

Mental Health Surveillance Among Children — United States, 2005–2011



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Mental Health Surveillance Among Children — United States, 2005–2011

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Summary

Mental disorders among children are described as “serious deviations from expected cognitive, social, and emotional development” (US Department of Health and Human Services Health Resources and Services Administration, Maternal and Child Health Bureau. Mental health: A report of the Surgeon General. Rockville, MD: US Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, and National Institutes of Health, National Institute of Mental Health; 1999). These disorders are an important public health issue in the United States because of their prevalence, early onset, and impact on the child, family, and community, with an estimated total annual cost of \$247 billion. A total of 13%–20% of children living in the United States experience a mental disorder in a given year, and surveillance during 1994–2011 has shown the prevalence of these conditions to be increasing. Suicide, which can result from the interaction of mental disorders and other factors, was the second leading cause of death among children aged 12–17 years in 2010. Surveillance efforts are critical for documenting the impact of mental disorders and for informing policy, prevention, and resource allocation. This report summarizes information about ongoing federal surveillance systems that can provide estimates of the prevalence of mental disorders and indicators of mental health among children living in the United States, presents estimates of childhood mental disorders and indicators from these systems during 2005–2011, explains limitations, and identifies gaps in information while presenting strategies to bridge those gaps.

Attention-deficit/hyperactivity disorder (6.8%) was the most prevalent parent-reported current diagnosis among children aged 3–17 years, followed by behavioral or conduct problems (3.5%), anxiety (3.0%), depression (2.1%), autism spectrum disorders (1.1%), and Tourette syndrome (0.2% among children aged 6–17 years). An estimated 4.7% of adolescents aged 12–17 years reported an illicit drug use disorder in the past year, 4.2% had an alcohol abuse disorder in the past year, and 2.8% had cigarette dependence in the past month. The overall suicide rate

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for persons aged 10–19 years was 4.5 suicides per 100,000 persons in 2010. Approximately 8% of adolescents aged 12–17 years reported ≥ 14 mentally unhealthy days in the past month.

Future surveillance of mental disorders among children should include standard case definitions of mental disorders to ensure comparability and reliability of estimates across surveillance systems, better document the prevalence of mental disorders among preschool-age children, and include additional conditions such as specific anxiety disorders and bipolar disorder. Standard surveillance case definitions are needed to reliably categorize and count mental disorders among surveillance systems, which will provide a more complete picture of the prevalence of mental disorders among children. More comprehensive surveillance is needed to develop a public health approach that will both help prevent mental disorders and promote mental health among children.

Introduction

Mental health in childhood is characterized by the achievement of development and emotional milestones, healthy social development, and effective coping skills, such that mentally healthy children have a positive quality of life and can function well at home, in school, and in their communities (1–3). In this report, children are defined as persons aged <18 years, and adolescents are persons aged 12–17 years. In children, mental disorders are described as “serious deviations from expected cognitive, social, and emotional development” (4) and include conditions meeting criteria described by the *Diagnostic and Statistical Manual of Mental Disorders, 4th edition, Text Revision* (DSM-IV-TR) (5) or the *International Classification of Diseases* (ICD) (6,7). Recently the term mental, emotional, or behavioral disorders has been used to refer to diagnosed mental or substance use disorders (6).

Mental disorders among children are an important public health issue because of their prevalence, early onset, and impact on the child, family, and community. A total of 13%–20% of children living in the United States experience a mental disorder in a given year (6,8–10). Suicide, which can result from the interaction of mental disorders and other factors, was the second leading cause of death among children aged 12–17 years in 2010 (11). In the United States, the cost (including health care, use of services such as special education and juvenile justice, and decreased productivity) of mental disorders among persons aged <24 years in the United States was estimated at \$247 billion annually (6,12,13). In 2006, mental disorders were among the most costly conditions to treat in children (14).

Two recent studies have reported substantial increases in use of services for mental disorders among children. One study included insurance claims from approximately 20% of the privately insured U.S. population aged <65 years with private insurance and weighted the data to reflect a national estimate. This study reported a 24% increase in inpatient mental health and substance abuse admissions among children during 2007–2010, as well as increases in use and cost of these

services and psychotropic medications for teenagers specifically over the same period (15). A second nationally representative study, which used data on principal diagnoses for hospital stays in the United States from the Healthcare Cost and Utilization Project, reported that in 2010, mood disorders were among the most common principal diagnoses for all hospital stays among children in the United States, and the rate of hospital stays among children for mood disorders increased 80% during 1997–2010, from 10 to 17 stays per 10,000 population (16).

