoholism; NIMH = National Institute of Mental Health; NSDUH = National Survey on Drug Use and Health; PAPI = paper-and-pencil interviewing; RDD = random-digit dialing; SAMHSA = Substance Abuse and Mental Health Services Administration; SAQ = Self-Administered Questionnaire; SPD = serious psychological distress; YRBS = Youth Risk Behavior Survey.

¹ The years given denote the survey year of the estimate used for the comparison and not the survey years for which data are available. At the time of data analysis for this report, most of the data sources had supplied for public use a 2012 dataset and/or published estimates. Although more recent NSDUH estimates are now available, the 2012 NSDUH estimates were chosen as the best source of comparison with estimates from other national data sources.

² Appendix C includes more detailed information on the confidentiality and consent procedures for each survey.

³ For comparison with YRBS estimates, NSDUH estimates were limited to respondents aged 18 or older who reported being enrolled in high school and who were interviewed in the first 6 months of the calendar year. Data from the 2008 to 2012 NSDUHs were combined to produce an adequate sample size. The combined sample size for these estimates was about 4,300 for the 2008 to 2012 NSDUHs.

⁴ National sample size for lifetime medical diagnosis of depressive disorder; however, past month SPD was available in only 13 states in 2012 ($n = 90,198$).

⁵ Based on only the nine states that administered the optional mental health module in 2011.

⁶ Sample size includes adult respondents from the Household Component eligible to receive the SAQ, which contains the K6 scale.

⁷ This is the sample size of high school students aged 18 or older in the combined 2009 and 2011 YRBS that were used to generate the estimates in this report. The full sample sizes were 16,410 in 2009 and 15,425 in 2011.

Table 2.2 Comparison of Survey Methodology across National Data Sources: Adolescents

Survey	Main Sponsor/ Data Collection Agency	Year of Mental Health Prevalence Estimates¹	Sampling Design and Representation	Sample Size and Age	Survey Mode	Confidentiality Assurances and Consent Procedures²
NSDUH	SAMHSA/ RTI International	2012	National probability sample of the U.S. civilian, noninstitutionalized population aged 12 or older National, state	22,473 (ages 12 to 17)	ACASI	Informed consent for screening is obtained upon interviewer contact with a dwelling unit resident and identification of an eligible screening respondent. Second level of consent occurs if one or two persons are selected based on the screener. For adolescents aged 12 to 17, verbal consent is obtained from parent/guardian before contacting the youth. Youth informed consent is then obtained using the introduction and informed consent scripts describing the study's purpose and confidentiality procedures, and the youth is provided a copy of the study's description to keep.
NCS-A	NIMH/ University of Michigan's Survey Research Center	2001 to 2004	Subsample of NCS-R with additional school sample (adolescents aged 13 to 18) National	10,148 (ages 13 to 18)	Mixed mode	Interviewer obtained written informed consent from a parent and written informed assent from the adolescent upon making in-person contact and before collecting any adolescent data. Only after the parent provided signed informed consent was any contact made with the adolescent. An advance letter was sent to the household before interviewer contact describing confidentiality.
NHIS	NCHS/ U.S. Census Bureau	2012	Household, multistage probability sample of civilian, noninstitutionalized U.S. population National	4,653 (ages 12 to 17)	CAPI	After verbal consent is obtained from an adult, a sample child aged 17 or younger is randomly selected by computer. Information about the sample child is obtained from an adult respondent residing in the household who is knowledgeable about the sample child's health.
NSCH	HRSA/ NCHS	2011 to 2012	RDD survey of households with children younger than age 18 (parent report) National	34,601 (ages 12 to 17)	CATI	Respondent is the parent/guardian who lives in the household who is most knowledgeable about the health and health care of randomly selected child. Verbal informed consent is obtained via CATI using standard script describing research and confidentiality.

ACASI = audio computer-assisted self-interviewing; CAPI = computer-assisted personal interviewing; CATI = computer-assisted telephone interviewing; CDC = Centers for Disease Control and Prevention; HRSA = Health Resources and Services Administration; NCHS = National Center for Health Statistics; NCS-A = National Comorbidity Survey Adolescent Supplement; NCS-R = National Comorbidity Survey Replication; NHIS = National Health Interview Survey; NIMH = National Institute of Mental Health; NSCH = National Survey of Children's Health; NSDUH = National Survey on Drug Use and Health; RDD = random-digit dialing; SAMHSA = Substance Abuse and Mental Health Services Administration.

¹ At the time of data analysis for this report, most of the data sources had supplied for public use a 2012 dataset and/or published estimates. Although more recent NSDUH estimates are now available, the 2012 NSDUH estimates were chosen as the best source of comparison with estimates from other national data sources.

² Appendix C includes more detailed information on the confidentiality and consent procedures for each survey.

3. Estimation of Major Depressive Episode (MDE)

National surveys that measured major depressive episode (MDE) include the National Survey on Drug Use and Health (NSDUH), the National Comorbidity Survey Replication (NCS-R), and the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). Although NSDUH measures MDE among adolescents, other national surveys that include adolescents did not include this measure; therefore, this chapter focuses on adult measures of MDE. Each survey's MDE instruments and estimates are described in detail. This chapter concludes by summarizing the differences in the survey methods that may explain the differences in estimates between NSDUH and the other surveys.

3.1 NSDUH

3.1.1 MDE Modules

Beginning in 2004, depression modules derived from the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition, text revision (DSM-IV-TR), criteria for lifetime and past year MDE (American Psychiatric Association [APA], 2000) were included in NSDUH. Unlike the DSM-IV-TR criteria for MDE, however, no exclusions are made in NSDUH for depressive symptoms caused by medical illness, substance use (the use of medication, drugs, or alcohol), or depressive symptoms not persisting for more than 2 months that are better accounted for by bereavement.

Separate modules are administered to adults aged 18 or older and to youths aged 12 to 17. The adult and youth questions were adapted from the depression section of the NCS-R (Harvard School of Medicine, 2005) and the National Comorbidity Survey Replication Adolescent (NCS-A), which used the depression and other modules from the World Health Organization's (WHO's) World Mental Health Version of the Composite International Diagnostic Interview (WMH-CIDI) (Kessler & Üstün, 2004; Merikangas, Avenevoli, Costello, Koretz, & Kessler, 2009). Minor revisions were made to the NCS-R questions, primarily to reduce its length and modify the questions for the audio computer-assisted self-interviewing (ACASI) format used in NSDUH.

Lifetime MDE was defined as endorsing five or more of the following nine symptoms as occurring nearly every day in the same 2-week period and when at least one of the symptoms is depressed mood or a loss of interest or pleasure in daily activities: (1) depressed mood most of the day; (2) markedly diminished interest or pleasure in all or almost all activities most of the day; (3) significant weight loss when not sick or dieting, weight gain when not pregnant or growing, or decrease or increase in appetite; (4) insomnia or hypersomnia; (5) psychomotor agitation or retardation; (6) fatigue or loss of energy; (7) feelings of worthlessness; (8) diminished ability to think or concentrate or indecisiveness; and (9) recurrent thoughts of death or suicidal ideation (APA, 2000). Respondents who endorsed lifetime MDE were asked whether in the past 12 months they experienced those types of symptoms for a period lasting 2 weeks or longer.

3.1.2 MDE Estimates

Estimates of MDE are compared by data source in [Table 3.1](#) among adults aged 18 or older. According to the 2012 NSDUH, 6.9 percent of adults experienced at least one MDE in the past year, and 13.2 percent experienced at least one MDE in their lifetime (Center for Behavioral Health Statistics and Quality, 2013b).

Table 3.1 MDE Prevalence Estimates among Adults Aged 18 or Older, by Data Source

MDE Measure	NSDUH (2012)		NCS-R (2001 to 2003)		NESARC Wave 1 (2001 to 2002)		NESARC-III (2012 to 2013)	
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Past Year MDE ¹	6.9	(6.5, 7.2)	8.3 ^b	(7.7, 8.9)	7.9 ^{b,c}	(7.5, 8.3)	11.5 ^b	(11.0, 12.0)
Lifetime MDE	13.2	(12.7, 13.7)	19.2 ^b	(18.2, 20.2)	16.5 ^{b,2}	(16.0, 17.1)	22.3 ^b	(21.5, 23.0)
Survey Instrument	Modified WMH-CIDI adapted from NCS-R		WMH-CIDI		AUDADIS-IV		AUDADIS-5	

AUDADIS = Alcohol Use Disorder and Associated Disabilities Interview Schedule; CI = confidence interval; MDE = major depressive episode; NCS-R = National Comorbidity Survey Replication; NESARC = National Epidemiologic Survey on Alcohol and Related Conditions; NSDUH = National Survey on Drug Use and Health; WMH-CIDI = World Mental Health Version of the Composite International Diagnostic Interview.

^a The difference between this estimate and the NSDUH estimate is statistically significant at the .05 level.

^b The difference between this estimate and the NSDUH estimate is statistically significant at the .01 level.

^c To be comparable with the NSDUH estimate, this estimate does not exclude MDE due to substance use, bereavement, or a medical condition.

¹ Symptoms of an MDE reflect having a period of at least 2 weeks of persistent depressed mood or persistent loss of interest in all or nearly all previously pleasurable activities during which other symptoms such as sleep disturbance or suicidality are present. A diagnosis of past year MDE requires having experienced at least one MDE in the past year.

² Standard error estimates for lifetime MDE were derived by assuming that the design effect of past year MDE and lifetime MDE were equivalent. Derived standard errors were used to calculate CIs for lifetime MDE.

Sources: SAMHSA, Center for Behavioral Health Statistics and Quality, NSDUH, 2012. The NCS-R estimates of past year and lifetime MDE are from Kessler et al. (2010). NESARC's Wave 1 estimate of lifetime MDE is from Blanco et al. (2012). NESARC's Wave 1 estimate of past year MDE was calculated for and published in Hedden et al. (2012). NESARC-III estimates are from P. Chou (personal communication, May 11, 2018).

3.2 NCS-R

3.2.1 MDE Instrument

Using the WMH-CIDI previously described, the NCS-R assessed depressive symptoms (excluding those induced by a medical illness, substance use, or bereavement), yielding diagnoses of past year and lifetime MDE consistent with DSM-IV-TR criteria (APA, 2000). As with NSDUH, respondents were first asked about lifetime symptoms of MDE, and those who endorsed lifetime MDE were asked whether they experienced those types of symptoms for a period lasting 2 weeks or longer in the past 12 months. Respondents were also asked about the number and duration of episodes in the past 12 months.

3.2.2 MDE Estimates

Published estimates of past year and lifetime MDE are available for the 2001 to 2003 NCS-R for comparison with those from NSDUH. The NCS-R data indicate that 8.3 percent of adults had at least one MDE in the past year and that 19.2 percent had at least one MDE in their lifetime (Kessler et al., 2010).

3.3 NESARC

3.3.1 MDE Instrument

The 2001 to 2002 NESARC Wave 1 Alcohol Use Disorder and Associated Disabilities Interview Schedule version 4 (AUDADIS-IV) included a series of questions that assessed lifetime and past year MDE using DSM-IV-TR diagnostic criteria (APA, 2000). Out of the 18 sections of the AUDADIS-IV, assessment of MDE was in Section 4A (Low Mood I). Lifetime MDE was assessed, and for those with lifetime MDE, there were questions to assess past year MDE, including questions about the respondent's age at the beginning of his or her first depressive episode, age at the beginning of his or her most recent episode, and the length of the most recent episode. The instrument measured whether or not MDE was substance induced, caused by a medical condition, or occurred only during a period of bereavement, so diagnoses may be calculated both with these exclusions and without them.

The 2012 to 2013 NESARC-III Alcohol Use Disorder and Associated Disabilities Interview Schedule, version 5 (AUDADIS-5) included a series of questions that assessed lifetime and past year MDE using DSM-5 diagnostic criteria (APA, 2013). The only difference between the diagnostic criteria in DSM-IV-TR and DSM-5 is that the DSM-IV exclusion of depressive symptoms not persisting for more than 2 months that are better accounted for by bereavement was not an exclusion in DSM-5. Out of the 29 sections of the AUDADIS-5, assessment of MDE was in Section 4A (Low Mood I). Lifetime MDE was assessed, and for those with lifetime MDE, there were questions to assess past year MDE, including questions about the respondent's age at beginning of his or her first depressive episode, age at the beginning of his or her most recent episode, and the length of the most recent episode. The instrument measured whether or not MDE was substance induced, caused by a medical condition, or occurred only during a period of bereavement, so diagnoses may be calculated both with these exclusions and without them.

3.3.2 MDE Estimates

Multiple studies have presented estimates of past year MDE among adults using NESARC's Wave 1 data. Compton, Conway, Stinson, and Grant (2006) reported a past year prevalence of 7.1 percent, an estimate that excluded participants whose MDE was caused by a medical condition or bereavement but included those whose MDE was caused by medication, drugs, or alcohol. Cranford, Nolen-Hoeksema, and Zucker (2011) reported a prevalence of 7.2 percent, an estimate that excluded participants whose MDE was caused by a medical condition, bereavement, or the effects of substance use. For comparability with NSDUH, an estimate of past year MDE among adults without any of these exclusions was calculated using NESARC's Wave 1 data, resulting in a prevalence of 7.9 percent (Hedden et al., 2012). Lifetime MDE (presumed to exclude cases where depressive symptoms were the result of medical illness, bereavement, or the use of medications, drugs, or alcohol) was estimated at 16.5 percent of adults in a study using NESARC's Wave 1 data (Blanco et al., 2012).

NESARC-III data indicate that 22.3 percent of adults aged 18 or older had at least one MDE in their lifetime, and 11.5 percent had at least one MDE in the past year (P. Chou, personal communication, May 11, 2018). Following DSM-5, these estimates include exclusions for MDE caused by a medical condition or the effects of substance use, but did not include any exclusion for depressive symptoms that occurred during a period of bereavement.

It is noteworthy that the estimates of past year and lifetime MDE from the 2012 to 2013 NESARC-III were markedly higher than those estimates from the 2001 to 2002 NESARC Wave 1. However, the large methodological differences between the two surveys renders the two estimates noncomparable. There were no statistically significant differences between the 2005 and 2012 NSDUH estimates of past year MDE (6.6 and 6.9 percent, respectively) or lifetime MDE (13.3 and 13.2 percent, respectively), which suggests that, at least during that 8-year period, there were no increases in the prevalence of MDE in the U.S. population. Note also that these trends in NESARC estimates are based on only two data points. Assuming that the NESARC methods had stayed the same between surveys, trends may be better determined with more than two data points.

3.4 Differences in Survey Methods That May Affect MDE Estimates

The estimates of past year MDE from the 2012 NSDUH, the 2001 to 2003 NCS-R, and the 2001 to 2002 NESARC Wave 1, along with the results of a test of statistical significance between the estimates from NSDUH and the other surveys, are presented in [Table 3.1](#). The estimated prevalence of past year MDE was 6.9 percent in NSDUH, with the estimates from the NCS-R (8.3 percent) and NESARC's Wave 1 (7.9 percent) being significantly higher than the NSDUH estimate. The estimated prevalence of lifetime MDE was 13.2 percent in NSDUH, with the estimates from the NCS-R (19.2 percent) and NESARC's Wave 1 (16.5 percent) being significantly higher than the NSDUH estimate.

A number of methodological differences between NSDUH, the NCS-R, NESARC Wave 1, and NESARC-III may account for the differences in lifetime and past year estimates of adult MDE between the four surveys, including their time periods of data collection, sampling designs, survey modes, instruments used in the surveys, operational definitions, and estimation methodologies. Specific differences between NSDUH and the other surveys that may have affected MDE estimates are described in the following sections and are summarized in [Table 3.2](#).

3.4.1 NSDUH versus NCS-R

Differences in the time periods of data collection, survey modes, instruments used in the surveys, and operational definitions may have resulted in differences between these MDE estimates.

Time periods of data collection: The NSDUH estimate is based on data collected in 2012, whereas the NCS-R estimate is based on data gathered between 2001 and 2003. The difference in the lifetime and past year MDE estimates between the two surveys could partially reflect real population-level change over the different time frames.

Survey modes: The mode of data collection also differed between the surveys. NSDUH used ACASI, which provides the respondent some sense of anonymity and privacy, while computer-assisted personal interviewing (CAPI) was used for the NCS-R. The CAPI mode of administration may not have provided as much privacy as the ACASI mode of administration used for NSDUH. Based on past research (Epstein, Barker, & Kroutil, 2001), it would be expected that a more private mode of administration would result in higher reporting of mental distress and impairment.

Table 3.2 Differences across Surveys in the Measurement of MDE among Adults Aged 18 or Older

Survey	Year of Estimates	Instrument	Definition	Available Time Reference Period	Survey Mode	Miscellaneous Information
NSDUH	2012	Adapted from NCS-R depression section, which used WMH-CIDI; derived from DSM-IV-TR criteria for MDE	<p><i>Lifetime MDE:</i> Defined as endorsing five or more of the following nine symptoms as occurring nearly every day in the same 2-week period and when at least one of the symptoms was depressed mood or loss of interest or pleasure in daily activities: (1) depressed mood most of the day; (2) markedly diminished interest or pleasure in all or almost all activities most of the day; (3) significant weight loss when not sick or dieting, weight gain when not pregnant or growing, or decrease or increase in appetite; (4) insomnia or hypersomnia; (5) psychomotor agitation or retardation; (6) fatigue or loss of energy; (7) feelings of worthlessness; (8) diminished ability to think or concentrate or indecisiveness; and (9) recurrent thoughts of death or suicidal ideation.</p> <p><i>Past year MDE:</i> Asked only of respondents who reported lifetime MDE; defined as experiencing MDE symptoms for a period lasting 2 weeks or longer in the past 12 months. Respondents were not asked whether they experienced specific symptoms in the past year.</p> <p>No exclusions were made for MDE caused by medical illness, bereavement, or the effects of medications, drugs, or alcohol.</p>	Lifetime Past year	ACASI	Minor revisions were made to the NCS-R questions, primarily to reduce their length and modify the questions for ACASI format.
NCS-R	2001 to 2003	WMH-CIDI	<p><i>Lifetime MDE:</i> Module derived from DSM-IV-TR criteria was asked of respondents who had previously reported periods that lasted several days or longer of feeling sad, empty, or depressed most of the day, or who had previously reported periods that lasted several days or longer of feeling discouraged about how things were going in their life.</p> <p><i>Past year MDE:</i> Asked only of respondents who reported lifetime MDE; defined as experiencing MDE symptoms for a period lasting 2 weeks or longer in the past 12 months. Respondents were not asked whether they experienced specific symptoms in the past year.</p> <p>Exclusions were made for depressive symptoms caused by medical illness, bereavement, or the effects of medications, drugs, or alcohol.</p>	Lifetime Past year	CAPI	None

See notes at end of table.

(continued)

Table 3.2 Differences across Surveys in the Measurement of MDE among Adults Aged 18 or Older (continued)

Survey	Year of Estimates	Instrument	Definition	Available Time Reference Period	Survey Mode	Miscellaneous Information
NESARC	NESARC Wave 1: 2001 to 2002	AUDADIS-IV, which contained a section assessing lifetime and past year MDE using DSM-IV-TR criteria	<p><i>Lifetime MDE</i>: Lifetime diagnosis derived from DSM-IV-TR criteria.</p> <p><i>Past year MDE</i>: Asked only of respondents who reported lifetime MDE; those with lifetime MDE were asked additional questions about the onset, recency, and duration of the depressive episodes that were used to determine whether they had a past year MDE. Respondents were not asked whether they experienced specific symptoms in the past year.</p> <p>Included measurement of whether MDE was caused by a medical illness, bereavement, or the use of medication, drugs, or alcohol. For comparability with NSDUH, an estimate of past year MDE without any of these exclusions was calculated using NESARC's Wave 1 data. The published estimate of lifetime MDE included in this report was presumed to exclude these cases.</p>	Lifetime Past year	CAPI	None

See notes at end of table.

(continued)

Table 3.2 Differences across Surveys in the Measurement of MDE among Adults Aged 18 or Older (continued)

Survey	Year of Estimates	Instrument	Definition	Available Time Reference Period	Survey Mode	Miscellaneous Information
NESARC-III	2012 to 2013	AUDADIS-5, which contained a section assessing lifetime and past year MDE using DSM-5 criteria	<p><i>Lifetime MDE</i>: Lifetime diagnosis derived from DSM-5 criteria.</p> <p><i>Past year MDE</i>: Asked only of respondents who reported lifetime MDE; those with lifetime MDE were asked additional questions about the onset, recency, and duration of the depressive episodes that were used to determine whether they had a past year MDE. Respondents were not asked whether they experienced specific symptoms in the past year.</p> <p>Included measurement of whether MDE was caused by a medical illness, bereavement, or the use of medication, drugs, or alcohol. Following DSM-5, the estimates included in this report do not exclude depressive symptoms that occurred only during a period of bereavement, but do exclude depressive symptoms induced by medical illness or the effects of substance use.</p>	Lifetime Past year	CAPI	None

ACASI = audio computer-assisted self-interviewing; AUDADIS = Alcohol Use Disorder and Associated Disabilities Interview Schedule; BRFSS = Behavioral Risk Factor Surveillance System; CAPI = computer-assisted personal interviewing; CATI = computer-assisted telephone interviewing; DSM-IV-TR = *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition, text revision; DSM-5 = *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition; MDE = major depressive episode; NCS-R = National Comorbidity Survey Replication; NESARC = National Epidemiologic Survey on Alcohol and Related Conditions; NSDUH = National Survey on Drug Use and Health; WMH-CIDI = World Health Organization's World Mental Health Version of the Composite International Diagnostic Interview.

¹ BRFSS is not included in this table because it provides data only on current (past 2 weeks) depression, whereas NSDUH provides data on lifetime and past year depression.

² Although NSDUH measures MDE among adolescents, other surveys among youths did not include this measure.

Instruments used in the surveys: Further differences that may have affected MDE prevalence specifically include the instruments used to collect the MDE estimates for each study. Although the questions used to develop the MDE estimate from NSDUH are based on the questions used in the NCS-R, slight revisions to the questions were required to maintain the logical processes of the ACASI environment and to reduce its length.

Operational definitions: Another key factor involves differences between NSDUH and the NCS-R in the way MDE was operationalized. The MDE estimate from the NCS-R used DSM-IV-TR (APA, 2000) hierarchy rules, which exclude depressive symptoms induced by medical illness, bereavement, or the effects of substance use. Therefore, NCS-R lifetime and past year MDE did not include individuals who indicated that their depressive symptoms were the result of any of these three issues. In contrast, no exclusions were made in NSDUH for MDE caused by medical illness, bereavement, or the effects of substance use.

3.4.2 NSDUH versus NESARC Wave 1

Differences in the survey methods that could have resulted in differences in estimates include the time periods of data collection, survey modes, the instruments used in the surveys, and the operational definitions of MDE.

Time periods of data collection: The different time periods of data collection that were used to derive the MDE estimates (2012 for NSDUH vs. 2001 to 2002 for NESARC's Wave 1) could reflect true changes in population estimates over time.

Survey modes: Differences between the two studies also include the mode of data collection. Questions about sensitive topics in NSDUH were self-administered using ACASI, which provides the respondent some sense of anonymity and privacy, whereas similar questions in NESARC's Wave 1 were interviewer administered. The verbal face-to-face mode of administration by an interviewer in NESARC may have provided less privacy than the ACASI mode of administration used for NSDUH. Despite past research (Epstein et al., 2001) indicating that a more private mode of administration would be expected to result in higher reporting of mental distress and impairment, the estimates from NESARC Wave 1 were significantly higher than the estimates from NSDUH.

Instruments used in the surveys: Differences between NSDUH and NESARC Wave 1 in the instruments used to administer MDE questions could have affected MDE prevalence estimates from the surveys. The diagnosis of MDE in NESARC's Wave 1 was generated using AUDADIS-IV, whereas the diagnosis of MDE in NSDUH was generated using adapted questions from the WMH-CIDI that were used for the NCS-R. In addition, the section of the AUDADIS-IV that assessed MDE appeared relatively early in the overall survey (Section 4A out of 18 sections) and was the first set of questions related to mental health. In contrast, the MDE questions in NSDUH were asked later in the survey and were asked after respondents had already responded to questions about general mental distress and suicidality. Thus, the MDE questions were the third time that adult respondents had been asked about depressive symptoms or psychological distress, which may have led to reporting attenuation.

Operational definitions: Finally, a key factor in the differences between NSDUH and NESARC Wave 1 MDE estimates involves differences in the way MDE was operationalized.

The past year MDE estimates from NESARC's Wave 1 presented by Compton et al. (2006) and Cranford et al. (2011) used DSM-IV-TR (APA, 2000) hierarchy rules, which exclude depressive symptoms induced by medical illness, bereavement, or (in the case of the Cranford et al. paper) the effects of substance use. It is assumed that these exclusions were also included in the lifetime MDE estimates presented by Blanco et al. (2012). These exclusions were not made for the NSDUH estimates. Removing those exclusions in NESARC Wave 1 resulted in a prevalence of past year prevalence that was significantly higher than the NSDUH estimate. Also, the lifetime prevalence of MDE in NESARC Wave 1 was significantly higher than the estimate in NSDUH despite the assumed use of those exclusions in the NESARC estimate.

3.4.3 NSDUH versus NESARC-III

Survey modes: Differences between the two studies include the mode of data collection. Similar to NESARC Wave 1, questions about sensitive topics in NESARC-III were interviewer administered using CAPI technology, whereas in NSDUH these questions were self-administered using ACASI, which provides the respondent some sense of anonymity and privacy. As mentioned previously when discussing comparisons between NSDUH and NESARC Wave 1, past research (Epstein et al., 2001) indicates that a more private mode of administration would be expected to result in higher rates of reporting of mental distress and impairment, though the estimates of MDE from NESARC-III were significantly higher than the estimates from NSDUH.

Instruments used in the surveys: Differences between NSDUH and NESARC-III in the instruments used to administer MDE questions could have affected MDE prevalence estimates from the surveys. The diagnosis of MDE in NESARC-III was generated using AUDADIS-IV, whereas the diagnosis of MDE in NSDUH was generated using adapted questions from the WMH-CIDI that were used for the NCS-R. Also, as mentioned previously regarding NESARC Wave 1, the MDE questions in NSDUH were included later in the survey relative to where they were included in NESARC-III, and they were included after respondents had previously responded to questions about psychological distress and suicidality, which may have led to reporting attenuation.

Operational definitions: Finally, a key factor in the differences between NSDUH and NESARC-III MDE estimates involves differences in the way MDE was operationalized. The lifetime and past year MDE estimates from NESARC-III reported by P. Chou (personal communication, May 11, 2018) used DSM-5 (APA, 2013) hierarchy rules, which do not exclude depressive symptoms that occurred only during a period of bereavement but do exclude depressive symptoms induced by medical illness or the effects of substance use. Depressive symptoms induced by medical illness or the effects of substance use were not excluded for the NSDUH estimates. Nonetheless, lifetime and past year prevalences of MDE in NESARC-III were significantly higher than the estimates in NSDUH despite the use of those exclusions in the NESARC-III estimates.

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4. Estimation of Serious Psychological Distress (SPD)

National surveys that include the Kessler-6 (K6) or Kessler-10 (K10) scale that can be used to calculate serious psychological distress (SPD) include the National Survey on Drug Use and Health (NSDUH), the National Comorbidity Survey Replication (NCS-R), the Behavioral Risk Factor Surveillance System (BRFSS), the National Health Interview Survey (NHIS), and the Medical Expenditure Panel Survey (MEPS). NSDUH collects K6 data among adults only; therefore, this chapter includes comparisons of only adult estimates. Each survey's measures and estimates are described in detail. This chapter concludes by summarizing the differences in the survey methods that may explain the differences in estimates between the surveys.

4.1 NSDUH

4.1.1 SPD Instrument

The 2012 NSDUH used the K6 distress scale to capture nonspecific psychological distress (Kessler et al., 2003). The six questions determined how nervous, hopeless, restless or fidgety, sad or depressed, or worthless the respondent felt and to what extent everything felt like an effort to the respondent. Since 2008, the K6 scale in the NSDUH interview has consisted of two sets of six questions that have asked adult respondents how frequently they experienced symptoms of psychological distress during two different time periods: (1) during the past 30 days, and (2) if applicable, the 1 month in the past year when they were at their worst emotionally. Respondents were asked about the second time period only if they indicated that there was a month in the past 12 months when they felt more depressed, anxious, or emotionally stressed than they felt during the past 30 days.

Both the past month and the "worst month in the past year" questions were used to determine estimates of past month and past year SPD in the 2012 NSDUH. To create a score, the six items on the K6 scale were recoded from 0 to 4 so that "all of the time" was coded as 4, "most of the time" as 3, "some of the time" as 2, "a little of the time" as 1, and "none of the time" as 0. Responses of "don't know" and "refused" also were coded as 0. Summing across the recoded responses in these six items resulted in a score with a range from 0 to 24. Past month SPD was defined as a score of 13 or higher on the past month K6 items (Kessler et al., 2005).

4.1.2 SPD Estimate

Based on the 2012 NSDUH, an estimated 5.2 percent of adults aged 18 or older had past month SPD, and 10.8 percent of adults had past year SPD (Center for Behavioral Health Statistics and Quality [CBHSQ], 2013c). This past month estimate of SPD for NSDUH is compared in this chapter with available past month estimates of SPD from other data sources.

4.2 NCS-R

The K10 scale is a longer version of the K6 that includes the same questions and response options as the K6 but has an additional four questions (Kessler et al., 2002). The NCS-R

included K10 questions regarding symptoms of psychological distress during the 1 month in the past 12 months when respondents were at their worst emotionally. The six questions included on the K6 in the NCS-R included some slight wording variations compared with NSDUH. The NCS-R asked, "How often did you feel so *depressed* that nothing could cheer you up?" while NSDUH asked, "How often did you feel so *sad or depressed* that nothing could cheer you up?" In another question, the NCS-R asked respondents, "How often did you feel *worthless*?" while NSDUH asked, "How often did you feel *down on yourself, no good, or worthless*?"

No estimates of past year SPD have been published using the NCS-R, and the survey did not include a past month measure of the K6 or K10. As a result, no SPD estimates from the NCS-R are included in this report.

4.3 BRFSS

4.3.1 SPD Instrument

An optional module was incorporated in the 2007 BRFSS that focused on mental illness and "stigma" (i.e., perceived prejudice and discrimination). This module included the K6 scale, asking adult respondents how frequently they experienced symptoms of psychological distress during the past 30 days.

BRFSS contained the same wording variations in the K6 question as did the NCS-R when compared with NSDUH's wording. BRFSS asked, "How often did you feel so *depressed* that nothing could cheer you up?" while NSDUH asked, "How often did you feel so *sad or depressed* that nothing could cheer you up?" In another question, BRFSS asked respondents, "How often did you feel *worthless*?" while NSDUH asked, "How often did you feel *down on yourself, no good, or worthless*?" Coding in BRFSS was the same as in NSDUH with a Likert scale of "all of the time" to "none of the time" used for each item.

4.3.2 SPD Estimate

Using the same K6 scoring and cut point as NSDUH's (K6 score ≥ 13), public use data files for the 2012 BRFSS cellular telephone and landline telephone combined sample were analyzed to obtain an estimate of past month SPD of 3.8 percent (Centers for Disease Control and Prevention [CDC], 2014a). Only 13 states ($n = 90,198$) administered the BRFSS module on mental illness and "stigma" (i.e., perceived prejudice and discrimination), which included the K6 scale; therefore, this SPD estimate is not nationally representative.⁵ Note that Florida and Louisiana were not included in this 2012 BRFSS estimate of SPD because these states administered the K6 scale to the landline telephone sample only.

⁵ The following states administered the BRFSS mental illness and stigma module in 2012: Illinois, Iowa, Kansas, Minnesota, Missouri, Montana, Nebraska, Nevada, New Jersey, New Mexico, New York, Oregon, and Washington.

4.4 NHIS

4.4.1 SPD Instrument

The NHIS has included the past month K6 scale to produce estimates of past month SPD among adults since 1997. The 2012 NHIS contained slight variations in K6 question wording compared with NSDUH's. The NHIS asked respondents, "How often did you feel so *sad* that nothing could cheer you up?" while NSDUH asked, "How often did you feel so *sad or depressed* that nothing could cheer you up?" In another question, the NHIS asked respondents, "How often did you feel *worthless*?" while NSDUH asked, "How often did you feel *down on yourself, no good, or worthless*?" Coding in the NHIS was the same as described above for NSDUH with a Likert scale of "all of the time" to "none of the time" used for each item.

4.4.2 SPD Estimate

Using the same scoring and SPD definition as the one used in NSDUH (K6 score ≥ 13), public use data files for the 2012 NHIS were analyzed to obtain an estimate of past month SPD of 3.0 percent (CDC, 2014c). Interviews completed by a proxy were then removed from the sample for additional analyses, yielding an estimate of 2.9 percent of adults with past month SPD.

4.5 MEPS

4.5.1 SPD Instrument

The 2012 MEPS included the past month K6 scale to produce estimates of past month SPD among adults. The K6 question wordings were identical to those described above for the NHIS, and the coding was the same as described above for NSDUH.

4.5.2 SPD Estimate

Using the same scoring system and SPD definition as the one used in NSDUH (K6 score ≥ 13), public use data files for the 2012 MEPS were analyzed to obtain a past month prevalence of 5.2 percent. Interviews completed by proxy were then removed from the sample for additional analyses, yielding an estimate of 5.0 percent.

4.6 Differences in Survey Methods That May Affect SPD Estimates

The 2012 NSDUH, the 2012 BRFSS, the 2012 NHIS, and the 2012 MEPS all include the K6 scale, and all allow for the estimation of past month SPD. The estimates of past month SPD from these surveys, along with the results of a test of statistical significance between the estimates from NSDUH and the other surveys, are presented in [Table 4.1](#). The estimated prevalence of past month SPD was 5.2 percent in NSDUH, which was significantly higher than the estimate from BRFSS (3.8 percent) or the NHIS (3.0 percent, or 2.9 percent after the interviews completed by proxy were removed from the sample). The NSDUH estimate was not significantly different from MEPS estimate (5.2 percent in MEPS, or 5.0 percent after the interviews completed by proxy were removed from the sample).

Table 4.1 SPD Prevalence Estimates among Adults Aged 18 or Older, by Data Source

Measure	NSDUH (2012)		BRFSS (2012)		NHIS (2012)		MEPS (2012)	
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Past Month SPD	5.2	(4.9, 5.5)	3.8 ^{b,1}	(3.5, 4.1)	2.9 ^b	(2.6, 3.1)	5.0	(4.8, 5.7)

AHRQ = Agency for Healthcare Research and Quality; BRFSS = Behavioral Risk Factor Surveillance System; CDC = Centers for Disease Control and Prevention; CI = confidence interval; MEPS = Medical Expenditure Panel Survey; NHIS = National Health Interview Survey; NSDUH = National Survey on Drug Use and Health; SPD = serious psychological distress.

^a The difference between this estimate and the NSDUH estimate is statistically significant at the .05 level.

^b The difference between this estimate and the NSDUH estimate is statistically significant at the .01 level.

¹ A total of 13 states provided landline and cellular telephone data in 2012 for past month SPD (Illinois, Iowa, Kansas, Minnesota, Missouri, Montana, Nebraska, Nevada, New Jersey, New Mexico, New York, Oregon, and Washington); therefore, the BRFSS estimate is not nationally representative.

Sources: SAMHSA, Center for Behavioral Health Statistics and Quality, NSDUH, 2012. BRFSS estimates were calculated from public use files located at https://www.cdc.gov/brfss/annual_data/annual_2012.html (CDC, 2014a). The NHIS estimates were calculated from public use files located at https://www.cdc.gov/nchs/nhis/nhis_2012_data_release.htm (CDC, 2014c). MEPS estimates were calculated from public use files located at https://meps.ahrq.gov/mepsweb/data_stats/download_data_files.jsp (AHRQ, 2017).

Each of these four data sources defined SPD among adults as a score of 13 or higher on the past month K6 items (Kessler et al., 2005). However, several methodological differences between NSDUH, BRFSS, NHIS, and MEPS may account for the differences in past month SPD estimates between the four surveys, including their sampling designs, survey modes and response rates, and instruments used in the surveys. Specific differences between NSDUH and the other surveys that may have affected past month SPD estimates are described in the following sections and are summarized in [Table 4.2](#).

4.6.1 NSDUH versus BRFSS

The NSDUH estimate of past month SPD was higher than the BRFSS estimate (5.2 vs. 3.8 percent). There was some consistency between NSDUH and BRFSS in how past month SPD was defined; a score of 13 or higher on the past month K6 items was used to identify SPD in the adult population (Kessler et al., 2005). However, methodological differences between the two studies that may have affected these estimates of SPD include sampling designs, survey modes and response rates, and instruments used in the surveys.

Sampling designs: As indicated in Section 4.3.1, the BRFSS module that focused on mental illness and stigma was an optional module administered in only 13 states and thus was not nationally representative. To determine how much the BRFSS estimate might have differed if BRFSS had national representation, an estimate of past month SPD was calculated from NSDUH using the same 13 states that were available in BRFSS. The estimate of past month SPD from the 2012 NSDUH for just those states was 5.1 percent, which was similar to the NSDUH estimate for the nation as a whole (5.2 percent).

Survey modes and response rates: The mode of data collection also differed between the two surveys. BRFSS used computer-assisted telephone interviewing (CATI), which may have yielded lower reports of sensitive behaviors or emotions than the audio computer-assisted self-interviewing (ACASI) method used by NSDUH. ACASI is considered an anonymous data collection technique that yields higher reporting of sensitive behaviors (Epstein et al., 2001; Kalfs & Saris, 1998; Moskowitz, 2004).

Table 4.2 Differences across Surveys in the Measurement of SPD among Adults Aged 18 or Older

Survey	Year of Estimates	Instrument	Definition	Available Time Reference Period	Survey Mode	Miscellaneous Information
NSDUH	2012	K6	<p>Six domains: nervous, hopeless, restless or fidgety, sad or depressed, worthless, to what extent everything felt like an effort.</p> <p>Frequency of SPD: (1) past 30 days, and (2) if applicable, worst month in the past year (only asked if respondents reported that there was a month in the past 12 months when they felt more depressed, anxious, or emotionally stressed than they felt during the past 30 days).</p> <p>Scored by recoding the six K6 items from 0 to 4 and summing. SPD defined as ≥ 13.</p>	<p>Past month (30 days preceding survey interview)</p> <p>Past year</p>	ACASI	Only past month SPD was compared with other data sources.
BRFSS	2012	K6, included in the optional module on mental illness and stigma	<p>Frequency of psychological distress symptoms during past 30 days.</p> <p>Slight K6 wording variations:</p> <ul style="list-style-type: none"> • BRFSS: "How often did you feel so <i>depressed</i> that nothing could cheer you up?" • NSDUH: "How often did you feel so sad or depressed that nothing could cheer you up?" • BRFSS: "How often did you feel worthless?" • NSDUH: "How often did you feel down on yourself, no good, or worthless?" <p>Cutoff: K6 score ≥ 13.</p> <p>Public use data files for the 2012 combined sample (cellular telephone and landline telephone) were analyzed to obtain past month SPD using K6 score ≥ 13.</p>	Past month	CATI	Only 13 states administered the mental illness and stigma module; therefore, SPD estimate is not nationally representative.

See notes at end of table.

(continued)

Table 4.2 Differences across Surveys in the Measurement of SPD among Adults Aged 18 or Older (continued)

Survey	Year of Estimates	Instrument	Definition	Available Time Reference Period	Survey Mode	Miscellaneous Information
NHIS	2012	K6	<p>Slight K6 wording variations:</p> <ul style="list-style-type: none"> • NHIS: "How often did you feel so sad that nothing could cheer you up?" • NSDUH: "How often did you feel so sad or depressed that nothing could cheer you up?" • NHIS: "How often did you feel worthless?" • NSDUH: "How often did you feel down on yourself, no good, or worthless?" <p>Cutoff: K6 score ≥ 13.</p> <p>Public use data files for 2012 were analyzed to obtain past month SPD using K6 score ≥ 13.</p>	Past month	CAPI	None
MEPS	2012	K6	<p>Slight K6 wording variations (same as NHIS):</p> <ul style="list-style-type: none"> • MEPS: "How often did you feel so sad that nothing could cheer you up?" • NSDUH: "How often did you feel so sad or depressed that nothing could cheer you up?" • MEPS: "How often did you feel worthless?" • NSDUH: "How often did you feel down on yourself, no good, or worthless?" <p>Cutoff: K6 score ≥ 13.</p>	Past month	CAPI, SAQ for K6 items	None

ACASI = audio computer-assisted self-interviewing; BRFSS = Behavioral Risk Factor Surveillance System; CAPI = computer-assisted personal interviewing; CATI = computer-assisted telephone interviewing; K6 = Kessler-6 scale; MEPS = Medical Expenditure Panel Survey; NHIS = National Health Interview Survey; NSDUH = National Survey on Drug Use and Health; SPD = serious psychological distress; SAQ = Self-Administered Questionnaire.

Also, survey response rates may affect nonresponse bias. NSDUH's response rate was 73.0 percent, whereas the cooperation rates (including both landline and cellular telephone samples) for the 13 states providing BRFSS estimates of SPD ranged from 52.7 to 76.6 percent in 2012 (CBHSQ, 2013a; CDC, 2014b). Note that these cooperation rates exclude eligible households where no contact was made, which would result in a lower response rate. Telephone sample coverage may also have varied by state, although the 2012 BRFSS state-based samples included both landline and cellular telephones (CDC, 2014a).

Instruments used in the surveys: Previously mentioned variations in the wording of the individual K6 questions between BRFSS and NSDUH may help explain differences in their past month SPD estimates. BRFSS asked, "How often did you feel so *depressed* that nothing could cheer you up?" while NSDUH asked, "How often did you feel so *sad or depressed* that nothing could cheer you up?" In another question, BRFSS asked respondents, "How often did you feel *worthless*?" while NSDUH asked, "How often did you feel *down on yourself, no good, or worthless*?" The broader language of some NSDUH questions may partially explain the higher prevalence of past month SPD in NSDUH than in the BRFSS. In addition, NSDUH started each question by asking, "How often did you feel. . .," whereas BRFSS asked, "About how often did you feel. . . ."

4.6.2 NSDUH versus NHIS

The prevalence of past month SPD in the NHIS in 2012 (2.9 percent excluding proxies) was lower than the prevalence of SPD from the 2012 NSDUH (5.2 percent). Although the two data sources were consistent in how past month SPD was defined and in using a cutoff score of 13 or higher on the past month K6, methodological differences between the two studies that may have affected the SPD estimates include survey modes and instruments used in the surveys.

Survey modes: Questions about sensitive topics in NSDUH were self-administered using ACASI, while similar questions in the 2012 NHIS used computer-assisted personal interviewing (CAPI), in which questions on sensitive behaviors were asked face to face by an interviewer. This mode of interviewing allowed less privacy when answering sensitive questions and could have resulted in underreporting of sensitive behaviors and emotions. Based on past research (Epstein et al., 2001), it would be expected that a more private mode of administration such as ACASI would have resulted in a higher reporting of mental health issues.

Instruments used in the surveys: In addition, previously mentioned variations in the wording of the individual K6 questions between NSDUH and the NHIS may help explain differences in their past month SPD estimates. For example, the NHIS asked respondents, "How often did you feel so *sad* that nothing could cheer you up?" while NSDUH asked, "How often did you feel so *sad or depressed* that nothing could cheer you up?" In another question, the NHIS asked respondents, "How often did you feel *worthless*?" while NSDUH asked, "How often did you feel *down on yourself, no good, or worthless*?" The broader language of some NSDUH questions may partially explain the higher prevalence of past month SPD in NSDUH than in the NHIS.