For some children, mental disorders might result in serious difficulties at home, with peer relationships, and in school (17–19). These disorders also can be associated with substance use, criminal behavior, and other risk-taking behaviors (20–22). Persons with mental disorders frequently have more than one type of disorder, with an estimated 40% of children with one mental disorder having at least one other mental disorder (23–26). Children with mental disorders also more often have other chronic health conditions (e.g., asthma, diabetes, and epilepsy) than children without mental disorders (6,26–30). Finally, mental disorders in children are associated with an increased risk for mental disorders in adulthood (6), which are associated with decreased productivity, increased substance use and injury, and substantial costs to the individual and society (31,32).

This report, which complements a 2011 report that focused on CDC surveillance of mental illness among adults in the United States (31), describes ongoing independent federal surveillance systems, each addressing different health issues and varying populations, that are used to estimate the prevalence of mental disorders and indicators of mental health among children in the United States and highlights selected national prevalence estimates. Availability of state-based estimates is noted in the surveillance descriptions and tables. Surveillance data from multiple federal agencies, including CDC, the Health Resources and Services Administration (HRSA), and the Substance Abuse and Mental Health Services Administration (SAMHSA), are included. Mental health conditions included in this report include those covered in DSM-IV-TR for which there were recent or ongoing surveillance data collected, including attention-deficit/hyperactivity disorder (ADHD),

disruptive behavioral disorders such as oppositional defiant disorder (ODD) and conduct disorder, autism spectrum disorders (ASDs), mood and anxiety disorders including depression, tic disorders, and substance use disorders. Although some consider substance use disorders to be a group of disorders that is distinct from mental disorders, this report refers to substance use disorders as they are referred to in DSM-IV-TR and within the Institute of Medicine (IOM) definition of mental, emotional, and behavioral disorders (5,6). Selected indicators of mental health, including mentally unhealthy days and suicide, also were assessed.

Surveillance of Mental Disorders Among Children

Public health surveillance involves systematic and ongoing collection of data followed by the interpretation and dissemination of the data to encourage public health action (33–35). Surveillance is critical for policy and program development, documenting the impact of mental disorders among children, tracking changes over time, understanding mental disorders across the lifespan, monitoring health service use and availability (36), increasing prevention and promotion activities, and supporting allocation of funding for services (6,37).

Methods used by different surveillance systems often vary because of the differing priorities of the agencies collecting the data and because of budget constraints. For example, systems vary in terms of 1) what is measured (e.g., diagnostic criteria for a mental disorder, reports of previously diagnosed conditions, reports of mental health symptoms, or other indicators of mental health problems), 2) sample (e.g., age range, oversampling, and geographical coverage), 3) source of the information (e.g., proxy respondent for the child, self-report by the child, or administrative records), 4) the way the data are collected (e.g., in-person interview, telephone interview, self-administered survey, and administrative records), 5) sample size (precision of estimates), and 6) periodicity of data collection (annual or other). Differences in these surveillance modalities and methods might limit comparisons of estimates between different systems (38). In addition, changes in the characteristics of the same surveillance system over time might limit information about time trends in the prevalence of mental disorders. Information on mental health is collected through independent surveillance systems with varying objectives.

Federal Surveillance Systems, Surveys, and Other Information Systems that Measure Prevalence of Mental Disorders and Indicators of Mental Health Among Children

Childhood mental disorders are not typically the sole focus of federal public health surveillance but are included within systems that address multiple health issues. One exception is the National Comorbidity Survey Replication Adolescent Supplement (NCS-A), a nationally representative population-based prevalence study that was conducted during 2001–2004 and funded by the National Institutes of Mental Health (NIMH) (25,39,40). Although NCS-A is not an ongoing surveillance system, the survey provided important data on mental disorders among children and was used to calculate national prevalence estimates of several conditions that are not included in current federal surveillance systems. Therefore, survey data from NCS-A, although not current, remain important and relevant and are referenced throughout this report. This report includes descriptions of current, ongoing independent federal surveillance systems that monitor child mental disorders and related mental health indicators (Table 1).

Autism and Developmental Disabilities Monitoring Network

The Autism and Developmental Disabilities Monitoring (ADDM) network is an active surveillance system that has been conducted by CDC since 2000 to estimate the prevalence of ASDs and describe other characteristics among children with ASDs (available at <http://www.cdc.gov/ncbddd/autism/addm.html>). Fourteen population-based sites in the United States participate in ADDM. The study population in each site includes children aged 8 years during a given surveillance year whose parents or guardians live in the designated geographic region for that site. ADDM focuses on children aged 8 years because a baseline study conducted by CDC demonstrated that the prevalence of autism among children aged 3–10 years is highest in children aged 8 years (41). A common method is used at each ADDM site. Health and education records are requested from medical providers and public schools that conduct developmental evaluations of children. Specifically, records are requested by sites for children who meet the age and residency eligibility criteria and who have an indication of ASD or another developmental concern based on discharge or other diagnostic codes in health records and special education eligibility codes in education records. The selected records are screened, and those with one or more predefined

autism-associated triggers (i.e., behaviors) are fully abstracted. Abstracted information includes basic demographics, verbatim developmental assessment reports, and results of psychometric testing. All abstracted evaluations are reviewed by trained clinicians to determine ASD case status (42). A child is included as meeting the surveillance case definition for ASD if the child displays behaviors (as described on a comprehensive evaluation completed by a qualified professional) consistent with the DSM-IV-TR diagnostic criteria for autistic disorder, pervasive developmental disorder—not otherwise specified (PDD-NOS, including atypical autism), or Asperger's disorder (5). ADDM has collected data on a biennial cycle since 2000, with period prevalence estimates available for even years during 2000–2008. Prevalence estimates of ASD in this report are from the 2008 surveillance year. The 14 ADDM sites that provided data for the 2008 surveillance year included a total population of 337,093 children aged 8 years, which was 8.4% of the total population of children aged 8 years living in the United States in 2008 (43).

National Health and Nutrition Examination Survey

The National Health and Nutrition Examination Survey (NHANES) is a continuous cross-sectional survey of health and nutritional status conducted by CDC. NHANES uses a multistage probability household sampling design to obtain a nationally representative sample of the civilian noninstitutionalized population living in the United States (44). Data are collected through personal interviews and dietary intakes, biochemical tests, and physical measurements in a mobile examination center (MEC). The conditions and health indicators studied include cardiovascular disease, diabetes, obesity, environmental exposures, infectious diseases and vaccinations, mental health, oral health, osteoporosis, physical fitness, sexually transmitted diseases, dietary supplements, and prescription medications. Data from NHANES are released in 2-year cycles and are available online (<http://www.cdc.gov/nchs/nhanes.htm>); some data are restricted from the public files but are available to researchers through the NCHS Research Data Center (available at <http://www.cdc.gov/rdc>).

During 1999–2004, NHANES included various modules of the 34 diagnostic assessments from the 12-month Diagnostic Interview Schedule for Children (DISC) (version IV) to measure the prevalence of seven mental disorders during the 12 months before the interview (1999–2004: generalized anxiety disorder and panic disorder; 2000–2004: eating disorder, elimination disorders, major depression/dysthymic disorder, attention-deficit disorder or attention-deficit/hyperactivity disorder [ADD/ADHD], and conduct disorder). DISC, a

highly structured diagnostic interview that can be conducted by nonclinicians, was initially developed for epidemiologic studies but also has been used in research studies and clinical settings (45). Adolescents reported on the generalized anxiety disorder, panic disorder, conduct disorder, depression, and eating disorder modules of DISC during the MEC interview. Parents reported for the adolescents on the conduct disorder, depression, eating disorder, ADHD, and elimination disorder DISC modules during a follow-up phone interview.

NHANES has used the nine-item Patient Health Questionnaire (PHQ-9) since 2005 (46,47) to measure depression during a private interview at the MEC; since 2001, a set of four healthy days measures has been used, including a question on the number of mentally unhealthy days. PHQ-9 is a screening instrument with nine questions about depressive symptoms during the past 2 weeks followed by a single question that assesses associated impairment (46,47). Among children aged 13–17 years, the PHQ-9 (using a cutoff score of ≥ 11) has an estimated sensitivity of 89.5% and an estimated specificity of 77.5% for detecting children who meet the DSM-IV criteria for major depression on DISC-IV (46). The mentally unhealthy days question asks: “Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?” This question has demonstrated content, construct, and criterion validity in adolescents (48–50). The examination and laboratory data collected allow researchers to examine the relationships between depression and health variables not available on other national surveys. Adolescents aged 12–17 years report for themselves on the PHQ-9 and mentally unhealthy days question.