In addition, the ordering of the individual K6 questions differed in the NHIS from the ordering used in NSDUH and the other surveys. Variations in the question ordering may help explain differences in the prevalence of past month SPD.

Despite the two surveys' consistency of SPD definition and scoring cutoff, other instrumentation differences could have affected past month SPD prevalence estimates between NSDUH and the NHIS. The 2012 NSDUH included a larger number of mental health questions than did the 2012 NHIS, which was limited to the K6 scale. NSDUH respondents, therefore, could have become more comfortable than NHIS respondents when answering mental health questions. This increased level of comfort by NSDUH respondents may have resulted in an increased willingness to disclose psychological distress.

4.6.3 NSDUH versus MEPS

Although prevalence estimates of past month SPD were similar for the 2012 NSDUH and the 2012 MEPS (5.2 and 5.0 percent, respectively), various differences in survey methodology should be considered. The similarity in their estimates was not likely due to a similarity in their methodology because MEPS was not methodologically more similar to NSDUH than were the other surveys. Methodological differences between the two surveys include survey modes, sampling designs, and instruments used in the surveys.

Survey modes: The part of MEPS that included the K6 used a mail-back Self-Administered Questionnaire (SAQ), whereas NSDUH used ACASI.

Sampling designs: As discussed in Section 2.6, the MEPS sample was drawn from the NHIS respondents, so those who did not respond to the NHIS were not included in the MEPS sampling frame. There was no such limitation in the NSDUH sampling frame.

Instruments used in the surveys: Other methodological differences between the NSDUH and MEPS assessments of SPD include the previously mentioned variations in question wording and the order of the individual K6 questions. Identical to the K6 question wording modifications used in the NHIS, the K6 in MEPS did not include some of the individual terms used in the K6 in NSDUH to describe specific emotions or feelings, potentially resulting in underreporting of sensitive behaviors or emotions. MEPS asked respondents, "How often did you feel *worthless*?" while NSDUH asked, "How often did you feel *down on yourself, no good, or worthless*?" MEPS asked respondents, "How often did you feel so *sad* that nothing could cheer you up?" while NSDUH asked, "How often did you feel so *sad or depressed* that nothing could cheer you up?" In addition, NSDUH started each question by asking, "*How often* did you feel. . .," whereas MEPS asked, "*About how often* did you feel. . . ." The broader language of some NSDUH questions may partially explain the higher prevalence of past month SPD in NSDUH than in MEPS.

5. Estimation of Suicidality

National surveys that measured suicidality (suicidal thoughts and behaviors) include the National Survey on Drug Use and Health (NSDUH), the National Comorbidity Survey Replication (NCS-R), and the Youth Risk Behavior Survey (YRBS). NSDUH measures suicidality among adults aged 18 or older only; therefore, this chapter includes comparisons of only adult estimates.⁶ Each survey's suicidality instruments and estimates are described in detail. This chapter concludes by summarizing the differences in the survey methods that may explain the differences in estimates between the surveys.

5.1 NSDUH

5.1.1 Suicidality Instrument

Since 2008, NSDUH has included a series of questions that begins by asking respondents aged 18 or older if, at any time during the past 12 months, they had serious thoughts of suicide. Those who had serious thoughts of suicide were then asked if they (1) made any plans to kill themselves in the past 12 months or (2) attempted to kill themselves in the past 12 months.⁷

5.1.2 Suicidality Estimates

Estimates of suicidality are compared by data source in [Table 5.1](#) among adults aged 18 or older (NSDUH vs. NCS-R) and in [Table 5.2](#) among high school adults aged 18 or older (NSDUH vs. YRBS).

The comparison of NSDUH with YRBS estimates is treated separately from the comparison with NCS-R estimates for two reasons. First, for the YRBS comparison, NSDUH estimates for suicidality were limited to respondents aged 18 or older who reported being enrolled in high school during the first 6 months of the calendar year (roughly the time of year that YRBS data are collected). Second, 2008 to 2012 NSDUH data were combined for the YRBS comparison to make sure the resulting sample size was adequate.

Estimates from the 2012 NSDUH indicate that 3.9 percent of adults aged 18 or older had serious thoughts about suicide in the past year, 1.1 percent made suicide plans in the past year, and 0.6 percent attempted suicide in the past year (Center for Behavioral Health Statistics and Quality, 2013b).

Estimates from the 2008 to 2012 NSDUHs indicate that 8.3 percent of high school students aged 18 or older had serious thoughts about suicide in the past year, 3.3 percent made suicide plans in the past year, 1.8 percent attempted suicide in the past year, and 0.8 received medical attention as a result of a suicide attempt in the past year (Kilmer Miller et al., 2015).

⁶ The comparisons of high school students aged 18 or older from NSDUH and YRBS that are included in this chapter were published previously (Kilmer Miller et al., 2015).

⁷ Additional questions on suicide were asked as part of the NSDUH depression module. However, because respondents were routed to these additional questions only if they reported depressive symptoms, they were not used to estimate suicidality.

Table 5.1 Suicidality Estimates among Adults Aged 18 or Older, by Data Source

Suicide Measure	NSDUH (2012)		NCS-R (2001 to 2003)	
	%	(95% CI)	%	(95% CI)
Past Year Suicide Ideation ¹	3.9	(3.6, 4.1)	2.6 ^b	(2.2, 3.0)
Past Year Suicide Plans	1.1	(1.0, 1.3)	0.7 ^b	(0.5, 0.9)
Past Year Suicide Attempts	0.6	(0.5, 0.6)	0.4	(0.2, 0.6)

CI = confidence interval; NCS-R = National Comorbidity Survey Replication; NSDUH = National Survey on Drug Use and Health.

^a The difference between this estimate and the NSDUH estimate is statistically significant at the .05 level.

^b The difference between this estimate and the NSDUH estimate is statistically significant at the .01 level.

¹ In NSDUH, respondents were asked, "At any time in the past 12 months, did you seriously think about trying to kill yourself?" If they answered "Yes," they were categorized as having past year suicide ideation. Respondents with unknown suicide information were excluded.

Sources: SAMHSA, Center for Behavioral Health Statistics and Quality, NSDUH, 2012. The NCS-R estimates are from Borges et al. (2006).

Table 5.2 Suicidality Estimates among Adults Aged 18 or Older in High School, by Data Source

Suicide Measure	NSDUH (2008 to 2012)		YRBS (2009 and 2011)	
	%	(SE)	%	(SE)
Past Year Suicide Ideation ¹	8.3	(0.56)	12.2 ^b	(0.56)
Past Year Suicide Plans	3.3	(0.36)	9.7 ^b	(0.50)
Past Year Suicide Attempts	1.8	(0.24)	5.3 ^b	(0.39)
Medical Attention as a Result of a Past Year Suicide Attempt	0.8	(0.16)	1.9 ^b	(0.27)

NSDUH = National Survey on Drug Use and Health; SE = standard error; YRBS = Youth Risk Behavior Survey.

^a The difference between this estimate and the NSDUH estimate is statistically significant at the .05 level.

^b The difference between this estimate and the NSDUH estimate is statistically significant at the .01 level.

¹ For comparison purposes, NSDUH estimates are provided for respondents aged 18 or older attending high school full time who were interviewed during January through June each year. In NSDUH, respondents were asked, "At any time in the past 12 months, did you seriously think about trying to kill yourself?" If they answered "Yes," they were categorized as having past year suicide ideation. Respondents with unknown suicide information were excluded.

Sources: SAMHSA, Center for Behavioral Health Statistics and Quality, NSDUH, 2008 to 2012. The YRBS estimates are from Kilmer Miller et al. (2015).

5.2 NCS-R

5.2.1 Suicidality Instrument

Suicidal behavior was assessed in the Part II sample of the 2001 to 2003 NCS-R. Respondents were asked whether they ever seriously thought about killing themselves and, if so, whether they had these thoughts in the past 12 months. Respondents who reported such suicidal ideation were then asked whether they ever made a plan for committing suicide and, if so, whether they made such a plan in the past 12 months. All respondents who reported suicidal ideation (even those who did not report making a suicide plan) were next asked whether they ever attempted suicide and, if so, whether they made such an attempt in the past 12 months. Respondents who reported making a 12-month attempt were then asked to describe the lethality intent of the attempt by indicating which of the following three statements best described their attempt: (1) "I made a serious attempt to kill myself and it was only luck that I did not succeed." (2) "I tried to kill myself, but knew the method was not foolproof." (3) "My attempt was a cry for help. I did not intend to die." Respondents who endorsed either of the first two statements were considered to have made a suicide attempt.

Based on evidence that sensitive behaviors were more likely to be reported in self-administered rather than interviewer-administered surveys (Turner et al., 1998), the NCS-R study team took measures to lessen the impact of having to report these types of behaviors to an interviewer. The suicide questions were printed in a booklet and were referred to by letter: *A. suicide ideation*, "Have you ever seriously thought about committing suicide?" *B. suicide plans*, "Have you ever made a plan for committing suicide?" *C. suicide attempts*, "Have you ever attempted suicide?"

5.2.2 Suicidality Estimates

Borges et al. (2006) used the NCS-R data (Part II sample) to report that 2.6 percent of adults aged 18 or older had seriously thought about committing suicide in the past year, 0.7 percent had made a suicide plan in the past year, and 0.4 percent had attempted suicide in the past year.

5.3 YRBS

5.3.1 Suicidality Instrument

The YRBS includes a series of four questions that asks respondents in grades 9 to 12 if, during the past 12 months, (1) they ever seriously considered attempting suicide, (2) they made a plan about how they would attempt suicide, (3) how many times they actually attempted suicide, and (4) if they attempted suicide during the past 12 months, whether any attempt resulted in an injury, poisoning, or overdose that had to be treated by a doctor or nurse.

5.3.2 Suicidality Estimates

Estimates from the combined 2009 and 2011 YRBS indicate that 12.2 percent of high school students aged 18 or older had serious thoughts about suicide in the past year, 9.7 percent made suicide plans in the past year, 5.3 percent attempted suicide in the past year, and 1.9 percent received medical attention as a result of a suicide attempt in the past year (Kilmer Miller et al., 2015).

5.4 Differences in Survey Methods That May Affect Suicidality Estimates

The suicidality estimates from the 2012 NSDUH and the 2001 to 2003 NCS-R, along with the results of a test of statistical significance between the estimates from these surveys, are presented in [Table 5.1](#).

The prevalence of past year suicide ideation among adults aged 18 or older was significantly higher in the 2012 NSDUH (3.9 percent) than in the 2001 to 2003 NCS-R (2.6 percent). The prevalence of past year suicide planning was also significantly higher in NSDUH (1.1 percent) than in the NCS-R (0.7 percent). The estimates of past year suicide attempts were not significantly different in NSDUH (0.6 percent) than in the NCS-R (0.4 percent).

The suicidality estimates from the combined 2008 to 2012 NSDUHs and the combined 2009 and 2011 YRBS, along with the results of a test of statistical significance between the estimates from these surveys, are presented in [Table 5.2](#).

Compared with high school students aged 18 or older in the combined 2009 and 2011 YRBS, high school students aged 18 or older in the combined 2008 to 2012 NSDUHs were significantly less likely to report past year suicide ideation (8.3 and 12.2 percent, respectively), have made suicide plans in the past year (3.3 and 9.7 percent, respectively), had a past year suicide attempt (1.8 and 5.3 percent, respectively), or received medical attention as a result of a suicide attempt in the past year (0.8 and 1.9 percent, respectively).

A number of methodological differences between NSDUH and the NCS-R, and between NSDUH and the YRBS, may account for the differences in past year estimates of suicide ideation, planning, attempts, and related receipt of medical attention between the three surveys, including their time periods of data collection, sampling designs, survey modes, instruments used in the surveys, operational definitions, and estimation methodologies. Specific differences between NSDUH and the other surveys that may have affected suicidality estimates are described in the following sections and are summarized in [Table 5.3](#).

5.4.1 NSDUH versus NCS-R

Several methodological differences between NSDUH and the NCS-R could account for the greater prevalence of past year suicide ideation and planning in NSDUH (3.9 and 1.1 percent, respectively) than in the NCS-R (2.6 and 0.7 percent, respectively). These methodological differences include time periods of data collection, sampling designs, survey modes, and instruments used in the surveys. Specific differences between NSDUH and the NCS-R that may have affected suicidality estimates are described in the following paragraphs and are summarized in [Table 5.3](#).

Time periods of data collection: NSDUH's estimates are based on data collected in 2012, whereas the NCS-R estimates are based on data gathered between 2001 and 2003. The differences in estimates for past year suicide ideation and planning between the two surveys could partially reflect real population-level change over the different time frames.

Sampling designs: In NSDUH, all adults aged 18 or older received the questions related to suicidality. In the NCS-R, the suicidality questions were included in the Part II sample, which was given only to respondents who met the lifetime criteria for a Part I disorder plus a probability subsample of others (total $n = 5,692$). Although this might suggest a higher likelihood of suicidality in the NCS-R sample, the estimates were weighted to adjust for oversampling Part I respondents with a mental disorder, differential probabilities of selection, systematic nonresponse, and residual sociodemographic and geographic differences between the sample and the 2000 decennial census. This weighting process likely minimized any impact of this variation in sampling designs.

Survey modes: The mode of data collection also differed between the surveys. NSDUH used audio computer-assisted self-interviewing (ACASI), which provides the respondent some sense of anonymity and privacy, while computer-assisted personal interviewing (CAPI) was used for the NCS-R. Although attempts were made in the NCS-R to lessen the impact of the interviewer by using a self-administered booklet in which sensitive topics could be referred to by letter, the CAPI mode of administration may not have provided as much privacy as the ACASI

Table 5.3 Differences across Surveys in the Measurement of Suicidality among Adults Aged 18 or Older and among High School Students Aged 18 or Older

Survey	Year of Estimates	Instrument	Definition	Available Time Reference Period	Survey Mode	Miscellaneous Information
NSDUH	2012 (comparison with NCS-R) 2008 to 2012 (comparison with YRBS)	Suicidality questions developed for NSDUH	"At any time during the past 12 months, . . . did you seriously think about trying to kill yourself?" If "yes": (1) "did you make any plans to kill yourself?" (2) "did you try to kill yourself?" (3) "did you get medical attention from a doctor or other health professional as a result of an attempt to kill yourself?"	Past year	ACASI	Additional questions on suicide were asked as part of the depression module, but were not used to estimate suicidality because they were asked only of individuals who screened into the depression module. NSDUH estimates used for comparison with YRBS were limited to high school students aged 18 or older who were interviewed during the first 6 months of the year because the YRBS is conducted during the spring semester only. Because of the resulting small sample size, combined 2008 to 2012 data were used for the YRSB comparison, with a combined sample size of about 4,300.
NCS-R	2001 to 2003	Suicidality questions originally used in the NCS	"Have you ever seriously thought about committing suicide?" If "yes," asked if this occurred in past 12 months. If "yes" to lifetime serious thoughts: "Have you ever made a plan for committing suicide?" If "yes," asked if this occurred in past 12 months. "Have you ever attempted suicide?" If "yes," asked if this occurred in past 12 months. Suicide attempts that lacked lethal intent were not included in the published estimate of past year suicide attempts.	Lifetime Past year	CAPI	The suicide questions were printed in a booklet and referred to by letter by the interviewer in order to minimize the impact of the interviewer's presence on responses. The suicide questions were included only in the Part II sample, although any impact of this was likely minimized by the weighting procedure.

See notes at end of table.

(continued)

Table 5.3 Differences across Surveys in the Measurement of Suicidality among Adults Aged 18 or Older and among High School Students Aged 18 or Older (continued)

Survey	Year of Estimates	Instrument	Definition	Available Time Reference Period	Survey Mode	Miscellaneous Information
YRBS	2009 and 2011	Suicidality questions developed for the YRBS	<p>"During the past 12 months, did you ever seriously consider attempting suicide?"</p> <p>"During the past 12 months, did you make a plan about how you would attempt suicide?"</p> <p>"During the past 12 months, how many times did you actually attempt suicide?"</p> <p>"If you attempted suicide during the past 12 months, did any attempt result in an injury, poisoning, or overdose that had to be treated by a doctor or nurse?"</p>	Past year	PAPI	<p>For comparison with NSDUH, the YRBS estimates were limited to high school students aged 18 or older because NSDUH only assesses suicidality among adults aged 18 or older.</p> <p>The YRBS is conducted during the spring semester only.</p> <p>The combined sample size of high school students aged 18 or older in the combined 2009 and 2011 YRBS was 4,822.</p>

ACASI = audio computer-assisted self-interviewing; CAPI= computer-assisted personal interviewing; NCS = National Comorbidity Survey; NCS-R = National Comorbidity Survey Replication; NSDUH = National Survey on Drug Use and Health; PAPI = paper-and-pencil interviewing; YRBS – Youth Risk Behavior Survey.

mode of administration used for NSDUH. Given the very sensitive nature of questioning on suicide-related experiences, the differences in survey mode between the two surveys may partially account for the greater prevalence of past year suicide ideation and planning in NSDUH than in the NCS-R. Past research (Epstein et al., 2001) indicates that a more private mode of administration would be expected to result in higher reporting of sensitive issues of mental distress and impairment.

Instruments used in the surveys: The variation between NSDUH and the NCS-R in their questions could have had an impact on the estimates. In the NCS-R, only respondents who had reported lifetime suicidal thoughts, plans, or attempts were asked questions about past year suicidal thoughts, plans, or attempts, so two responses were required to indicate past year suicidality. In NSDUH, respondents were asked only about suicidal thoughts, plans, and attempts in the past year, so only one response was required to indicate past year suicidality. Another difference is that the NCS-R included questions of the lethal intent of past year suicide attempts, and the published estimate of suicide attempts excluded those without lethal intent ("My attempt was a cry for help. I did not intend to die."). NSDUH did not include questions on the lethal intent of past year suicide attempts; thus, its estimate included attempts that may not have had lethal intent.

5.4.2 NSDUH versus YRBS

Several methodological differences between NSDUH and the YRBS may account for the lower prevalence among high school students aged 18 or older in NSDUH than in the YRBS in past year suicide ideation (8.3 and 12.2 percent, respectively), plans (3.3 and 9.7 percent, respectively), attempts (1.8 and 5.3 percent, respectively), and medical attention resulting from a suicide attempt in the past year (0.8 and 1.9 percent, respectively). These methodological differences include sampling designs, survey modes, consent procedures, and instruments used in the surveys. Specific differences between NSDUH and the YRBS that may have affected suicidality estimates are described in the following paragraphs and are summarized in [Table 5.3](#).

Sampling designs: NSDUH is designed to represent the full U.S. household population aged 12 or older and includes youths and young adults living in selected households regardless of whether they were currently attending school. The YRBS is designed to represent high school students in the United States and thus does not include youths or young adults who are not currently attending school. Although these analyses of NSDUH limited the sample to adults aged 18 or older who indicated that they were currently attending high school and also were limited to those interviewed during the first 6 months of the year in order to match the seasonal data collection of YRBS, it is possible that these variations in sampling design may account for the observed differences between the surveys.

Survey modes: The mode of data collection also differed between the surveys. NSDUH was administered using ACASI, which may provide the respondent some sense of anonymity and privacy, while the YRBS used self-administered paper-and-pencil interviewing (PAPI). Although the use of a self-administered booklet may have provided some privacy, the school environment in which the surveys is administered may have some impact on respondents' experience of privacy or perception of privacy. On one hand, the presence of other students in the same room may have limited the perception of privacy. On the other hand, the school environment is physically more separated from parents or guardians than the home environment

in which the NSDUH was administered. This separation from the home could create a sense of privacy specifically from parents or other individuals present in the home. Although research (Epstein et al., 2001) indicates that a more private mode of administration (i.e., ACASI vs. PAPI) would be expected to result in higher reporting of sensitive issues of mental distress and impairment, perceptions of distance from parents may encourage higher reporting in the school environment.

Consent procedures: In most of the schools in which it is administered, the YRBS employs passive parental consent. This passive consent process allows parents to opt their student out if they wish, but consent is assumed if no parental response is obtained. In contrast, parents are often the first point of contact during the administration of NSDUH. This allows for the possibility that household contacts may refuse on behalf of a family member with a behavioral or emotional problem that may make their NSDUH participation difficult or stressful. The frequency with which this occurs and results in the exclusion of potential 18-year-old high school student respondents is unknown. However, it could possibly lead to underreporting of suicidality in NSDUH. Given the very sensitive nature of questioning on suicide-related experiences, the differences in survey consent procedures between NSDUH and the YRBS may partially account for the observed differences between these surveys.

Instruments used in the surveys: Variations in skip patterns and question content between NSDUH and the YRBS could have had an impact on their respective suicidality estimates. In NSDUH, respondents who indicated that they had not seriously thought about trying to kill themselves were skipped over the subsequent questions about having a suicide plan, trying to kill themselves, and receiving medical attention after an attempt to kill themselves. In contrast, the YRBS suicide questions had no skip patterns, so all YRBS respondents were asked about seriously considering attempting suicide, making a suicide plan, attempting suicide, and receiving medical attention following a suicide attempt. Also, in the YRBS, respondents were asked if they seriously considered attempting suicide and whether they made a plan about how they would attempt suicide, without using the terminology "killing" oneself. The YRBS questions may imply "self-harm," potentially resulting in estimates that include attempts that may not have had lethal intent. In addition, the YRBS wording may have been less difficult to endorse with honesty because of the slightly more delicate nature of the wording. In contrast, NSDUH respondents were asked whether they seriously thought about trying to "kill" themselves, whether they made any plans to "kill" themselves, and did they try to "kill" themselves.