Approximately 5,000 persons of all ages are examined each year. During 1999–2006, adolescents aged 12–19 years were oversampled, providing larger sample sizes. Adolescents aged 12–17 years are included in this report. During 1999–2006, the average response rate for adolescents was 87% for the household interview and 85% for the examination. Approximately 78% of adolescents completed the private interview during the MEC examination.

National Health Interview Survey

The National Health Interview Survey (NHIS) has been conducted by CDC since 1957 and is the principal source of information on the health of the civilian noninstitutionalized household population of the United States (51) (available at <http://www.cdc.gov/nchs/nhis.htm>). NHIS data are collected through in-person household interviews among a nationally representative sample. Households are identified through a multistage probability household sampling design with

oversampling of blacks, Hispanics, and Asians for a more precise estimation of health characteristics in these populations.

Selected health and demographic information is collected for all household members, including all of the children in households with children. Then one sample child (if any children aged ≤ 17 years are present) and one sample adult from each family in NHIS are randomly selected. Additional detailed health-related information, including information on mental health, is collected for the sample child. This information is provided by an adult, usually a parent, who is knowledgeable about the child's health.

The interviewed sample for 2011 consisted of 39,509 households with 26,802 children, from which 12,850 sample child interviews were completed. In 2011, the household response rate was 82%, and the completion rate for the sample child component was 92%, yielding a final response rate of 75% for that component.

Since the redesign of the questionnaire in 1997, autism has been routinely assessed by asking the respondent whether a doctor or health professional has ever told them that the child had any of 10 listed conditions, including autism. The NHIS question changed in 2011 to include autism/ASD. These data are not included in this report because they were undergoing reliability assessments when the data were being prepared for the report. ADHD has also been included since 1997. Respondents for children aged 2–17 years have been asked: “Has a doctor or health professional ever told you that [the child] had... attention-deficit/hyperactivity disorder (ADHD) or attention deficit disorder (ADD)?” Additional questions about a recent diagnosis of depression and about recent anxiety or frequent stress were asked in 2007 and 2012. (The 2012 data were not available at the time the report was prepared and therefore are not included.)

The NHIS questionnaire for children also includes small sets of questions for assessing emotional and behavioral problems in children. For children aged 2–3 years, the items were selected from the Child Behavior Checklist (52). For children aged 4–17 years, the items were selected from the Strengths and Difficulties Questionnaire (SDQ) (53,54). A brief version of the SDQ was developed for use in NHIS and consists of five symptom assessment items and one impairment assessment item. This brief version of the SDQ was included in NHIS in 2002 and 2005–2007 and since 2010. The extended version of the SDQ was included in 2001, 2003, and 2004. NHIS data are available to the public online; restricted data are available to researchers through the NCHS Research Data Center (available at <http://www.cdc.gov/rdc>).

National Survey of Children's Health

The National Survey of Children's Health (NSCH) is a cross-sectional, random-digit-dial population-based telephone survey that collects information on the physical and emotional health of noninstitutionalized children aged ≤ 17 years and can be used to produce state and national estimates (55) (available at <http://www.cdc.gov/nchs/slits/nsch.htm>). Factors that might relate to children's well-being are emphasized, including medical homes (56), family interactions, parental health, school and after-school experiences, and safety of neighborhoods. The survey is funded by HRSA and conducted by CDC as a module of the State and Local Area Integrated Telephone Survey (SLAITS) mechanism that uses the sampling frame of CDC's National Immunization Survey to identify households with children. One child from each household is randomly selected to be the focus of the interview.

NSCH was administered in 2003, 2007, and 2011–2012. A total of 91,642 child-level interviews were completed for the 2007 NSCH; the household screening response rate was 71%, the interview completion rate was 66%, and the overall response rate was 47%. Data were collected from a parent or guardian in the household who was knowledgeable about the health and health care of the randomly selected child. The respondent was the mother (biological, stepmother, foster mother, or adoptive mother) for 73.5% of the children.

The 2007 NSCH assessed the presence of mental health problems or conditions in children aged 2–17 years. Parents or guardians were asked about 1) depression; 2) anxiety problems; 3) behavioral or conduct problems, such as ODD or conduct disorder; 4) autism, Asperger's disorder, pervasive developmental disorder, or other ASDs; 5) developmental delay; 6) Tourette syndrome; and 7) ADD/ADHD. For each condition, parents were asked whether they had ever been told by a doctor or other health-care provider that their child had the condition and whether the child still had the condition. For children with current problems or conditions, parents were asked to rate the severity of their child's condition as mild, moderate, or severe. Parents were also asked whether their children received mental health treatment or counseling or took medications because of a problem with emotions, concentration, or behavior. NSCH data are available to the public online; data from the latest survey (2011–2012) became available in 2013 but were not available for inclusion in this report.