6. Estimation of Medical Diagnosis of Mental Health Conditions

National surveys that measured the medical diagnosis of mental health conditions include the National Survey on Drug Use and Health (NSDUH), the Behavioral Risk Factor Surveillance System (BRFSS), the National Health Interview Survey (NHIS), and the National Survey of Children's Health (NSCH). All NSDUH respondents, including adolescents, were asked to report whether they had been told by a doctor or other health professional in their lifetime that they had certain conditions and, if so, if they had been told they had that condition in the past year. The methodology was similar for adults participating in BRFSS and the NHIS, and similar information for adolescents was collected from parent reports for the NHIS and NSCH. Each survey's instruments and estimates regarding the medical diagnosis of mental health conditions are described in detail. This chapter concludes by summarizing the differences in the survey methods that may help explain the differences in estimates between the surveys for both adults and adolescents. The specific questions used to assess the medical diagnosis of mental health conditions for each survey are included in Appendix B.

6.1 NSDUH

6.1.1 Medical Diagnosis Instrument

Beginning in 2005, NSDUH respondents were presented with a list of 20 health conditions and were asked to read the list and select the specific conditions that a doctor or other medical professional had ever told the respondents that they had (Office of Applied Studies, 2006). Another checklist followed to assess whether a doctor or other medical professional had told them that they had these health conditions in the past year. Two mental health conditions were included in these checklists—anxiety disorder and depression. Lifetime and past 12 month NSDUH estimates for these two conditions were available for adults and adolescents in 2012.

6.1.2 Estimates of Medical Diagnosis of Mental Health Conditions

Available estimates of the medical diagnosis of mental health conditions are compared by data source in [Table 6.1](#) among adults aged 18 or older and in [Table 6.3](#) among adolescents aged 12 to 17, while [Tables 6.2](#) and [6.4](#) describe the differences between the surveys. In the 2012 NSDUH, an estimated 7.6 percent of adults and 3.5 percent of adolescents were told by a doctor or other health care professional in the past year that they had depression. An estimated 13.0 percent of adults and 4.8 percent of adolescents were told in the past year that they had depression.⁸ In the 2012 NSDUH, an estimated 6.0 percent of adults aged 18 or older and 2.7 percent of adolescents aged 12 to 17 were told by a doctor or other health care professional in the past year that they had an anxiety disorder. An estimated 9.3 percent of adults and 3.7 percent of adolescents were told in their lifetime that they had an anxiety disorder.

⁸ Appendix A includes comparisons of NSDUH estimates of the medical diagnosis of depression and estimates of major depressive episode (MDE) from the depression module.

Table 6.1 Prevalence of Medical Diagnosis of Mental Health Conditions among Adults Aged 18 or Older, by Data Source

Mental Health Condition	NSDUH (2012)		BRFSS ¹ (2011 to 2012)		NHIS (2012)	
	%	(95% CI)	%	(95% CI)	%	(95% CI)
Told in Past Year That They Had Depression	7.6	(7.2, 8.0)	N/A	--	10.0 ^b	(9.6, 10.4)
Told in Lifetime That They Had Depression	13.0	(12.5, 13.6)	16.9 ^b	(16.7, 17.1)	14.1 ^b	(13.6, 14.6)
Told in Past Year That They Had Anxiety Disorder	6.0	(5.7, 6.3)	N/A	--	N/A	--
Told in Lifetime That They Had Anxiety Disorder	9.3	(8.9, 9.7)	14.2 ^{b,2}	(13.3, 15.1)	N/A	--

-- = not available; BRFSS = Behavioral Risk Factor Surveillance System; CDC = Centers for Disease Control and Prevention; CI = confidence interval; MDE = major depressive episode; N/A = indicator not included in data system; NHIS = National Health Interview Survey; NSDUH = National Survey on Drug Use and Health.

NOTE: Respondents with unknown lifetime or past year depression or anxiety disorder were excluded. Respondents with unknown lifetime MDE were excluded.

^a The difference between this estimate and the NSDUH estimate is statistically significant at the .05 level.

^b The difference between this estimate and the NSDUH estimate is statistically significant at the .01 level.

¹ The estimate for lifetime diagnosed depressive disorder is from the 2012 BRFSS, and the estimate for lifetime diagnosed anxiety disorder is from the 2011 BRFSS.

² Two states provided landline and cellular telephone data (New Hampshire, New Mexico) and seven states provided only landline telephone data (Kansas, Maine, Nebraska, New Jersey, New York, Ohio, Oregon) in 2011 for the lifetime diagnosed anxiety disorder; therefore, this BRFSS estimate is not nationally representative.

Sources: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2012. BRFSS estimates were calculated from public use files at https://www.cdc.gov/brfss/annual_data/annual_2012.html (CDC, 2014a). The NHIS estimates were calculated from public use files located at https://www.cdc.gov/nchs/nhis/nhis_2012_data_release.htm (CDC, 2014c).

6.2 BRFSS

6.2.1 Medical Diagnosis Instrument

The chronic health conditions section of the 2012 BRFSS questionnaire began, "Now I would like to ask you some questions about general health conditions. Has a doctor, nurse, or other health professional EVER told you that you had any of the following? For each, tell me 'Yes,' 'No,' or you're 'Not sure.'" Within this section, the medical diagnosis of depression was assessed by asking "(...ever told) you have a depressive disorder, including depression, major depression, dysthymia, or minor depression?" Public use data files for the 2012 BRFSS cellular telephone and landline telephone combined sample were analyzed to obtain an estimate of lifetime medical diagnosis of depression. Puerto Rico and the Virgin Islands were excluded in order to obtain an estimate comparable with NSDUH's estimate.

Anxiety disorder was not assessed in the chronic health conditions section; however, states were allowed to choose an optional anxiety and depression module in 2011. The final question of this module asked, "Has a doctor or other healthcare provider EVER told you that you have an anxiety disorder (including acute stress disorder, anxiety, generalized anxiety disorder, obsessive-compulsive disorder, panic disorder, phobia, posttraumatic stress disorder, or social anxiety disorder)?" Public use data files for the 2011 BRFSS cellular telephone and landline telephone combined sample were analyzed to obtain an estimate of lifetime medical diagnosis of anxiety disorder for the nine states that opted to use this module. This estimate is based on data from 54,923 respondents.

Table 6.2 Differences across Surveys in the Measurement of Medical Diagnosis of Mental Health Conditions among Adults Aged 18 or Older

Survey	Year of Estimates	Instrument	Definition	Available Time Reference Period	Survey Mode	Miscellaneous Information
NSDUH	2012	Questions developed for NSDUH (no specific instrument)	Respondents presented with a checklist of 20 health conditions indicated which specific conditions that a doctor or other medical professional had ever told them they had. This was followed by a checklist to assess whether a doctor or other medical professional had told them that they had these health conditions in the past year.	Lifetime Past 12 months	ACASI	None
BRFSS	2012 (Depression) 2011 (Anxiety disorder)	Questions developed for BRFSS (no specific instrument)	<i>Depression:</i> BRFSS chronic health section: "Has a doctor, nurse, or other health professional EVER told you have a depressive disorder, including depression, major depression, dysthymia, or minor depression?" ("Yes," "No," "Not sure") <i>Anxiety disorder:</i> Assessed in an optional module in 2011: "Has a doctor or other healthcare provider EVER told you that you have an anxiety disorder (including acute stress disorder, anxiety, generalized anxiety disorder, obsessive-compulsive disorder, panic disorder, phobia, posttraumatic stress disorder, or social anxiety disorder)?"	Lifetime	CATI	Public use data files for 2012 BRFSS (cellular telephone and landline telephone combined sample) were analyzed to obtain an estimate of lifetime medical diagnosis of depression. Public use data files for the 2011 BRFSS (cellular telephone and landline telephone combined sample) were analyzed to obtain an estimate of lifetime medical diagnosis of anxiety disorder for the nine states that opted to use this module.
NHIS	2012	Questions developed for NHIS (no specific instrument)	Ever been told by a doctor or health professional that they had depression. If "yes": "During the past 12 months have you had depression?"	<i>Depression:</i> Lifetime Past year <i>Anxiety:</i> Not assessed	CAPI	None

ACASI = audio computer-assisted self-interviewing; BRFSS = Behavioral Risk Factor Surveillance System; CAPI= computer-assisted personal interviewing; CATI = computer-assisted telephone interviewing; NHIS = National Health Interview Survey; NSDUH = National Survey on Drug Use and Health.

Table 6.3 Adolescents Aged 12 to 17 Who Had Been Told in Their Lifetime or in the Past Year That They Had Depression or Anxiety, by Data Source

Mental Health Condition	NSDUH (2012)		NHIS (2012)		NSCH (2011 to 2012)	
	%	(95% CI)	%	(95% CI)	%	(95% CI)
Told in Past Year That They Had Depression	3.5	(3.2, 3.8)	5.4 ^b	(4.6, 6.2)	N/A	--
Told in Lifetime That They Had Depression	4.8	(4.4, 5.2)	N/A	--	7.2 ^b	(6.6, 7.9)
Told in Past Year That They Had Anxiety Disorder	2.7	(2.5, 3.0)	N/A	--	N/A	--
Told in Lifetime That They Had Anxiety Disorder	3.7	(3.4, 4.0)	N/A	--	7.7 ^b	(7.1, 8.3)

-- not available; CI = confidence interval; N/A = indicator not included in data system; NHIS = National Health Interview Survey; NSCH = National Survey of Children's Health; NSDUH = National Survey on Drug Use and Health.

NOTE: Respondents with unknown lifetime or past year depression or anxiety disorder were excluded.

^a The difference between this estimate and the NSDUH estimate is statistically significant at the .05 level.

^b The difference between this estimate and the NSDUH estimate is statistically significant at the .01 level.

Sources: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2012. The NHIS estimates were derived from public use files at <https://www.cdc.gov/nchs/nhis/data-questionnaires-documentation.htm> (CDC, 2018b). The NSCH estimates were derived from public use files at <https://www.cdc.gov/nchs/slits/nsch.htm> (CDC, 2017b).

6.2.2 Estimates of Medical Diagnosis of Mental Health Conditions

In the 2012 BRFSS, 16.9 percent of adults aged 18 or older had been told in their lifetime by a medical professional that they had a depressive disorder. This estimate is nationally representative because it was assessed in a core module in all states ([Table 6.1](#)).

In the 2011 BRFSS, 14.2 percent of adults with landline telephones reported a diagnosis of anxiety disorder in their lifetime. Because only nine states administered the anxiety and depression module in the 2011 BRFSS, this estimate of lifetime medical diagnosis of anxiety disorder is not nationally representative. It should also be noted that states did not have the capability of including their cellular telephone samples in 2011 if a module was administered only to a subsample of respondents. Therefore, in states administering the anxiety and depression module to a subsample, only landline telephone surveys were included in the estimate of lifetime medical diagnosis of anxiety disorder, which may have affected the representativeness of data gathered in those states.

6.3 NHIS

6.3.1 Medical Diagnosis Instrument

In a series of questions assessing medical history, the 2012 NHIS asked adults if they had ever been told by a doctor or health professional that they had depression. Those answering "yes" were then asked, "During the past 12 months have you had depression?" For children aged 6 to 17, the lifetime medical diagnosis of depression was not assessed, but parents were asked, "During the past 12 months, has a doctor or other health professional told you that the child had depression?" The NHIS questionnaire did not assess the medical diagnosis of anxiety for adults or adolescents.

Table 6.4 Differences across Surveys in the Measurement of Medical Diagnosis of Mental Health Conditions among Adolescents Aged 12 to 17

Survey	Year of Estimates	Instrument	Definition	Available Time Reference Period	Survey Mode	Miscellaneous Information
NSDUH	2012	Questions developed for NSDUH (no specific instrument)	Respondents presented with a checklist of 20 health conditions indicated which specific conditions that a doctor or other medical professional had ever told them they had. This was followed by a checklist to assess whether a doctor or other medical professional had told them that they had these health conditions in the past year.	Lifetime Past year	ACASI	None
NHIS	2012	Questions developed for NHIS (no specific instrument)	Parents of children aged 6 to 17 were asked, "During the past 12 months, has a doctor or other health professional told you that the child had depression?"	<i>History of depression:</i> Past year <i>History of anxiety:</i> Not assessed	CAPI	None
NSCH	2011 to 2012	Questions developed for NSCH (no specific instrument)	Parents presented with a list of health conditions were asked if "a doctor or other health care provider ever told you that the child had the condition, even if s/he does not have the condition now." Depression was described as "an illness that involves the body, mood, and thoughts. It is marked by persistent sadness or an anxious or empty mood. It affects how a person feels, and the way a person eats, sleeps, and functions." Anxiety problems were described as "a feeling of constant worrying. Children with severe anxiety problems may be diagnosed as having anxiety disorders. Anxiety disorders include panic disorder, obsessive-compulsive disorder, post-traumatic stress disorder, and phobias."	Lifetime	CATI	None

ACASI = audio computer-assisted self-interviewing; CAPI= computer-assisted personal interviewing; CATI = computer-assisted telephone interviewing; NHIS = National Health Interview Survey; NSCH = National Survey of Children's Health; NSDUH = National Survey on Drug Use and Health.

6.3.2 Estimates of Medical Diagnosis of Mental Health Conditions

In the 2012 NHIS, an estimated 14.1 percent of adults had been told by a medical professional in their lifetime that they had depression, and 10.0 percent indicated that they had depression in the past year ([Table 6.1](#)). Based upon parent responses for adolescents aged 12 to 17, 5.4 percent had been told by a medical professional in the past year that they had depression ([Table 6.3](#)).

6.4 NSCH

6.4.1 Parent-Reported Medical Diagnosis Instrument

The Common Chronic Conditions section of the 2011 to 2012 NSCH questionnaire began as follows: "Now I am going to read you a list of conditions. For each condition, please tell me if a doctor or other health care provider ever told you that the child had the condition, even if s/he does not have the condition now." Interviewers were instructed to code the answer as "no" if the parent respondents insisted the child had a condition even though they were not told this by a doctor or other health care provider. The list of conditions included depression and anxiety problems, and a detailed description was provided for clarification as needed. Depression was described as "an illness that involves the body, mood, and thoughts. It is marked by persistent sadness or an anxious or empty mood. It affects how a person feels, and the way a person eats, sleeps, and functions." Anxiety problems were described as "a feeling of constant worrying. Children with severe anxiety problems may be diagnosed as having anxiety disorders. Anxiety disorders include panic disorder, obsessive-compulsive disorder, post-traumatic stress disorder, and phobias."

Parent respondents reporting a lifetime condition for the child were asked later in the interview if the child "currently" had depression or anxiety problems. Because the time period for this question does not match either of the time periods used in NSDUH, these data are not included in this report.

6.4.2 Estimates of Parent-Reported Medical Diagnosis of Mental Health Conditions

Among adolescents aged 12 to 17 in the 2011 to 2012 NSCH, parent-reported lifetime medical diagnosis of depression was 7.2 percent, and parent-reported lifetime medical diagnosis of anxiety problems was 7.7 percent ([Table 6.3](#)).

6.5 Differences in Survey Methods That May Affect Estimates of Medical Diagnosis of Mental Health Conditions

6.5.1 Adult Estimates of Medical Diagnosis of Mental Health Conditions

The 2012 NSDUH, the 2012 BRFSS, and the 2012 NHIS all allowed for the estimation of lifetime medical diagnosis of depression among adults. In addition, the 2012 NSDUH and the 2012 NHIS also allowed for the estimation of past year medical diagnosis of depression among adults, and the 2012 NSDUH and the 2012 BRFSS allowed for the estimation of lifetime medical diagnosis of anxiety among adults. These estimates, along with the results of a test of statistical significance between the estimates from NSDUH and the other surveys, are presented in

[Table 6.1](#). The estimated prevalence of adult lifetime medical diagnosis of depression was 13.0 percent in NSDUH, which was significantly lower than the estimates from BRFSS (16.9 percent) or the NHIS (14.1 percent). The estimated prevalence of adult past year medical diagnosis of depression was 7.6 percent in NSDUH, which was significantly lower than the estimate from the NHIS (10.0 percent). The estimated prevalence of adult lifetime medical diagnosis of anxiety was 9.3 percent in NSDUH, which was significantly lower than the estimate from BRFSS (14.2 percent in BRFSS for adults with landline telephones).

Several methodological differences between these surveys may account for the differences in estimates, including their sampling designs, survey modes, and instruments used in the surveys. Specific differences between NSDUH and the other surveys that may have affected estimates of medical diagnosis of mental health conditions among adults are described in the following sections and are summarized in [Table 6.2](#).

6.5.1.1 NSDUH versus BRFSS

Among adult respondents aged 18 or older, the estimate of lifetime medical diagnosis of depression was significantly lower in the 2012 NSDUH (13.0 percent) than in the 2012 BRFSS (16.9 percent) ([Table 6.1](#)). The NSDUH estimate of lifetime medical diagnosis of anxiety disorder (9.3 percent) was also significantly lower than in the 2011 BRFSS (14.2 percent). Methodological differences between NSDUH and BRFSS that may account for the differences include their sampling designs, survey modes, and instruments used in the surveys.

Sampling designs: As indicated previously, the BRFSS estimate of lifetime medical diagnosis of depression is nationally representative because the question was asked of all respondents in 2012. However, the module that included the question about lifetime medical diagnosis of anxiety disorder was administered in only nine states in 2011, so this estimate is not nationally representative.

Survey modes: The mode of data collection also differed between the two surveys. BRFSS used computer-assisted telephone interviewing (CATI), which is thought to yield lower reports of sensitive behaviors or emotions than the audio computer-assisted self-interviewing (ACASI) method used by NSDUH. ACASI is considered an anonymous data collection technique that yields higher reporting of sensitive behaviors (Epstein et al., 2001; Kalfs & Saris, 1998; Moskowitz, 2004). This difference would suggest that the prevalence estimates would be higher in NSDUH than in BRFSS, when in fact the estimates were lower in NSDUH than in BRFSS.

Instruments used in the surveys: The BRFSS questions on lifetime medical diagnosis of depression and of anxiety provided examples of conditions considered to be depression and anxiety disorder, whereas the NSDUH questions did not provide examples. Including the examples in BRFSS may have broadened the definition of each condition compared with NSDUH. Again, this difference would suggest that the prevalence estimates would be higher in NSDUH than in BRFSS, when in fact the estimates were lower in NSDUH than in BRFSS.

An additional difference is that in the NSDUH instrumentation, lifetime medical diagnosis of depression and of anxiety were two items within a displayed list containing 20 queried health conditions. In contrast, the BRFSS instrumentation on lifetime medical

diagnosis of depression and of anxiety were individually administered questions. The checklist format of the NSDUH questioning may not have encouraged respondents to devote as much attention to each health condition compared with having to answer about each health condition individually in BRFSS.

6.5.1.2 NSDUH versus NHIS

Among adult respondents aged 18 or older, the prevalence of both lifetime and past year medical diagnosis of depression were lower in the 2012 NSDUH (13.0 and 7.6 percent, respectively) than in the 2012 NHIS (14.1 and 10 percent, respectively) ([Table 6.1](#)). In NSDUH, an estimated 7.6 percent of adults were told in the past year that they had depression, which was lower than the NHIS estimate (10.0 percent). Methodological differences between NSDUH and the NHIS that may account for the differences in adult estimates of medical diagnosis of depression include their survey modes and instruments used in the surveys ([Table 6.2](#)).

Survey modes: The NHIS interviewers used computer-assisted personal interviewing (CAPI) to ask respondents about each health condition individually. This survey methodology contrasts with NSDUH's methodology in which ACASI displayed a checklist of health conditions, from which respondents were asked to enter the code for each one they had been told by a health provider they had.

Instruments used in the surveys: In the NSDUH instrumentation, lifetime medical diagnosis of depression was one item within a list of 20 health conditions queried, and past year medical diagnosis of depression was one item within a second list of 20 health conditions queried. In contrast, the NHIS instrumentation on lifetime and past year medical diagnosis of depression was made up of two individual questions, with a past year question administered directly following a positive lifetime response. The checklist format of the NSDUH questions may not have encouraged respondents to devote as much attention to each health condition compared with having to answer about each health condition individually, and having the 12-month follow-up question immediately after the lifetime question in the NHIS may also have affected responses.

An additional difference is the wording of the questions about medical diagnosis of depression in the past year. NSDUH adult respondents were asked whether a doctor or other medical professional had told them that they had depression in the past year, whereas the NHIS adult respondents were asked if they had depression in the past 12 months. Thus, the NHIS estimate is less restrictive because it may include respondents who believed they had depression in the past year even if they were not told by a medical professional in the past year that they had depression.

6.5.2 Adolescent Estimates of Medical Diagnosis of Mental Health Conditions

The 2012 NSDUH and the 2011 to 2012 NSCH allowed for the estimation of medical diagnosis of lifetime depression among adolescents (4.8 percent in NSDUH and 7.2 percent in the NSCH) ([Table 6.3](#)). The 2012 NSDUH and the 2012 NHIS allowed for the estimation of past year medical diagnosis of depression among adolescents (3.5 percent in NSDUH and 5.4 percent in the NHIS). Also, the 2012 NSDUH and the 2011 to 2012 NSCH allowed for the estimation of lifetime medical diagnosis of anxiety among adolescents (3.7 percent with a

lifetime anxiety disorder in NSDUH and 7.7 percent with lifetime anxiety problems in the NSCH). Several methodological differences between these surveys may account for the differences in these estimates, including their sampling designs, survey modes and response rates, and instruments used in the surveys. Specific differences between NSDUH and the other surveys that may have affected estimates of medical diagnosis of mental health conditions among adolescents are described in the following sections and are summarized in [Table 6.4](#).

6.5.2.1 NSDUH versus NSCH

Among adolescents aged 12 to 17, the estimate of ever having been told by a doctor or other health professional that they had depression was lower in the 2012 NSDUH (4.8 percent) than the proxy reports included in the 2011 to 2012 NSCH (7.2 percent) ([Table 6.3](#)). The estimate of lifetime medical diagnosis of anxiety was also lower in the 2012 NSDUH (3.7 percent with a lifetime anxiety disorder) than the proxy reports included in the 2011 to 2012 NSCH (7.7 percent with lifetime anxiety problems). Methodological differences between NSDUH and the NSCH that may help explain the differences in adolescent estimates of lifetime medical diagnosis of depression and anxiety include the person who responded for the adolescent, survey modes and response rates, and instruments used in the surveys.

Proxy versus self-report: The 2011 to 2012 NSCH used proxy reports for adolescents, whereas adolescents completed the 2012 NSDUH's health conditions checklist on their own. Adolescent self-reports do not necessarily indicate greater accuracy because health care providers may speak more candidly to parents about their child's mental health conditions or children may not understand certain diagnoses. This may result in underreporting among adolescents who respond for themselves; however, proxies who do not have knowledge of the adolescent's medical diagnosis may also underreport mental health conditions. The NSCH interviewers requested to speak with "the parent or guardian who knows the most about the health of the child[ren] in the household." About 7.2 percent of the NSCH respondents were relatives or guardians that were not the selected child's parent (Centers for Disease Control and Prevention [CDC], 2013a, 2013b).

Survey modes and response rates: The mode of data collection also differed between the two surveys. The NSCH used CATI, which as described previously for BRFSS is thought to yield lower reports of sensitive behaviors or emotions than the ACASI method used by NSDUH. However, the prevalence estimates from the NSCH were higher than the estimates from NSDUH. There was also variation between the surveys in response rates that may affect the estimates from the two surveys. The cooperation rates for the 2011 to 2012 NSCH ranged from 54.1 percent for the landline telephone sample to 41.2 percent for the cellular telephone sample (CDC, 2013b). NSDUH's response rate for adolescents aged 12 to 17 in 2012 was 82.8 percent (Center for Behavioral Health Statistics and Quality, 2013d).

Instruments used in the surveys: The NSCH questions on lifetime medical diagnosis of depression and of anxiety provided definitions of these conditions, whereas the NSDUH questions did not provide examples. Including the definitions in the NSCH may have provided additional clarity regarding those conditions to the NSCH proxy respondents compared with NSDUH respondents. In addition, NSDUH respondents were asked about anxiety *disorder*, whereas NSCH proxy respondents were asked about anxiety *problems*. Finally, the checklist

format used in NSDUH may have led to underreporting if adolescents did not focus adequate attention for each condition.

6.5.2.2 NSDUH versus NHIS

Among adolescent respondents aged 12 to 17, the prevalence estimate of past year medical diagnosis of depression was lower in the 2012 NSDUH (3.5 percent) than in the 2012 NHIS (5.4 percent) ([Table 6.3](#)). Several methodological differences between NSDUH and the NHIS may help explain the differences in adolescent estimates for lifetime depression and anxiety, including the person who responded for the adolescent, survey modes, and instruments used in the surveys.

Proxy versus self-report: As with the 2012 NSCH, the 2012 NHIS used proxy reports for adolescents, whereas adolescents completed the 2012 NSDUH health conditions checklist on their own. Adolescent self-reports do not necessarily indicate greater accuracy because health care providers may speak more candidly to parents about their child's mental health conditions or children may not understand certain diagnoses. This may result in underreporting among adolescents who respond for themselves; however, proxies who do not have knowledge of the adolescent's medical diagnosis may also underreport mental health conditions. The NHIS instrument specifies that the proxy must be knowledgeable about the child's health; about 9.5 percent of the NHIS proxy respondents were relatives or guardians who were not the selected child's parent (CDC, 2013a, 2013b).

Survey modes and instruments used in the surveys: NHIS interviewers used CAPI to ask proxy respondents about each health condition individually. This survey methodology contrasts with NSDUH's methodology in which ACASI displayed a checklist of health conditions, from which respondents were asked to enter the code for each one they had been told by a health provider they had. The checklist format used in NSDUH may have led to underreporting if adolescents did not focus adequate attention for each condition.

7. Estimation of Serious Mental Illness (SMI) and Any Mental Illness (AMI)

National surveys that measured serious mental illness (SMI) and any mental illness (AMI) include the National Survey on Drug Use and Health (NSDUH) and the National Comorbidity Survey Replication (NCS-R). After first providing some background information on SMI and AMI, including the former's legislative requirement, each survey's SMI and AMI instruments and estimates are described in detail in this chapter, starting with the NCS-R's because it provides historical context regarding the estimation of SMI. This chapter concludes by summarizing the differences in the survey methods that may help explain the differences in estimates between the surveys. NSDUH assesses SMI and AMI among adults aged 18 or older only; therefore, this chapter includes comparisons of only adult estimates.

7.1 SMI and AMI Methodology, Instruments, and Estimates

The Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) Reorganization Act of 1992 (Pub. L. No. 102-321) established a block grant for states to fund community mental health services for adults with SMI. The law required states to include prevalence estimates of SMI in their annual applications for block grant funds. This law established that the federal definition of SMI includes adults aged 18 or older who currently have or at any time in the past year have had a diagnosable mental, behavioral, or emotional disorder (excluding developmental and substance use disorders) that is or was of sufficient duration to meet the diagnostic criteria specified by the *Diagnostic and Statistical Manual of Mental Disorders*, 3rd edition, revised (DSM-III-R) (American Psychiatric Association [APA], 1987), and that has resulted in functional impairment substantially interfering with or limiting one or more major life activities. A footnote within the legislation mentioned the anticipated release and acceptance of the DSM-IV (APA, 1994) and the International Classification of Diseases, 10th revision (ICD-10) (World Health Organization, 1993, 2015, 2018), and stated that the definition would, as appropriate, be updated accordingly by the Substance Abuse and Mental Health Services Administration's Center for Mental Health Services.

7.1.1 NCS-R Mental Illness Methodology, Instruments, and Estimates

To date, several estimates of SMI have been produced using NCS-R data (Kessler et al., 2003). However, there exist variations in the operationalization of the definition of SMI for each published estimate. For example, Kessler et al. (2005) classified respondents who had one or more past year disorders as having a serious mental disorder if they had any of the following characteristics: a past year suicide attempt with serious lethality intent; work disability because of a mental disorder or a substance use disorder (SUD); diagnosis of nonaffective psychosis, bipolar I, or bipolar II disorder; substance dependence with serious role impairment; impulse control disorder with serious violence; or any disorder that resulted in 30 or more days of role impairment at work, home, or in social relationships during the past year. Of the 26.2 percent of respondents who had any of the past year psychiatric disorders (i.e., anxiety, mood, impulse control, or SUDs), approximately 22.3 percent, or about 5.84 percent of the total, exhibited symptomatology that could be considered severe based on the previously listed criteria. This

definition included severe impairment for individuals with substance dependence, but not for those with substance abuse.

Kessler et al. (2006) produced an estimate of SMI, also using NCS-R data, but assessed SMI differently. Respondents with one or more past year mental disorders were classified as having SMI if they had at least one of the following: a 12-month bipolar I disorder or nonaffective psychosis; a 12-month suicide attempt; at least two areas of role functioning with self-described "severe" role impairment on the Sheehan Disability Scale (SDS), a measure of disability and impairment (Leon, Olfson, Portera, Farber, & Sheehan, 1997); or a pattern of functional impairment at a level consistent with a score of 50 or less on the Global Assessment of Functioning (GAF) scale (Endicott, Spitzer, Fleiss, & Cohen, 1976). Respondents with an SUD and no other comorbid disorders remained unclassified using this methodology, resulting in an estimate that better matches the classification of SMI used in this report. The estimate of severe symptoms among individuals with psychiatric disorder was somewhat lower compared with the previous study (22.0 vs. 22.3 percent, respectively). Using this definition, SMI was estimated to occur in 5.76 percent of U.S. adults aged 18 or older (Kessler et al., 2006).

Direct estimates of any mental disorder have been published using data collected from the World Mental Health Version of the Composite International Diagnostic Interview (WMH-CIDI) of the NCS-R. Kessler et al. (2005) defined any disorder as the prevalence of at least one of several disorders, including anxiety, mood, impulse control, and SUD. Among adults, any past year disorder (including SUD) was estimated as 26.2 percent. Another published estimate produced using the NCS-R data of any disorder of 10 mental disorders that excluded SUD was 24.8 percent (Druss et al., 2009; Kessler et al., 2006).

7.1.2 NSDUH Mental Illness Methodology, Instruments, and Estimates

For NSDUH and other studies that generate mental health estimates each year with large sample sizes, direct estimation of mental illness is not feasible because of the time and cost considerations of administering a comprehensive and structured clinical interview for each respondent. A modeled estimation methodology attends to these challenges by generating estimates from brief screening instruments applied to a model produced using a gold-standard clinical assessment (Kessler et al., 2003). The Mental Health Surveillance Study (MHSS) clinical interviews assessed the presence of selected mental disorders as a follow-up study to NSDUH from 2008 to 2012. The data from this study were used to produce model-based indicators of mental illness that could be updated using NSDUH's annual data.

SMI is estimated in NSDUH based on a statistical model of a clinical diagnosis and responses to questions in the main NSDUH interview on general mental distress (Kessler-6 [K6] scale), impairment (an abbreviated version of the World Health Organization Disability Assessment Schedule [WHODAS]), past year major depressive episode (MDE), past year suicidal thoughts, and age. Respondents who indicated that they had psychological distress via the K6 scale were asked a series of questions about impairment in an abbreviated version of WHODAS. The WHODAS instrument consists of a series of questions that are used for assessing disturbances in social adjustment and behavior (Rehm et al., 1999). A short eight-item version of WHODAS (Novak, 2007; Novak, Colpe, Barker, & Gfroerer, 2010) was administered in the 2012 NSDUH. The abbreviated WHODAS scale measured the amount of impairment by assessing how much difficulty respondents had with (1) remembering to do things they needed to

do, (2) concentrating on doing something important when other things were going on around them, (3) going out of the house and getting around on their own, (4) dealing with people whom they did not know well, (5) participating in social activities, (6) taking care of household responsibilities, (7) taking care of daily responsibilities at work or school, and (8) getting daily work done as quickly as needed.

The statistical model of mental illness used data from two MHSS instruments—the Modified Structured Clinical Interview for DSM-IV-TR Axis I Disorders, Research Version, Non-patient Edition (SCID-I/NP) and the GAF. The MHSS clinical interview consisted of a modified version of the SCID-I/NP (First, Spitzer, Gibbon, & Williams, 2002). The SCID-I/NP is a semistructured interview used to assess mental disorders (including SUDs) that has been widely used as a clinical validation tool in numerous studies. Studies that compared telephone versus face-to-face administration of the SCID have also found good reliability and validity for the telephone-administered SCID (Crippa et al., 2008; Hajebi et al., 2012; Kendler, Neale, Kessler, Heath, & Eaves, 1992; Kessler et al., 2004; Lee et al., 2008; Rohde, Lewinsohn, & Seeley, 1997; Sobin et al., 1993). An adapted version of the SCID-I/NP was used in the MHSS clinical study in order to assess mental disorders and SUDs experienced in the 12 months prior to the interview, based on diagnostic criteria from the DSM-IV-TR (APA, 2000; Karg et al., 2014). As a semistructured clinical interview, the SCID-I/NP contains structured, standardized questions that are read verbatim and sequentially. The MHSS clinical study interviewers also were instructed to ask unstructured follow-up questions tailored to each respondent. Interviewers coded the presence or absence of each symptom based on their clinical judgment and respondent answers to both the structured and the unstructured questions. Diagnostic modules used in the MHSS version of the SCID-I/NP are listed in [Table 7.1](#).

The MHSS clinical interviewers scored the GAF on a scale of 1 (persistent danger to self or others) to 100 (superior functioning, no symptoms). The GAF is based on the respondent's psychological, social, and occupational functioning. Clinical interviewers scored the GAF based on the respondent's worst functioning in the past 12 months. Lower scores represent higher levels of psychopathology and/or functional impairment. Descriptions of impairment are provided at 10-point intervals (e.g., 1 to 10, 11 to 20, and so on up to 91 to 100). For example, a GAF score between 51 and 60 is described as having moderate symptoms of impairment, a score higher than 60 represents several categories of impairment ranging from none to slight, and a score lower than 51 represents several categories ranging from serious to extreme.

An MHSS respondent was coded positive for SMI if he or she was determined to have any mental disorder (not including an SUD) assessed in the MHSS version of the SCID-I/NP and had a GAF score of 50 or below. A respondent was coded positive for AMI if he or she had any mental disorder assessed in the MHSS (not including an SUD) regardless of the level of impairment due to that disorder.

The prediction model developed from the 2008 to 2012 MHSS was used in combination with the data collected in NSDUH to produce predicted probabilities of SMI for each adult in the 2012 NSDUH (Center for Behavioral Health Statistics and Quality [CBHSQ], 2014b). The predicted probabilities were then dichotomized to produce prevalence estimates of SMI in the full NSDUH sample. For a further discussion on the modeling methods for estimating SMI in the 2012 NSDUH, see Appendix B of the 2012 mental health findings report (CBHSQ, 2013b). The modeled estimate of SMI among adults was 4.1 percent in 2012.

Table 7.1 Diagnostic Modules in the Mental Health Surveillance Study Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders: 2008 to 2012

<i>Mood Disorders</i>	<i>Past Year Eating Disorders</i>
Lifetime and past year major depressive disorder (major depressive episode) ¹	Anorexia nervosa ¹
Lifetime and past year bipolar I disorder (manic episode) ¹	Bulimia nervosa ¹
Dysthymic disorder ¹	
	<i>Past Year Impulse Control Disorders</i>
<i>Past Year Psychotic Disorders</i>	Intermittent explosive disorder ¹
Psychotic symptoms (delusions, hallucinations) ¹	
	<i>Past Year Substance Use Disorders</i>
<i>Past Year Anxiety Disorders</i>	Alcohol abuse
Posttraumatic stress disorder ¹	Alcohol dependence
Panic disorder with and without agoraphobia ¹	Nonalcohol substance abuse
Agoraphobia without history of panic disorder ¹	Nonalcohol substance dependence
Social phobia ¹	
Specific phobia ¹	<i>Past Year Adjustment Disorders</i>
Obsessive compulsive disorder ¹	Adjustment disorder ¹
Generalized anxiety disorder ¹	

¹ Disorder was included in the estimation of serious mental illness and any mental illness for the 2008 to 2012 National Survey on Drug Use and Health (NSDUH) Mental Health Surveillance Study (MHSS) sample based on the modified version of the Structured Clinical Interview for DSM-IV-TR Axis I Disorders, Research Version, Non-patient Edition (SCID-I/NP).

Source: 2008 to 2012 SAMHSA NSDUH Mental Health Surveillance Study.

For the 2012 NSDUH, AMI was defined and modeled similarly to SMI, with the principal difference being that no set level of functional impairment (GAF < 50) was required for a respondent in the MHSS to be classified with AMI. As with SMI, the 2012 past year AMI estimate contained in this methodological report is based on statistical models using data from the subsample that completed the clinical interview used to develop SMI estimates for the NSDUH adult sample. Based on the 2012 NSDUH, an estimated 18.6 percent of adults aged 18 or older had past year AMI.

7.2 Differences in Survey Methods That May Affect SMI and AMI Estimates

The estimates from the 2012 NSDUH were lower than the estimates from the 2001 to 2003 NCS-R for both SMI (4.1 vs. 5.8 percent, respectively) and AMI (18.6 vs. 24.8 percent ([Table 7.2](#)). A number of methodological differences between NSDUH and the NCS-R may account for the differences in estimates between these two surveys, including their time periods of data collection, survey modes, operational definitions, instruments used in the surveys, and estimation methodologies. Specific differences between NSDUH and the NCS-R that may have

affected estimates of mental illness among adults are described in the following paragraphs and are summarized in [Table 7.3](#).

Table 7.2 SMI and AMI Prevalence Estimates among Adults Aged 18 or Older, by Data Source

Mental Disorder Measure	NSDUH (2012)		NCS-R (2001 to 2003)	
	%	(95% CI)	%	(95% CI)
Past Year SMI	4.1	(3.8, 4.4)	5.8 ^{b,1}	(5.39, 6.13)
Past Year AMI	18.6	(18.0, 19.2)	24.8 ^b	(23.2, 26.4)

AMI = any mental illness; CI = confidence interval; NCS-R = National Comorbidity Survey Replication; NSDUH = National Survey on Drug Use and Health; SMI = serious mental illness; SUD = substance use disorder.

^a The difference between this estimate and the NSDUH estimate is statistically significant at the .05 level.

^b The difference between this estimate and the NSDUH estimate is statistically significant at the .01 level.

¹ This estimate, which excludes SUDs, was 5.76 percent. Kessler et al. (2005) reported a past year SMI prevalence including SUDs of 5.84 percent. Additionally, design-based variance estimation for past year SMI is unavailable from publicly accessible NCS-R data. Standard error estimates for SMI were derived by assuming that the design effect of past year AMI and past year SMI were equivalent. Derived standard errors were used to calculate confidence intervals for past year SMI.

Sources: SAMHSA, Center for Behavioral Health Statistics and Quality, NSDUH, 2012. The NCS-R estimate of SMI is from Kessler et al. (2006), and the AMI estimate is from Druss et al. (2009).

Time periods of data collection: The NSDUH estimates are based on data collected in 2012, whereas the NCS-R estimates are based on data gathered between 2001 and 2003. The differences in estimates for past year mental illness between the two surveys could partially reflect real population-level change over the different time frames.

Survey modes: The mode of data collection also differed between the surveys. NSDUH used audio computer-assisted self-interviewing (ACASI), which provides the respondent some sense of anonymity and privacy, while computer-assisted personal interviewing (CAPI) was used for the NCS-R. The CAPI mode of administration may not have provided as much privacy as the ACASI mode of administration used for NSDUH. Although past research (Epstein et al., 2001) indicates that a more private mode of administration would be expected to result in higher reporting of sensitive issues, the NCS-R's estimates were higher than NSDUH's.

Operational definitions: One key factor involves differences between the surveys in the operational definition of mental health indicators. For example, several studies that published estimates of past year SMI using the NCS-R data defined SMI to include respondents with at least one past year mental disorder and conditions classified as "serious," including any past year suicide attempt; in NSDUH, however, those with a past year suicide attempt were not necessarily classified as having past year SMI. In addition, NSDUH estimates of AMI and SMI do not include SUDs, whereas the NCS-R estimates from Kessler et al. (2005) do include SUDs.

Instruments used in the surveys and estimation methods: NSDUH's SMI estimate was based on responses to brief screeners (the K6 scale in combination with the WHODAS scale) that have been used in combination with the MHSS version of the SCID-I/NP and the GAF to estimate SMI via statistical modeling. The NCS-R was not designed to measure SMI. Past year SMI was estimated post hoc by combining information from various indicators from the structured diagnostic interview. Furthermore, NSDUH's SMI estimate was based on a gold-standard measure of disorder diagnoses (MHSS SCID-I/NP) and functional impairment (GAF), which was administered by trained clinical interviewers, whereas the NCS-R measure (the WMH-CIDI) used to estimate SMI was administered by trained lay interviewers.

Response bias: An evaluation of response bias among NSDUH respondents selected for the MHSS found that those who participated in the MHSS had higher rates of mental health problems as assessed by NSDUH compared with those who did not participate (CBHSQ, 2014b). As a result, the weights created for the MHSS accounted for these differences to ensure that mental health estimates were not biased upward. If respondents to the NCS-R also had higher mental health issues than nonrespondents, the mental health estimates derived from the NCS-R would likely be biased upward (i.e., the true prevalence might be lower than the prevalence estimated by the data) because the NCS-R would not have been able to account for this source of bias in the weights.

Table 7.3 Differences across Surveys in the Measurement of Mental Illness among Adults Aged 18 or Older

Survey	Year of Estimates	Instrument	Definition	Available Time Reference Period	Survey Mode	Miscellaneous Information
NSDUH	2012	K6 WHODAS GAF Other NSDUH questions	AMI and SMI estimates are based on a statistical model that includes the K6 in combination with the WHODAS, GAF, and other measures to produce predicted probabilities of AMI (any diagnosable past year condition) and SMI (any diagnosable past year condition with severe impairment) for each adult respondent.	Past year SMI Past year AMI	ACASI	None
NCS-R	2001 to 2003	WMH-CIDI	WMH-CIDI was used to estimate SMI post hoc; information was combined from various indicators from the structured diagnostic interview.	Past year SMI Past month SMI Past year AMI	CAPI	None

ACASI = audio computer-assisted self-interviewing; AMI = any mental illness; CAPI = computer-assisted personal interviewing; GAF = Global Assessment of Functioning scale; K6 = Kessler-6; NCS-R = National Comorbidity Survey Replication; NSDUH = National Survey on Drug Use and Health; SMI = serious mental illness; WHODAS = World Health Organization Disability Assessment Schedule; WMH-CIDI = WHO World Mental Health Composite International Diagnostic Interview.

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8. Discussion

The main objective of this methodological report was to compare prevalence estimates of mental health indicators generated from the 2012 National Survey on Drug Use and Health (NSDUH) with estimates from other national data sources and to discuss potential methodological differences that may have affected the estimates differently.

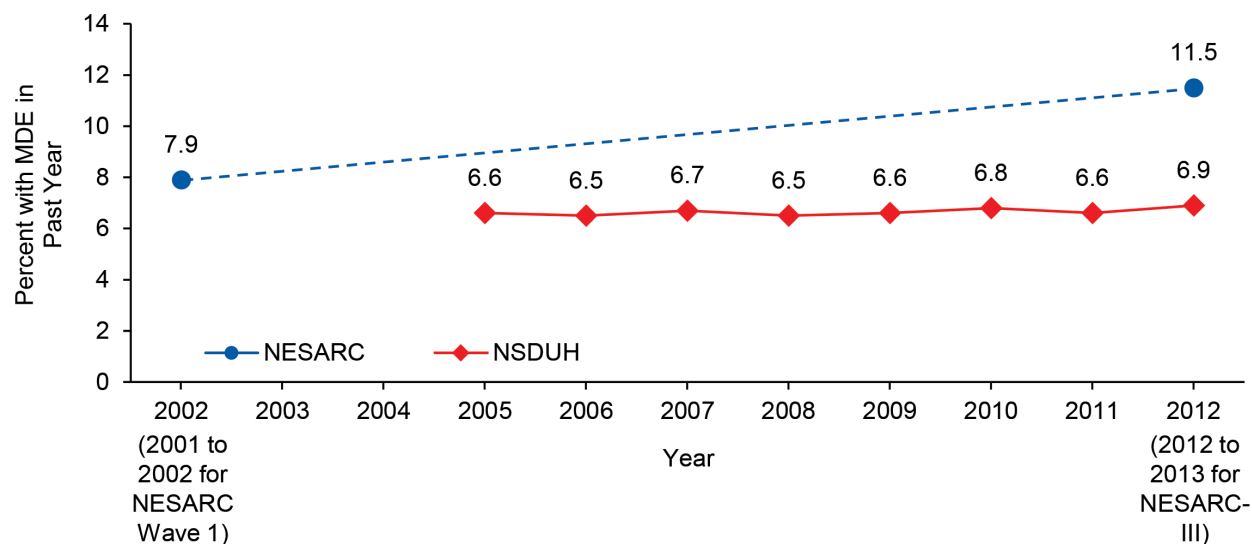
NSDUH's estimates for past year major depressive episode (MDE) among adults were lower than the estimates from other surveys. Past year MDE estimates ranged from 6.9 percent (2012 NSDUH) to 11.5 percent (2012 to 2013 National Epidemiologic Survey on Alcohol and Related Conditions [NESARC]-III) (Center for Behavioral Health Statistics and Quality [CBHSQ], 2013b; P. Chou, personal communication, May 11, 2018) ([Table 3.1](#)). The estimated prevalence of lifetime MDE was 13.2 percent in the 2012 NSDUH, 19.2 percent in the National Comorbidity Survey Replication (NCS-R), 16.5 percent in NESARC's Wave 1, and 22.3 percent in NESARC-III. It is noteworthy that estimates of past year and lifetime MDE were markedly higher in the 2012 to 2013 NESARC-III compared with the 2001 to 2002 NESARC Wave 1, whereas estimates of past year and lifetime MDE in the 2012 NSDUH did not differ significantly from these estimates in the 2005 NSDUH ([Figures 8.1](#) and [8.2](#)).

Past month serious psychological distress (SPD) among adults ranged from 2.9 percent in the 2012 National Health Interview Survey (NHIS) to 5.2 percent in the 2012 NSDUH and 5.0 percent in the 2012 Medical Expenditure Panel Survey (MEPS) (Agency for Healthcare Research and Quality, 2017; CBHSQ, 2013b; Centers for Disease Control and Prevention, 2014c) ([Table 4.1](#)).

Compared with the estimate from the 2012 NSDUH, the prevalence of past year suicidal ideation was lower in the 2001 to 2003 NCS-R (3.9 vs. 2.6 percent, respectively), and the prevalence of past year suicide planning was also lower in the NCS-R than in NSDUH (0.7 vs. 1.1 percent) ([Table 5.1](#)); however, the prevalence of suicide attempts (0.4 vs. 0.6 percent) was similar (Borges et al., 2006; CBHSQ, 2013b). Compared with high school students aged 18 or older in the combined 2009 and 2011 YRBS, high school students aged 18 or older in the combined 2008 to 2012 NSDUHs were significantly less likely to report past year suicide ideation (8.3 and 12.2 percent, respectively), having made suicide plans in the past year (3.3 and 9.7 percent, respectively), having had a past year suicide attempt (1.8 and 5.3 percent, respectively), or having received medical attention as a result of a suicide attempt in the past year (0.8 and 1.9 percent, respectively) ([Table 5.2](#)).

The estimated prevalence of past year medical diagnosis of depression among adults aged 18 or older was 7.6 percent in the 2012 NSDUH and 10.0 percent in the 2012 NHIS ([Table 6.1](#)). The estimated prevalence of lifetime medical diagnosis of depression among adults ranged from 13.0 percent in NSDUH to 16.9 percent in the 2011 to 2012 Behavioral Risk Factor Surveillance System (BRFSS). The estimated prevalence of lifetime medical diagnosis of anxiety among adults was 9.3 percent in NSDUH and 14.2 percent in BRFSS.

Figure 8.1 Past Year MDE Prevalence Estimates from NSDUH and NESARC among Adults Aged 18 or Older, by Data Source and Year

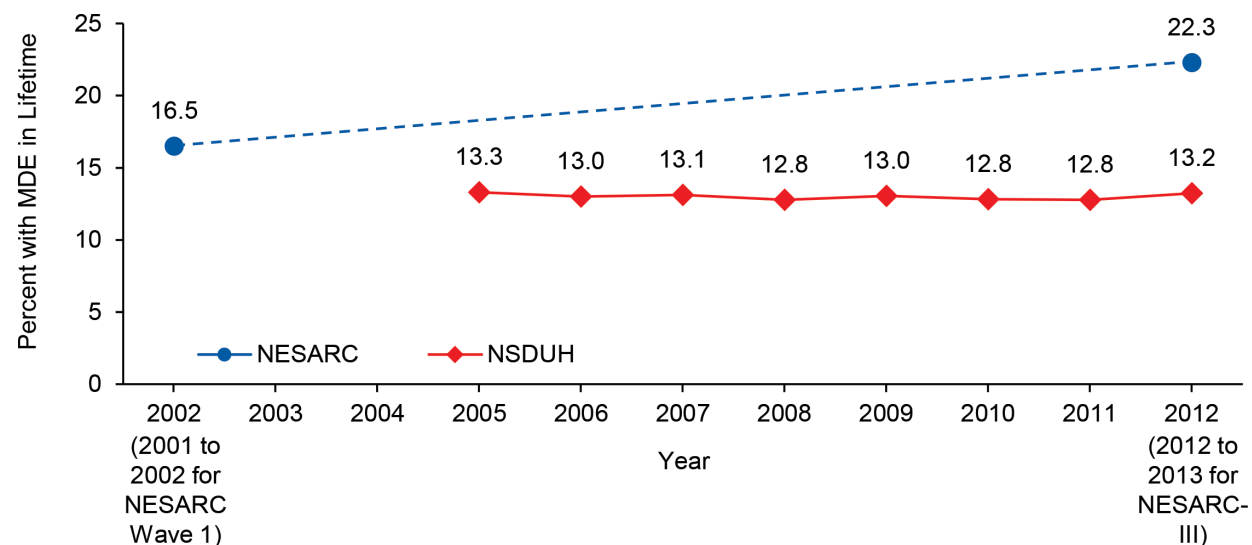


MDE = major depressive episode; NESARC = National Epidemiologic Survey on Alcohol and Related Conditions; NSDUH = National Survey on Drug Use and Health.

NOTE: For a description of the differences between NSDUH and NESARC in the measurement of MDE among adults aged 18 or older, see [Table 3.2](#) in Chapter 3.

Sources: SAMHSA, Center for Behavioral Health Statistics and Quality, NSDUH, 2005 to 2012. NESARC's Wave 1 estimate of past year MDE was calculated for and published in Hedden et al. (2012). The NESARC-III estimate is from P. Chou (personal communication, May 11, 2018).

Figure 8.2 Lifetime MDE Prevalence Estimates from NSDUH and NESARC among Adults Aged 18 or Older, by Data Source and Year



MDE = major depressive episode; NESARC = National Epidemiologic Survey on Alcohol and Related Conditions; NSDUH = National Survey on Drug Use and Health.

NOTE: For a description of the differences between NSDUH and NESARC in the measurement of MDE among adults aged 18 or older, see [Table 3.2](#) in Chapter 3.

Sources: SAMHSA, Center for Behavioral Health Statistics and Quality, NSDUH, 2005 to 2012. NESARC's Wave 1 estimate of lifetime MDE is from Blanco et al. (2012). The NESARC-III estimate is from P. Chou (personal communication, May 11, 2018).

Among adolescents, estimates of medical diagnosis of mental health conditions were lower in the 2012 NSDUH compared with those in the 2012 NHIS and the 2011 to 2012 National Survey of Children's Health (NSCH). The estimate of lifetime medical diagnosis of depression was 4.8 percent in NSDUH and 7.2 percent in the NSCH, while past year medical diagnosis of depression among adolescents was an estimated 3.5 percent in NSDUH and 5.4 percent in the NHIS ([Table 6.3](#)). Lifetime medical diagnosis of anxiety among adolescents was an estimated 3.7 percent in NSDUH (respondents were asked about lifetime anxiety disorder) and 7.7 percent in the NSCH (in which proxy respondents were asked about lifetime anxiety problems).

Among adults aged 18 or older, estimates of past year serious mental illness (SMI) were 4.1 percent for the 2012 NSDUH and 5.8 percent for the 2001 to 2003 NCS-R (Kessler et al., 2006) ([Table 7.1](#)). The estimate of past year any mental illness (AMI) was 18.6 percent for the 2012 NSDUH, whereas the past year estimate among adults with one or more mental disorders from the 2001 to 2003 NCS-R was 24.8 percent (Druss et al., 2009). Factors such as interview mode, interviewer qualifications, context effects, nonresponse weighting adjustments, and sample selection that differ between the NCS-R and the Mental Health Surveillance Study (MHSS), which was used to create the AMI models used in NSDUH, are discussed in detail elsewhere (see Appendix B in Karg et al., 2014).

The goal of this effort was to help policymakers, researchers, and other users of mental health statistics to better understand and interpret the estimates produced by national studies. Substantial methodological differences across the data sources with unmeasured effects on estimation made it difficult to determine exactly why estimates may differ. However, precise agreement between the data sources is not expected, and this lack of agreement does not reduce the importance of these studies in providing a comprehensive picture of mental health in the United States.

A variety of data sources that use different methodologies can give a more complete summary of public health surveillance of the nation's mental health issues. Each study reviewed in this methodological report was designed for a different purpose and therefore has different strengths, which taken together allow for a more thorough understanding of the nature of mental health issues in the United States. For example, NSDUH not only collects information on mental health, but also is the nation's primary source of data on substance use and substance use disorders (SUDs). NSDUH also includes extensive data on demographics, physical health, receipt of mental health services and substance use treatment, and various other topics relevant to mental health. Therefore, NSDUH data have been used to examine the association between mental health issues and a variety of correlates. More recently, NSDUH data can be used along with the supplemental 2008 to 2012 MHSS clinical data to measure SMI and AMI.

NSDUH's large sample size, annual data collection cycle, and consistency in collection methodology and survey content allow for precise and up-to-date estimates of mental health indicators for various subpopulations (e.g., specific racial/ethnic groups) and the capability of tracking trends over time. The BRFSS survey and the aforementioned NHIS and MEPS studies also are designed so that trends in estimates can be produced. In addition, NSDUH, BRFSS, and the NSCH allow for state-specific estimates of mental health issues.

Overall, it is difficult to determine which methodological features contribute to the differences between NSDUH and other surveys. The other surveys included in this methodological study also provide unique information on mental health in the nation. The primary purpose of the 2001 to 2002 NESARC Wave 1 and the 2012 to 2013 NESARC-III was to measure alcohol use disorders and their associated disabilities in the national population. Therefore, symptoms and criteria of specific substance use and mental disorders may be examined in detail, though there were a large number of methodological differences between Waves 1 and III, requiring careful interpretation of the differences across time. That is, differences in estimates, such as those presented in [Figures 8.1](#) and [8.2](#), are most likely due to the methodological differences between the surveys rather than a true change in the prevalence over time. The primary purpose of the 2001 to 2003 NCS-R and the 2001 to 2004 National Comorbidity Survey Adolescent (NCS-A) was to examine the prevalence and correlates of specific disorders in the nation. Therefore, these data sources have been used to produce national estimates of SUDs and mental disorders among adults and adolescents. Because of the longitudinal nature of NESARC Waves 1 and 2 and the inclusion of items on the age of onset and lifetime history of disorders in the NCS-R, both data sources can provide information about the etiology and course of mental disorders and SUDs. A key strength of the NHIS is the inclusion of a broad range of physical health measures, including health status and health care access, and a key strength of MEPS is the inclusion of data on health service use and insurance status. As a result, both the NHIS and MEPS permit an examination of the association of SPD and a variety of health characteristics and service use. In summary, each of these data sources uniquely contributes to the knowledge of the distribution and determinants of a variety of mental health indicators.

Finally, as discussed throughout this report, one should consider the methodological differences when comparing survey estimates of mental health indicators across data sources, including but not limited to the time periods of data collection, sample designs, survey modes (which can affect survey response rates), instruments used, and operational definitions. In addition, variations between surveys in estimation methods, such as imputation⁹ or weighting,¹⁰ can lead to variation in estimates between surveys. Understanding the differences in methodologies, survey modes, and specific measures used to assess different mental health indicators across these surveys can help provide context for understanding and interpreting the various prevalence estimates that have been published from these surveys.

Continued monitoring of mental health indicators is vital to improving the ability to provide treatment and prevention services to reduce the impact of mental illness, and a more thorough understanding of the methodological differences between surveys can affect the measurement of these indicators. This can, in turn, lead to improvements in survey design that will allow for better understanding of mental health in the United States.

⁹ Imputation is the process of replacing missing data with substituted values.

¹⁰ Weighting involves adjusting the data to account for possible sample bias that occurs when sampled survey data do not accurately represent the population of interest.

References

- Agency for Healthcare Research and Quality. (2017, November 30). *Medical Expenditure Panel Survey: Download data files, documentation, and codebooks*. Retrieved from https://meps.ahrq.gov/mepsweb/data_stats/download_data_files.jsp
- Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) Reorganization Act of 1992, Pub. L. No. 102-321 (1992).
- American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., revised, DSM-III-R). Washington, DC: Author.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed., DSM-IV). Washington, DC: Author.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev., DSM-IV-TR). Washington, DC: Author.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed., DSM-5). Washington, DC: American Psychiatric Publishing.
- Blanco, C., Vesga-Lopez, O., Stewart, J. W., Liu, S. M., Grant, B. F., & Hasin, D. S. (2012). Epidemiology of major depression with atypical features: Results from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). *Journal of Clinical Psychiatry*, 73, 224-232. <https://doi.org/10.4088/jcp.10m06227>
- Blumberg, S. J., & Luke, J. V. (2013, June). *Wireless substitution: Early release of estimates from the National Health Interview Survey, July-December 2012*. Retrieved from <https://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless201306.pdf>
- Borges, G., Angst, J., Nock, M. K., Ruscio, A. M., Walters, E. E., & Kessler, R. C. (2006). A risk index for 12-month suicide attempts in the National Comorbidity Survey Replication (NCS-R). *Psychological Medicine*, 36, 1747-1757. <https://doi.org/10.1017/s0033291706008786>
- Center for Behavioral Health Statistics and Quality. (2013a). *Results from the 2012 National Survey on Drug Use and Health: Summary of national findings* (HHS Publication No. SMA 13-4795, NSDUH Series H-46). Retrieved from <https://www.samhsa.gov/data/>
- Center for Behavioral Health Statistics and Quality. (2013b). *Results from the 2012 National Survey on Drug Use and Health: Mental health findings* (HHS Publication No. SMA 13-4805, NSDUH Series H-47). Retrieved from <https://www.samhsa.gov/data/>
- Center for Behavioral Health Statistics and Quality. (2013c). Tables 1.77B and 1.78B. In *Results from the 2012 National Survey on Drug Use and Health: Mental health detailed tables*. Retrieved from <https://www.samhsa.gov/data/>

Center for Behavioral Health Statistics and Quality. (2013d). Table B.5. In *Results from the 2012 National Survey on Drug Use and Health: Summary of national findings* (HHS Publication No. SMA 13-4795, NSDUH Series H-46). Retrieved from <https://www.samhsa.gov/data/>

Center for Behavioral Health Statistics and Quality. (2014a). *2012 National Survey on Drug Use and Health: Methodological Resource Book (Mental Health Surveillance Study operations report, 2008-2012)*. Retrieved from <https://www.samhsa.gov/data/>

Center for Behavioral Health Statistics and Quality. (2014b). *2012 National Survey on Drug Use and Health: Methodological Resource Book (Section 16a, 2012 Mental Health Surveillance Study: Design and estimation report)*. Retrieved from <https://www.samhsa.gov/data/>

Center for Behavioral Health Statistics and Quality. (2017). *State-level comparisons of mental health issues from the National Survey on Drug Use and Health (NSDUH) and the Behavioral Risk Factor Surveillance System (BRFSS)*. Retrieved from <https://www.samhsa.gov/data/>

Centers for Disease Control and Prevention. (n.d.). *2011 National Survey of Children's Health quarter 1 2012*. Retrieved from <https://www.cdc.gov/nchs/data/slits/2011NSCHQuestionnaire.pdf>

Centers for Disease Control and Prevention. (2013a, June 12). *2012 National Health Interview Survey (NHIS) sample child public use file (samchild) IDN variables, unweighted frequencies*. Retrieved from ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2012/samchild_freq.pdf

Centers for Disease Control and Prevention. (2013b, April 16). *State and Local Area Integrated Telephone Survey: 2011-2012 National Survey of Children's Health frequently asked questions*. Retrieved from ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/slits/nsch_2011_2012/01_Frequently_asked_questions/NSCH_2011_2012_FAQs.pdf

Centers for Disease Control and Prevention. (2014a, December 4). *BRFSS 2012 survey data and documentation*. Retrieved from https://www.cdc.gov/brfss/annual_data/annual_2012.html

Centers for Disease Control and Prevention. (2014b, November 17). *BRFSS combined landline and cell phone weighted response rates by state, 2012*. Retrieved from https://www.cdc.gov/brfss/annual_data/2012/response_rates_12.htm

Centers for Disease Control and Prevention. (2014c, October 7). *National Health Interview Survey: 2012 data release*. Retrieved from https://www.cdc.gov/nchs/nhis/nhis_2012_data_release.htm

Centers for Disease Control and Prevention. (2017a, August 25). *BRFSS annual survey data*. Retrieved from https://www.cdc.gov/brfss/annual_data/annual_data.htm

Centers for Disease Control and Prevention. (2017b, September 6). *National Survey of Children's Health: State and Local Area Integrated Telephone Survey*. Retrieved from <https://www.cdc.gov/nchs/slits/nsch.htm>

Centers for Disease Control and Prevention. (2018a, June 26). *National Health Interview Survey: NHIS data, questionnaires and related documentation, 1963 to 2018*. Retrieved from <https://www.cdc.gov/nchs/nhis/data-questionnaires-documentation.htm>

Centers for Disease Control and Prevention. (2018b, July 17). *Adolescent and school health: YRBSS data & documentation: National YRBS datasets and documentation, 2011*. Retrieved from <https://www.cdc.gov/healthyyouth/data/yrbs/data.htm>

Compton, W. M., Conway, K. P., Stinson, F. S., & Grant, B. F. (2006). Changes in the prevalence of major depression and comorbid substance use disorders in the United States between 1991-1992 and 2001-2002. *American Journal of Psychiatry*, 163, 2141-2147. <https://doi.org/10.1176/ajp.2006.163.12.2141>

Cranford, J. A., Nolen-Hoeksema, S., & Zucker, R. A. (2011). Alcohol involvement as a function of co-occurring alcohol use disorders and major depressive episode: Evidence from the National Epidemiologic Survey on Alcohol and Related Conditions. *Drug and Alcohol Dependence*, 117(2-3), 145-151. <https://doi.org/10.1016/j.drugalcdep.2011.01.011>

Crippa, J. A., de Lima Osório, F., Del-Ben, C. M., Filho, A. S., da Silva Freitas, M. C., & Loureiro, S. R. (2008). Comparability between telephone and face-to-face structured clinical interview for DSM-IV in assessing social anxiety disorder. *Perspectives in Psychiatric Care*, 44, 241-247. <https://doi.org/10.1111/j.1744-6163.2008.00183.x>

Druss, B. G., Hwang, I., Petukhova, M., Sampson, N. A., Wang, P. S., & Kessler, R. C. (2009). Impairment in role functioning in mental and chronic medical disorders in the United States: Results from the National Comorbidity Survey Replication. *Molecular Psychiatry*, 14, 728-737. <https://doi.org/10.1038/mp.2008.13>

Endicott, J., Spitzer, R. L., Fleiss, J. L., & Cohen, J. (1976). The Global Assessment Scale: A procedure for measuring overall severity of psychiatric disturbance. *Archives of General Psychiatry*, 33, 766-771. <https://doi.org/10.1001/archpsyc.1976.01770060086012>

Epstein, J. F., Barker, P. R., & Kroutil, L. A. (2001). Mode effects in self-reported mental health data. *Public Opinion Quarterly*, 65, 529-549. <https://doi.org/10.1086/323577>

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (2002). *Structured Clinical Interview for DSM-IV-TR Axis I Disorders, Research Version, Non-patient Edition (SCID-I/NP)*. New York, NY: New York State Psychiatric Institute, Biometrics Research.

Grant, B. F., & Dawson, D. A. (2006). Introduction to the National Epidemiologic Survey on Alcohol and Related Conditions. *Alcohol Research & Health*, 29, 74-78.

Gruca, R. A., Agrawal, A., Krauss, M. J., Cavazos-Rehg, P. A., & Bierut, L. J. (2016). Recent trends in the prevalence of marijuana use and associated disorders in the United States. *Journal of the American Medical Association Psychiatry*, 73, 300-301. <https://doi.org/10.1001/jamapsychiatry.2015.3111>

Hajebi, A., Motevalian, A., Amin-Esmaeili, M., Hefazi, M., Radgoodarzi, R., Rahimi-Movaghar, A., & Sharifi, V. (2012). Telephone versus face-to-face administration of the Structured Clinical Interview for *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*, for diagnosis of psychotic disorders. *Comprehensive Psychiatry*, 53, 579-583.

<https://doi.org/10.1016/j.comppsy.2011.06.001>

Harvard School of Medicine. (2005). *National Comorbidity Survey (NCS) and National Comorbidity Survey Replication (NCS-R)*. Retrieved from

<https://www.hcp.med.harvard.edu/ncs/>

Hedden, S., Gfroerer, J., Barker, P., Smith, S., Pemberton, M. R., Saavedra, L. M., Forman-Hoffman, V. L., Ringeisen, H., & Novak, S. P. (2012, March). *Comparison of NSDUH mental health data and methods with other data sources*. CBHSQ Data Review. Retrieved from

<https://www.samhsa.gov/data/>

Health Insurance Portability and Accountability Act of 1996 (HIPAA), Pub. L. No. 104-191, 110 Stat. 1936, enacted August 21, 1996. Retrieved from <https://www.gpo.gov/fdsys/pkg/PLAW-104publ191/html/PLAW-104publ191.htm>

Kalfs, N., & Saris, W. (1998). Large differences in time use for three data collection systems. *Social Indicator Research*, 44, 267-290. <https://doi.org/10.1023/a:1006898222519>

Karg, R. S., Bose, J., Batts, K. R., Forman-Hoffman, V. L., Liao, D., Hirsch, E., Pemberton, M. R., Colpe, L. J., & Hedden, S. L. (2014, October). *Past year mental disorders among adults in the United States: Results from the 2008-2012 Mental Health Surveillance Study*. CBHSQ Data Review. Retrieved from <https://www.samhsa.gov/data/>

Kendler, K. S., Neale, M. C., Kessler, R. C., Heath, A. C., & Eaves, L. J. (1992). A population-based twin study of major depression in women: The impact of varying definitions of illness. *Archives of General Psychiatry*, 49, 257-266.

<https://doi.org/10.1001/archpsyc.1992.01820040009001>

Kessler, R. C., Abelson, J., Demler, O., Escobar, J. I., Gibbon, M., Guyer, M. E., Howes, M. J., Jin, R., Vega, W. A., Walters, E. E., Wang, P., Zaslavsky, A., & Zheng, H. (2004). Clinical calibration of DSM-IV diagnoses in the World Mental Health (WMH) version of the World Health Organization (WHO) Composite International Diagnostic Interview (WMH-CIDI). *International Journal of Methods in Psychiatric Research*, 13(2), 122-139.

<https://doi.org/10.1002/mpr.169>

Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S.-L. T., Walters, E. E., & Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine*, 32, 959-976.

<https://doi.org/10.1017/s0033291702006074>

Kessler, R. C., Avenevoli, S., Costello, J., Green, J. G., Gruber, M. J., Heeringa, S., Merikangas, K. R., Pennell, B. E., Sampson, N. A., & Zaslavsky, A. M. (2009). Design and field procedures in the US National Comorbidity Survey Replication Adolescent Supplement (NCS-A). *International Journal of Methods in Psychiatric Research*, 18(2), 69-83.

<https://doi.org/10.1002/mpr.279>

- Kessler, R. C., Barker, P. R., Colpe, L. J., Epstein, J. F., Gfroerer, J. C., Hiripi, E., Howes, M. J., Normand, S. L., Manderscheid, R. W., Walters, E. E., & Zaslavsky, A. M. (2003). Screening for serious mental illness in the general population. *Archives of General Psychiatry*, 60, 184-189. <https://doi.org/10.1001/archpsyc.60.2.184>
- Kessler, R. C., Birnbaum, H., Bromet, E., Hwang, I., Sampson, N., & Shahly, V. (2010). Age differences in major depression: Results from the National Comorbidity Survey Replication (NCS-R). *Psychological Medicine*, 40, 225-237. <https://doi.org/10.1017/s0033291709990213>
- Kessler, R. C., Chiu, W. T., Colpe, L., Demler, O., Merikangas, K. R., Walters, E. E., & Wang, P. S. (2006). The prevalence and correlates of serious mental illness (SMI) in the National Comorbidity Survey Replication (NCS-R). In R. W. Manderscheid & J. T. Berry (Eds.), *Mental health, United States, 2004* (HHS Pub No. SMA 06-4195, pp. 134-148). Rockville, MD: Substance Abuse and Mental Health Services Administration.
- Kessler, R. C., Chiu, W. T., Demler, O., & Walters, E. E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62, 617-627. <https://doi.org/10.1001/archpsyc.62.6.617>
- Kessler, R.C., McGonagle, K.A., Zhao, S., Nelson, C.B., Hughes, M., Eshleman, S., Wittchen, H.-U., & Kendler, K. S. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: Results from the National Comorbidity Survey. *Archives of General Psychiatry*, 51, 8-19. <https://doi.org/10.1001/archpsyc.1994.03950010008002>
- Kessler, R. C., & Üstün, T. B. (2004). The World Mental Health (WMH) survey initiative version of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI). *International Journal of Methods in Psychiatric Research*, 13, 93-121. <https://doi.org/10.1002/mpr.168>
- Kilmer Miller, G., Piscopo, K. D., Batts, K., Han, B., Colpe, L., Forman-Hoffman, V. L., Gfroerer, J., & McKeon, R. T. (2015, July). *Measurement of suicidal thoughts, behaviors, and related health outcomes in the United States: Comparison of NSDUH estimates with other data sources*. CBHSQ Data Review. Retrieved from <https://www.samhsa.gov/data/>
- Landis, J. R. , & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33(1), 159-174. <https://doi.org/10.2307/2529310>
- Lee, S., Tsang, A., Lau, L., Mak, A., Ng, K. L., & Chan, D. M. (2008). Concordance between telephone survey classification and face-to-face structured clinical interview in the diagnosis of generalized anxiety disorder in Hong Kong. *Journal of Anxiety Disorders*, 22, 1403-1411. <https://doi.org/10.1016/j.janxdis.2008.02.008>
- Leon, A. C., Olfson, M., Portera, L., Farber, L., & Sheehan, D. V. (1997). Assessing psychiatric impairment in primary care with the Sheehan Disability Scale. *International Journal of Psychiatry in Medicine*, 27(2), 93-105. <https://doi.org/10.2190/t8em-c8yh-373n-luwd>

Merikangas, K. R., Avenevoli, S., Costello, E. J., Koretz, D., & Kessler, R. C. (2009). National Comorbidity Survey Replication Adolescent supplement (NCS-A): I. Background and measures. *Journal of the American Academy of Child and Adolescent Psychiatry*, 48, 367-369. <https://doi.org/10.1097/chi.0b013e31819996f1>

Merikangas, K. R., He, J. P., Burstein, M., Swanson, S. A., Avenevoli, S., Cui, L., Benjet, C., Georgiades, K., & Swendsen, J. (2010). Lifetime prevalence of mental disorders in U.S. adolescents: Results from the National Comorbidity Survey Replication–Adolescent Supplement (NCS-A). *Journal of the American Academy of Child and Adolescent Psychiatry*, 49, 980-989. <https://doi.org/10.1016/j.jaac.2010.05.017>

Moskowitz, J. M. (2004). Assessment of cigarette smoking and smoking susceptibility among youth: Telephone computer-assisted self-interviews versus computer-assisted telephone interviews. *Public Opinion Quarterly*, 68, 565-587. <https://doi.org/10.1093/poq/nfh040>

National Center for Health Statistics, Division of Health Interview Statistics. (2013, June). *2012 National Health Interview Survey (NHIS) public use data release: NHIS survey description*. Retrieved from ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2012/srvydesc.pdf

Novak, S. (2007, October). *An item response analysis of the World Health Organization Disability Assessment Schedule (WHODAS) items in the 2002-2004 NSDUH* (prepared for the Substance Abuse and Mental Health Services Administration under Contract No. 283-03-9028, RTI/8726). Research Triangle Park, NC: RTI International.


Novak, S., Colpe, L., Barker, P., & Gfroerer, J. (2010). Development of a brief mental health impairment scale using a nationally representative sample in the USA. *International Journal of Methods in Psychiatric Research*, 19(Suppl. 1), 49-60.


Office of Applied Studies. (2006). *Results from the 2005 National Survey on Drug Use and Health: National findings* (HHS Publication No. SMA 06-4194, NSDUH Series H-30). Rockville, MD: Substance Abuse and Mental Health Services Administration.

Office of Applied Studies. (2009). *Results from the 2008 National Survey on Drug Use and Health: National findings* (HHS Publication No. SMA 09-4434, NSDUH Series H-36). Rockville, MD: Substance Abuse and Mental Health Services Administration.

Rehm, J., Üstün, T. B., Saxena, S., Nelson, C. B., Chatterji, S., Ivis, F., & Adlaf, E. (1999). On the development and psychometric testing of the WHO screening instrument to assess disablement in the general population. *International Journal of Methods in Psychiatric Research*, 8, 110-123. <https://doi.org/10.1002/mp.61>


Rohde, P., Lewinsohn, P. M., & Seeley, J. R. (1997). Comparability of telephone and face-to-face interviews in assessing axis I and axis II disorders. *American Journal of Psychiatry*, 154, 1593-1598. <https://doi.org/10.1176/ajp.154.11.1593>


Sobin, C., Weissman, M. M., Goldstein, R. B., Adams, P., Wickramaratne, P., Warner, V., & Lish, J. D. (1993). Diagnostic interviewing for family studies: Comparing telephone and face-to-face methods for the diagnosis of lifetime psychiatric disorders. *Psychiatric Genetics*, 3, 227-234. <https://doi.org/10.1097/00041444-199324000-00005> 


Turner, C. F., Ku, L., Rogers, S. M., Lindberg, L. D., Pleck, J. H., & Sonenstein, F. L. (1998). Adolescent sexual behavior, drug use, and violence: Increased reporting with computer survey technology. *Science*, 280, 867-873. <https://doi.org/10.1126/science.280.5365.867> 

U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. (2014). *The health and well-being of children: A portrait of states and the nation, 2011-2012*. Rockville, MD: U.S. Department of Health and Human Services. Retrieved from <https://mchb.hrsa.gov/nsch/2011-12/health/>

World Health Organization. (1990). *Composite International Diagnostic Interview (CIDI, Version 1.0)*. Geneva, Switzerland: Author.

World Health Organization. (1993). *The ICD-10 classification of mental and behavioural disorders: Diagnostic criteria for research*. Retrieved from http://www.who.int/substance_abuse/terminology/icd_10/en/index.html 

World Health Organization. (2015). *ICD-10 classification of mental and behavioural disorders*. Retrieved from http://www.who.int/substance_abuse/terminology/icd_10/en/index.html 

World Health Organization. (2018, June 18). *International Classification of Diseases (ICD) classifications*. Retrieved from <http://www.who.int/classifications/icd/en/> 

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Appendix A: Agreement between NSDUH Depression Module and NSDUH Reports of Medical Diagnosis of Mental Health Conditions

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Appendix A:

Agreement between NSDUH Depression Module and NSDUH Reports of Medical Diagnosis of Mental Health Conditions

This report includes a discussion of two measures of lifetime and past year depression included in the National Survey on Drug Use and Health (NSDUH). The first measure is for a diagnosis of major depressive episode (MDE) based on respondent reports of depression symptoms and associated impairment experienced in their lifetime and in the past 12 months. The second measure is for respondent reports that they have been told by a doctor or other medical professional in their lifetime and in the past 12 months that they had depression. This appendix focuses on the agreement between the estimates from these two measures in NSDUH, although some of the reasons that differences may exist between them are discussed first. For example, respondents are categorized with a diagnosis of MDE if they reported experiencing a cluster of behaviors or feelings during the reference period (i.e., past 12 months or lifetime) consistent with MDE criteria. That does not mean that respondents considered themselves to have been depressed or that they sought help from a medical professional for those symptoms. Being told by a medical professional that they had depression can only occur if respondents had seen a medical professional during the reference period, if depressive symptoms were present at the time of the visit, and if the provider addressed depression during the visit (not all providers assess depression during each visit). Thus, it is possible that respondents who met the criteria for MDE during a reference period were not told by a medical professional that they had depression during that reference period. It is also possible for a medical professional to tell respondents that they have depression even though they do not have symptoms that meet the criteria for MDE. For example, a medical professional may tell patients who take medication that is effectively treating depression that they need to continue taking the medication, and so the patients are told that they have depression although they do not currently have symptoms that meet the criteria for MDE. Therefore, although it is expected that there will be some overlap between these two measures of depression, it is not expected that estimates from these two indicators will have high concordance.

This appendix illustrates the agreement between respondent reports of being told by a medical professional that they had depression and MDE as assessed by symptoms and impairment, both during their lifetime and in the past 12 months. Only 47.5 percent of adults aged 18 or older and 20.2 percent of adolescents aged 12 to 17 with lifetime MDE reported having ever been told by a medical professional that they had depression ([Tables A.1](#) and [A.2](#)). Also, a number of respondents without lifetime MDE reported having ever been told by a medical professional that they had depression (7.7 percent of adults and 2.2 percent of adolescents). Furthermore, less than half of those who indicated that a medical professional had told them they had depression during their lifetime or past 12 months were classified with lifetime or past 12 month MDE using the NSDUH depression module. Kappa statistics, which measure agreement between two measures, were considered slight for adolescents and slight or fair for adults. In this report, agreement was interpreted according to benchmarks proposed by Landis and Koch (1977, p. 165): (1) poor agreement for kappas less than 0.00, (2) slight agreement for kappas of 0.00 to 0.20, (3) fair agreement for kappas of 0.21 to 0.40, (4) moderate agreement for kappas of 0.41 to 0.60, (5) substantial agreement for kappas of 0.61 to 0.80, and (6) almost perfect agreement for kappas of 0.81 to 1.00.

Table A.1 Numbers in Thousands, Percentages, and Standard Errors of Percentages of Adults Aged 18 or Older Who Had Been Told in Their Lifetime or in the Past Year That They Had Depression, by Lifetime or Past Year Major Depressive Episode: 2012 NSDUH

Told in Lifetime That They Had Depression ³	Lifetime MDE ¹		No Lifetime MDE		Agreement between NSDUH Measures	
	Number in Thousands	% (SE)	Number in Thousands	% (SE)	Kappa Statistic ²	95% CI
	Yes	14,644	47.5 (1.02)	15,366	7.7 (0.23)	0.4027
No	16,202	52.5 (1.02)	185,185	92.3 (0.23)		
Told in the Past Year That They Had Depression ³	Past Year MDE ¹		No Past Year MDE		Agreement between NSDUH Measures	
	Number in Thousands	% (SE)	Number in Thousands	% (SE)	Kappa Statistic ²	95% CI
	Yes	6,631	41.6 (1.31)	10,705	5.0 (0.18)	0.3519
No	9,318	58.4 (1.31)	204,451	95.0 (0.18)		

CI = confidence interval; MDE = major depressive episode; NSDUH = National Survey on Drug Use and Health; SE = standard error.

NOTE: Respondents with unknown lifetime or past year depression were excluded (total sample = 45,000).

¹ MDE in NSDUH is defined as in the 4th edition, text revision, of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR) (American Psychiatric Association, 2000), and is assessed in a depression module administered to all adults aged 18 or older.

² Kappa statistics range from -1.00 to 1.00. A commonly cited scale for the interpretation of kappa stipulates that a kappa of less than 0.00 represents poor agreement; 0.00 to 0.20 indicates slight agreement; 0.21 to 0.40 indicates fair agreement; 0.41 to 0.60 is indicative of moderate agreement; 0.61 to 0.80 indicates substantial agreement; and 0.81 to 1.00 represents almost perfect agreement (Landis & Koch, 1977).

³ NSDUH includes a health condition module that is administered to all adults aged 18 or older. Respondents are presented with a list of chronic health conditions (including depression) and asked if a doctor or other health care professional had ever told them (lifetime) or had told them in the past 12 months (past year) that they had each condition.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2012.

Table A.2 Numbers in Thousands, Percentages, and Standard Errors of Percentages of Adolescents Aged 12 to 17 Who Had Been Told in Their Lifetime or in the Past Year That They Had Depression, by Lifetime or Past Year Major Depressive Episode: 2012 NSDUH

Told in Lifetime That They Had Depression ³	Lifetime MDE ¹		No Lifetime MDE		Agreement between NSDUH Measures	
	Number in Thousands	% (SE)	Number in Thousands	% (SE)	Kappa Statistic ²	95% CI
	Yes	683	20.2 (0.94)	444	2.2 (0.15)	0.2497
No	2,695	79.8 (0.94)	19,851	97.8 (0.15)		
Told in the Past Year That They Had Depression ³	Past Year MDE ¹		No Past Year MDE		Agreement between NSDUH Measures	
	Number in Thousands	% (SE)	Number in Thousands	% (SE)	Kappa Statistic ²	95% CI
	Yes	416	19.2 (1.12)	411	1.9 (0.13)	0.2394
No	1,750	80.8 (1.12)	21,019	98.1 (0.13)		

CI = confidence interval; MDE = major depressive episode; NSDUH = National Survey on Drug Use and Health; SE = standard error.

NOTE: Respondents with unknown lifetime or past year depression were excluded (total sample = 21,300).

¹ MDE in NSDUH is defined as in the 4th edition, text revision, of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR) (American Psychiatric Association, 2000), and is assessed in a depression module administered to adolescents aged 12 to 17.

² Kappa statistics range from -1.00 to 1.00. A commonly cited scale for the interpretation of kappa stipulates that a kappa of less than 0.00 represents poor agreement; 0.00 to 0.20 indicates slight agreement; 0.21 to 0.40 indicates fair agreement; 0.41 to 0.60 is indicative of moderate agreement; 0.61 to 0.80 indicates substantial agreement; and 0.81 to 1.00 represents almost perfect agreement (Landis & Koch, 1977).

³ NSDUH includes a health condition module that is administered to adolescents aged 12 to 17. Respondents are presented with a list of chronic health conditions (including depression) and asked if a doctor or other health care professional had ever told them (lifetime) or had told them in the past 12 months (past year) that they had each condition.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2012.

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Appendix B: Questions on Medical Diagnosis of Depression and Anxiety in National Surveys

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Appendix B:
Questions on Medical Diagnosis
of Depression and Anxiety in National Surveys

B-1. 2012 National Survey on Drug Use and Health (NSDUH) Questionnaire Excerpt

Document Version Date: October 2011

Document Name: 2012 NATIONAL SURVEY ON DRUG USE AND HEALTH CAI
Specifications for Programming English Version

Web Access Link: <https://www.samhsa.gov/data/>

Questionnaire Section: Health Care

Questionnaire Section Mode: Audio computer-assisted self-interviewing (ACASI)

Proxy: None allowed

Introduction Text: These next questions are about your health and health care.

Number of questions in section: 7

Question number: 6

Variable name: CHKLST

Universe: All sampled respondents (ages 12+)

Question Text: The following is a list of health conditions. Please read the list, and type in the numbers of any of these conditions that a doctor or other medical professional has ever told you that you had.

Please type in the numbers of any that apply. To select more than one condition, press the space bar between each number you type. For example, if a doctor has ever told you that you had asthma and ulcers, press
2[SPACE BAR]20.

- 1 Anxiety disorder
- 2 Asthma
- 3 Bronchitis
- 4 Cirrhosis of the liver
- 5 Depression
- 6 Diabetes
- 7 Heart disease
- 8 Hepatitis
- 9 High blood pressure

- 10 HIV/AIDS
- 11 Lung cancer
- 12 Pancreatitis
- 13 Pneumonia
- 14 Sexually transmitted disease, such as chlamydia, gonorrhea, herpes or syphilis
- 15 Sinusitis
- 16 Sleep apnea
- 17 Stroke
- 18 Tinnitus
- 19 Tuberculosis
- 20 Ulcer or ulcers
- 95 None of the above - I have never had any of these conditions
- DK/REF

ACASI Instructions:

HARD ERROR: [IF 95 AND AT LEAST ONE IN (1-20) SELECTED]: YOU HAVE ENTERED "I HAVE NEVER HAD ANY OF THESE CONDITIONS," BUT YOU HAVE ALSO ENTERED ONE OR MORE HEALTH CONDITIONS FROM THE LIST. TO MAKE THIS BOX DISAPPEAR, PRESS THE [ENTER] KEY. YOU CAN THEN ANSWER THE QUESTION AGAIN.

[NOTE REGARDING CHK12M: Only display response option 95, and the response options that correspond to the list displayed in CHKLST. Audio files should be played only for the displayed response options. Responses not displayed will be invalid for CHK12M; they will trigger a hard error below]

Question number: 7

Variable name: CHK12M

Universe: All sampled respondents (age 12+) IF ANY ANSWER IN CHKLST = 1-20

Question Text: Which, if any, of these conditions did a doctor or other medical professional tell you that you had **in the past 12 months**?

Please type in the numbers of any that apply. To select more than one condition, press the space bar between each number you type.

- 1 Anxiety disorder
- 2 Asthma
- 3 Bronchitis
- 4 Cirrhosis of the liver
- 5 Depression
- 6 Diabetes
- 7 Heart disease
- 8 Hepatitis
- 9 High blood pressure

- 10 HIV/AIDS
 - 11 Lung cancer
 - 12 Pancreatitis
 - 13 Pneumonia
 - 14 Sexually transmitted disease, such as chlamydia, gonorrhea, herpes or syphilis
 - 15 Sinusitis
 - 16 Sleep apnea
 - 17 Stroke
 - 18 Tinnitus
 - 19 Tuberculosis
 - 20 Ulcer or ulcers
 - 95 None of the above - I have not had any of these conditions in the past 12 months
- DK/REF

ACASI Instructions:

HARD ERROR: [IF 95 AND AT LEAST ONE IN (1-20) SELECTED]: YOU HAVE ENTERED "I HAVE NOT HAD ANY OF THESE CONDITIONS IN THE PAST 12 MONTHS," BUT YOU HAVE ALSO ENTERED ONE OR MORE HEALTH CONDITIONS FROM THE LIST. TO MAKE THIS BOX DISAPPEAR, PRESS THE [ENTER] KEY. YOU CAN THEN ANSWER THE QUESTION AGAIN.

HARD ERROR: [IF ANY RESPONSE (1-20) IS SELECTED THAT WAS NOT SELECTED IN CHKLST]: THIS IS NOT ONE OF YOUR CHOICES. TO MAKE THIS BOX DISAPPEAR, PRESS THE [ENTER] KEY. YOU CAN THEN ANSWER THE QUESTION AGAIN.

B-2. 2012 National Health Interview Survey (NHIS) Adult Questionnaire Excerpt

Document Version Date: May 23, 2013

Document Name: 2012 NHIS Questionnaire - Sample Adult

Web Access Link:

ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Survey_Questionnaires/NHIS/2012/English/qadult.pdf

Questionnaire Section: Adult Conditions

Questionnaire Section Mode: Computer-assisted personal interviewing (CAPI)

Proxy: Allowed if sample adult is physically or mentally unable to respond, in which event a knowledgeable proxy is allowed to answer for the sample adult (468 cases in 2012).

Introduction Text: Now I am going to ask you about certain medical conditions. Have you EVER been told by a doctor or other health professional that you had...

Number of questions in section: 110

Question number: 32

Variable name: ADEPRSEV

Universe: Sample adults (age 18+)

Question Text: * Read if necessary. Have you EVER been told by a doctor or other health professional that you had

...Depression?

1 Yes

2 No

7 Refused

9 Don't know

CAPI Instructions: <1> [goto ADEPRSYR] <2,R,D>[goto MHDOTHEV]

Question number: 33

Variable name: ADEPRSYR

Universe: Sample adults (age 18+) who were ever told they had depression

Question Text: DURING THE PAST 12 MONTHS have you had

...Depression?

1 Yes

2 No

7 Refused

9 Don't know

B-3. 2012 National Health Interview Survey (NHIS) Child Questionnaire Excerpt

Document Version Date: May 23, 2013

Document Name: 2012 NHIS Questionnaire - Sample Child

Web Access Link:

ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Survey_Questionnaires/NHIS/2012/English/qchild.pdf

Questionnaire Section: Child Health Status & Limitations

Questionnaire Section Mode: Computer-assisted personal interviewing (CAPI)

Proxy: Sample children do not self-report; instead a knowledgeable adult (typically a parent or guardian) answers questions about the sample child's health.

Introduction Text: None

Number of questions in section: 96

Question number: 92

Variable name: CDEPRSYR

Universe: Sample children aged 6 to 17

Question Text: DURING THE PAST 12 MONTHS, has a doctor or other health professional told you that [fill1: S.C. name] had

...Depression?

1 Yes

2 No

7 Refused

9 Don't know

B-4. 2012 Behavioral Risk Factor Surveillance System (BRFSS) Questionnaire Excerpt

Document Version Date: January 6, 2012

Document Name: 2012 Behavioral Risk Factor Surveillance System Questionnaire

Web Access Link: https://www.cdc.gov/brfss/questionnaires/pdf-ques/2012_brfss.pdf

Questionnaire Section: Chronic Health Conditions

Questionnaire Section Mode: Computer-assisted telephone interviewing (CATI)

Proxy: None allowed

Introduction Text: Now I would like to ask you some questions about general health conditions.

Has a doctor, nurse, or other health professional EVER told you that you had any of the following? For each, tell me "Yes," "No," or you're "Not sure."

Number of questions in section: 13

Question number: 10

Variable name: ADDEPEV2

Universe: All respondents (age 18+)

Question text: (Ever told) you have a depressive disorder, including depression, major depression, dysthymia, or minor depression?

1 Yes

2 No

7 Don't know / Not sure

9 Refused

B-5. 2011 Behavioral Risk Factor Surveillance System (BRFSS) Questionnaire Excerpt

Document Version Date: January 27, 2011

Document Name: 2011 Behavioral Risk Factor Surveillance System Questionnaire

Web Access Link: <https://www.cdc.gov/brfss/questionnaires/pdf-ques/2011brfss.pdf>

Questionnaire Section: Anxiety and Depression (optional module)

Questionnaire Section Mode: Computer-assisted telephone interviewing (CATI)

Proxy: None allowed

Section Introduction Text: None

Number of questions in section: 10

Question number: 10

Variable name: ADANXEV

Universe: All respondents (age 18+)

Question text: Has a doctor or other healthcare provider EVER told you that you have an anxiety disorder (including acute stress disorder, anxiety, generalized anxiety disorder, obsessive-compulsive disorder, panic disorder, phobia, posttraumatic stress disorder, or social anxiety disorder)?

1 Yes

2 No

7 Don't know / Not sure

9 Refused

B-6. 2011-2012 National Survey of Children's Health (NSCH) Questionnaire Excerpt

Document Version Date: April 30, 2014

Document Name: 2011 NATIONAL SURVEY OF CHILDREN'S HEALTH QUARTER 1 2012

Web Access Link: <https://www.cdc.gov/nchs/data/slits/2011NSCHQuestionnaire.pdf>

Questionnaire Section: Common chronic conditions

Questionnaire Section Mode: Computer-assisted telephone interviewing (CATI)

Proxy: Sampled children do not self-report; instead, a parent or guardian with knowledge of the health and health care of the children in the household responds to the questions.

Introduction Text: Now I am going to read you a list of conditions. For each condition, please tell me if a doctor or other health care provider ever told you that [S.C.] had the condition, even if [he/she] does not have the condition now.

INTERVIEWER INSTRUCTION: IF THE RESPONDENT HAS NEVER HEARD OF THE MEDICAL CONDITION OR DOES NOT KNOW WHAT THE CONDITION IS, THEN A DOCTOR OR OTHER HEALTH CARE PROVIDER PROBABLY HAS NOT TOLD THE RESPONDENT THAT THE S.C. HAS THE CONDITION. IF A DOCTOR OR OTHER HEALTH CARE PROVIDER HAS NOT TOLD THE RESPONDENT THAT THE S.C. HAS THE CONDITION, BUT THE RESPONDENT INSISTS THAT THE S.C. HAS THE CONDITION, WE STILL NEED TO CODE THE ANSWER AS "NO."

Number of questions in section: 34

Question number: 5

Variable name: K2Q32A

Universe: All sampled children aged 24 months or older

Question Text: Depression?

- (1) YES
- (2) NO
- (77) DON'T KNOW
- (99) REFUSED

Question number: 6

Variable name: K2Q33A

Universe: All sampled children aged 24 months or older

Question Text: Anxiety problems?

- (1) YES
- (2) NO
- (77) DON'T KNOW
- (99) REFUSED

Question number: 24

Variable name: K2QXXB

Universe: All sampled children aged 24 months or older who were told they had depression or anxiety problems

Question Text: Earlier you told me that [S.C.] has been diagnosed with [CONDITION]. Does [S.C.] currently have [CONDITION]?

- (1) YES
- (2) NO
- (77) DON'T KNOW
- (99) REFUSED

Appendix C: Detailed Information on Confidentially Assurances and Consent Procedures for Selected National Surveys

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Table C.1 Detailed Information on Confidentiality Assurances and Consent Procedures for Selected National Surveys: Adults

Survey	Main Sponsor	Year of Mental Health Prevalence Estimates	Confidentiality Assurances and Consent Procedures
NSDUH	SAMHSA	2012	<p>Consent for screening: When contacting the unit, the FI asked to speak with an adult resident aged 18 or older of the unit who could serve as the screening respondent. The FI introduced himself or herself and the study. As scripted on the iPAQ computer, the FI mentioned the lead letter and, on the informed consent screen, read the informed consent text to the screening respondent, and gave him or her a copy of the study description. The study description, which was also included in the showcard booklet for reference, explained the purpose and sponsor of the data collection effort, assured the respondent that all information gathered would be handled in the strictest confidence, and estimated the time required to complete the screening and interview. The study description also stated that respondents were free to withdraw from the study at any time. Providing the study description and reading the scripted informed consent text from the iPAQ fulfilled all the informed consent requirements for the study's screening portion. Once the selected individual(s) was identified during screening, the FI asked to complete the interview(s) during that visit.</p> <p>Consent for interviewing: Adults: After a respondent aged 18 or older had been selected for the interview, the FI read the script containing the introduction and informed consent for him or her from the showcard booklet to introduce the study, describe the interview process and procedures to be followed, and detail the number of people the respondent represented. Along with reading the informed consent script, a copy of the study description was also provided to meet the interview's informed consent requirements. After receiving consent, the FI began the interview in a private location.</p> <p>Adolescents: See Table C.2 on adolescents.</p> <p>Confidentiality: Confidentiality was stressed in all written and oral communications with potential respondents. Respondents' names were not collected with the data, and CAI methods were used to provide a private and confidential setting to complete the interview. Immediately after the completion of the screener, interviewers attempted to conduct the interview with each SP in the household. The interviewer requested the selected respondent to identify a private area in the home to conduct the interview away from other household members. The interview averaged about an hour and included a combination of CAPI (in which the interviewer reads the questions) and ACASI sections. The interview began in the CAPI mode, with the FI reading the questions from the computer screen and entering the respondent's replies into the computer. After completing the reference date calendar, the FI explained to the respondent how to use the computer for the ACASI sections. Utilizing ACASI methodology for the sensitive substance use and nonuse questions enhanced privacy because the respondent listened to the prerecorded questions through the headphones and entered his or her responses directly into the computer. No personal identifying information about respondents was captured in the CAI record. FIs transmitted completed interview data to RTI in Research Triangle Park, North Carolina. Screening and interview data were encrypted while on laptops and mobile computers.</p> <p>Data were transmitted regularly to RTI using either a direct dial-up connection or the Internet with all data encrypted while in transit. In addition, screening and interview data were transmitted to RTI in separate data streams and kept physically separate (on different devices) before transmission occurred. To protect the privacy of respondents, all variables that could be used to identify individuals were encrypted or collapsed in the public use file. To further ensure respondent confidentiality, the data producer used data substitution and deletion of state identifiers and a subsample of records in the creation of the public use file.</p> <p>2012 Update: An informed consent reference guide was added to the job aids section of the showcard booklet for easy reference. The 2012 interviewer materials and protocols for using those materials were based on the 2011 interviewer materials and protocols. In addition to minor wording revisions and year updates (2011 to 2012), the introduction and informed consent for interview respondents aged 12 to 17 were updated (see the description in Table C.2 on adolescents).</p>

See notes at end of table.

(continued)

Table C.1 Detailed Information on Confidentiality Assurances and Consent Procedures for Selected National Surveys: Adults (continued)

Survey	Main Sponsor	Year of Mental Health Prevalence Estimates	Confidentiality Assurances and Consent Procedures
NCS-R	NIMH	2001 to 2003	<p>Consent: The NCS-R was conducted in the homes of a nationally representative sample of respondents between February 2001 and April 2003. Prior to the interviewer's first contact, advance letters and study fact brochures were sent to each selected household explaining the purpose of the study, answering FAQs, and providing a toll-free number for respondents with additional questions. Upon making in-person contact with the household, the interviewer explained the study once again and obtained a household listing. This listing was then used to select a random respondent in the household. The random respondent was approached, the interview was explained, and verbal informed consent was obtained. Verbal rather than written informed consent was obtained because the NCS-R was designed as a trend study replication of the baseline NCS, which used verbal informed consent. The human subjects committees of both the Harvard Medical School and the University of Michigan approved these recruitment, consent, and field procedures.</p> <p>Confidentiality: Recruitment of HUs began with the interviewer mailing an advance letter and a study fact brochure to the HUs. These materials explained the study's purposes, described the funding sources and the survey organization that was carrying out the survey, listed the names and affiliations of the senior scientists involved in the research, provided information about the content and length of the interview, described the confidentiality procedures, clearly stated that participation was voluntary, and provided a toll-free number for respondents who had additional questions.</p>
NESARC Wave 1	NIAAA	2001 to 2002	All potential NESARC respondents were informed in writing about the nature of the survey, the statistical uses of the survey data, the voluntary aspect of their participation, and the federal laws that rigorously provide for the confidentiality of identifiable survey information. Respondents who consented to participate after receiving this information were interviewed. The research protocol, including informed consent procedures, received full ethical review and approval from the U.S. Census Bureau and the U.S. Office of Management and Budget. Data were collected using the face-to-face CAPI method in respondents' homes.

See notes at end of table.

(continued)

Table C.1 Detailed Information on Confidentiality Assurances and Consent Procedures for Selected National Surveys: Adults (continued)

Survey	Main Sponsor	Year of Mental Health Prevalence Estimates	Confidentiality Assurances and Consent Procedures
NESARC-III	NIAAA	2012 to 2013	<p>Consent: The CAPI instrument included a consent module used to document the SP's official consent to participate in the NESARC-III study and administered as the first SP-level task. The consent module contained information on the study's purpose, statistical uses of survey data, federal laws on confidentiality and data privacy, risks and benefits of participation, and contact information for further questions. As part of this module, interviewers provided the hard-copy consent brochure to the SP and allowed time for the SP to read it. The consent brochure text was also accessible through this module as a PDF version, available in all study languages. Once the interviewer had answered any questions, the SP was asked to indicate whether he or she (1) agreed to participate in the interview and provide a saliva sample, (2) agreed to participate in the interview only, or (3) preferred not to participate. The interviewer then indicated the SP's consent status in the CAPI system by selecting the appropriate response. SPs kept the consent brochure for their records. The recontact module was enabled upon completion of the AUDADIS-5 interview. It included three components: (1) collection/verification of the best time and telephone number(s) for recontacting the SP for standard quality control purposes, (2) informed consent for the reliability or validity follow-up studies, and (3) additional SP contact information for follow-up study purposes.</p> <p>Consent Brochure: Interviewers were instructed to give the consent brochure to the selected SP as the first step in the extended interview process. Referenced in the CAPI consent module, the brochure contained information on the study's purpose, uses of the data collected, confidentiality and data privacy, risks and benefits of participation, and contact information for further questions. Interviewers documented the SP's response in the CAPI system. If no consent was obtained, no additional data collection activities with the SP were attempted.</p> <p>Follow-Up Consent: Interviewers were instructed to give the follow-up consent document to the selected SP, as prompted in the CAPI recontact module. This document was similar to the consent brochure but focused solely on participation in the reliability and validity follow-up studies.</p>
BRFSS	CDC	2012 where data were available; 2011 otherwise	<p>The telephone interviewer read a script describing the survey and stated, "Your telephone number has been chosen randomly, and I would like to ask some questions about health and health practices." The core section script stated, "I will not ask for your last name, address, or other personal information that can identify you. You do not have to answer any question you do not want to, and you can end the interview at any time. Any information you give me will be confidential. If you have any questions about the survey, please call (<i>give appropriate state telephone number</i>)."</p> <p>To maintain consistency across states, BRFSS has set standard protocols for data collection. Whether data are collected in-house or by contracted organizations, states must develop and maintain procedures to ensure respondents' confidentiality, assure and document the quality of the interviewing process, and supervise and monitor the interviewers.</p>
NHIS	NCHS	2012	<p>An advance letter (HIS-600) was mailed to each household address selected for participation describing elements of the informed consent, including expected duration, description of the procedures, and the voluntary nature of participation. When an interviewer arrived at the household address, he or she provided another copy of the advance letter to each respondent and obtained verbal consent for survey participation. The interviewer showed his or her official Census Bureau ID, introduced the survey, handed the respondent a copy of the advance letter, allowed time for the respondent to read the letter, answered any questions, then asked, "Are you willing to participate in the survey?"</p>

See notes at end of table.

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Table C.1 Detailed Information on Confidentiality Assurances and Consent Procedures for Selected National Surveys: Adults (continued)

Survey	Main Sponsor	Year of Mental Health Prevalence Estimates	Confidentiality Assurances and Consent Procedures
MEPS	AHRQ	2012	<p>Verbal consent is obtained by the interviewer, using procedures similar to the NHIS. When a household is first contacted, the respondent is given a document called "Important Information about Your Participation in MEPS." This handout provides all of the necessary information for providing consent to participate, including a description of the kinds of data that will be collected. It has been approved by the Westat Institutional Review Board as the tool for obtaining implied consent to participate.</p> <p>Although HIPAA specifies circumstances under which a covered entity may release personal health information without the consent of the patient, this study contacted medical providers and pharmacies only for patients who specifically consented to the release of their personal information. This consent was documented through the patient's signature on the authorization form, a copy of which was provided to each medical provider contacted for the study. Although HIPAA's protections do not extend to cover personal health information after a covered entity has released it to a third party, all information collected in this study was covered by the confidentiality requirements provided by the legislation under which the study was conducted. This law requires that all identifying data collected for the study—whether from the individual household respondents or from their medical providers—be treated as confidential.</p>

ACASI = audio computer-assisted self-interviewing; AHRQ = Agency for Healthcare Research and Quality; AUDADIS-5 = Alcohol Use Disorder and Associated Disabilities Interview Schedule version 5; BRFSS = Behavioral Risk Factor Surveillance System; CAI = computer-assisted interviewing; CAPI = computer-assisted personal interviewing; CDC = Centers for Disease Control and Prevention; FAQs = frequently asked questions; FI = field interviewer; HIPAA = Health Insurance Portability and Accountability Act of 1996; HU = housing unit; MEPS = Medical Expenditure Panel Survey; NCHS = National Center for Health Statistics; NCS = National Comorbidity Survey; NCS-R = National Comorbidity Survey Replication; NESARC = National Epidemiologic Survey on Alcohol and Related Conditions; NHIS = National Health Interview Survey; NIAAA = National Institute on Alcohol Abuse and Alcoholism; NIMH = National Institute of Mental Health; NSDUH = National Survey on Drug Use and Health; SAMHSA = Substance Abuse and Mental Health Services Administration; SP = sample person.

Table C.2 Detailed Information on Confidentiality Assurances and Consent Procedures for Selected National Surveys: Adolescents

Survey	Main Sponsor	Year of Mental Health Prevalence Estimates	Confidentiality Assurances and Consent Procedures
NSDUH	SAMHSA	2012	<p>Consent: If a selected individual was aged 12 to 17, the FI was responsible for obtaining verbal consent from a parent or guardian before contacting the youth. The only exceptions to this rule were in certain group quarters situations, such as dormitories, and other sample dwelling units where consent was unobtainable because a youth was living independently without a parent or guardian residing in the home. Beginning in October 2012, this exception only applied to 17 year olds living independently. For all youths aged 16 years or younger, parental permission was required with no exceptions. In the showcard booklet, separate text for parents and guardians was included in the script containing the introduction and informed consent for interview respondents aged 12 to 17. Once parental permission was granted, the FI approached the youth and read the introduction and informed consent script to introduce the study, describe the interview process and procedures to be followed, and detail the number of youths each respondent represented. The FI also provided a copy of the study description to fulfill all required aspects of informed consent. After obtaining the youth's agreement to participate, parents were then asked to leave the interview setting to ensure the confidentiality of the youth's responses, and the FI began the interview.</p> <p>2012 Update: In addition to minor wording revisions and year updates (2011 to 2012), the introduction and informed consent for interview respondents aged 12 to 17 in the showcard booklet was updated to clarify the FI instructions shown above the parental permission script at the top of the page. This text was revised to read, "FIRST, READ THE PARENTAL PERMISSION SCRIPT BELOW AND OBTAIN PERMISSION FROM THE PARENT."</p>
NCS-A	NIMH	2001 to 2004	The interview was administered face-to-face to adolescents in their homes using laptop CAPI; parents were asked to complete paper-and-pencil self-administered questionnaires while their children were being interviewed. An advance letter was sent to the household a few days before the initial interviewer contact attempt explaining the study and providing an 800 number for questions prior to the interviewer visiting their household. This mailing also included a brief brochure that answered questions about confidentiality. Upon making in-person contact, the interviewer answered questions before obtaining written informed consent from the parent and written informed assent from the adolescent. Only after the parent provided signed informed consent was any contact made with the adolescent. Interviews were never conducted with a nonemancipated adolescent unless at least one parent or guardian was present in the home during the interview. However, no parent consent or parent questionnaire was requested in the small number of cases where an emancipated minor was interviewed.
NHIS	NCHS	2012	After verbal consent was obtained from an adult, a sample child aged 17 or younger was randomly selected by computer; an adult respondent knowledgeable about the sample child's health was asked questions about that child.
NSCH	HRSA/ NCHS	2011 to 2012	The respondent was a parent or guardian in the household who was most knowledgeable about the health and health care of the randomly selected child. Verbal informed consent was obtained via CATI using a standard script describing the voluntary nature of the research, the confidentiality procedures, the survey length, a request to record the phone call, and a request to proceed with the health questions: "Before we continue, I'd like you to know that taking part in this research is voluntary. You may choose not to answer any questions you don't wish to answer, or end the interview at any time with no impact on the benefits you may receive. We are required by Federal law to develop and follow strict procedures to protect the confidentiality of your information and use your answers only for statistical research. I can describe these laws if you wish... In order to review my work, this call will be recorded and my supervisor may listen as I ask the questions. I'd like to continue now unless you have any questions."
YRBS	CDC	2009 and 2011	Passive parental consent was employed in most schools. This process allowed parents to opt their student out if they wished, but consent was assumed if no parental response was obtained.

CAPI = computer-assisted personal interviewing; CATI = computer-assisted telephone interviewing; CDC = Centers for Disease Control and Prevention; FI = field interviewer; HRSA = Health Resources and Services Administration; NCHS = National Center for Health Statistics; NCS-A = National Comorbidity Survey Adolescent Supplement; NHIS = National Health Interview Survey; NIMH = National Institute of Mental Health; NSCH = National Survey of Children's Health; NSDUH = National Survey on Drug Use and Health; SAMHSA = Substance Abuse and Mental Health Services Administration; YRBS = Youth Risk Behavior Survey.

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