National Survey on Drug Use and Health

The National Survey on Drug Use and Health (NSDUH) is the primary source of statistical information on the use of alcohol, tobacco, illicit drugs, and nonmedical use of prescription drugs in the United States (57) (available at

<http://www.samhsa.gov/data/NSDUH.aspx>). The survey includes several modules of questions that focus on mental health issues.

Conducted by the federal government since 1971 (annually since 1990), NSDUH is sponsored by SAMHSA. NSDUH collects data through in-person household interviews with a representative sample of the noninstitutionalized population. Thus, NSDUH excludes homeless persons who are not in shelters, military personnel on active duty, and residents of institutional group quarters such as prisons and long-term hospitals.

NSDUH is a state and nationally representative survey with approximately 150,000 addresses screened and approximately 70,000 respondents interviewed each year. Adolescents and young adults are oversampled, and each state's sample is approximately equally distributed among three age groups: 12–17 years, 18–25 years, and ≥26 years. In 2011, the weighted response rates were 87% for household screening, 74% for interviewing, and 65% overall.

Data on substance use collected by NSDUH among adolescents aged 12–17 years include information on the recency and frequency of use of tobacco products, alcohol, marijuana, cocaine, heroin, inhalants, and hallucinogens and nonmedical use of prescription drugs. NSDUH collects information on symptoms of substance use disorders in the past year, major depressive episodes (MDEs) during the lifetime and in the past year, and MDEs accompanied by impairment in one or more role domains. The case definitions for substance use disorders and MDEs are based on DSM-IV criteria. Additional information collected for adolescents includes mental health service use, substance use treatment, treatment for depression, risk and protective factors, parental mental illness, and parental substance use. NSDUH also collects respondent reports of anxiety and depression during the lifetime and in the past year as diagnosed by a doctor or medical professional. However, estimates based on these items are not provided in this report, pending the completion of quality assessments. NSDUH data are publicly available (<http://www.samhsa.gov/data/NSDUH.aspx>).

National Violent Death Reporting System

The National Violent Death Reporting System (NVDRS) is a population-based active surveillance system conducted by CDC that provides a census of violent deaths that occur within participating states (available at <http://www.cdc.gov/ncipc/wisqars/NVDRS/About-NVDRS.htm#disclaimer>). For the purposes of NVDRS, violence is defined as “the intentional use of physical force or power (threatened or actual) against a person, or against a group or community that either results in, or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment (e.g. arrested physical,

mental, intellectual, emotional, or social development) or deprivation” (58). Violent deaths include child maltreatment deaths, intimate partner homicides and other homicides, suicides, and legal intervention deaths (i.e., when a decedent is killed by a police officer or other person with specified legal authority to use deadly force). Unintentional firearm injury deaths and deaths of undetermined intent also are included in the system.

NVDRS began collecting data in 2003 with seven states participating (Alaska, Maryland, Massachusetts, New Jersey, Oregon, South Carolina, and Virginia); six states joined in 2004 (Colorado, Georgia, North Carolina, Oklahoma, Rhode Island, and Wisconsin), four more joined in 2005 (California, Kentucky, New Mexico, and Utah), and two joined in 2010 (Michigan and Ohio), for a total of 19 states. CDC provides funding for state participation and anticipates that NVDRS will eventually expand to include all 50 states, the District of Columbia (DC), and U.S. territories (59).

NVDRS obtains data from multiple complementary data sources, including death certificates, medical examiner and coroner records, and law enforcement reports. Secondary sources used by some participating states include child fatality review team data, supplementary homicide reports, hospital data, and crime laboratory data. Because NVDRS is an incident-based system, violent incidents can include more than one person and more than one weapon. Individual-level data include manner of death; injury mechanism; whether each individual involved in an incident is a victim, suspect, or both; and circumstances surrounding injury. The circumstance data for homicide, suicide, and undetermined deaths include such factors as mental health history and status (e.g., current depressed mood, current mental health problems, current treatment for mental health problems, whether treatment has ever been received for mental health problems, and history of suicide attempts), whether a victim disclosed the intent to die by suicide, interpersonal conflicts, alcohol or other substance use, and criminal acts. Because no sampling is involved, all identified violent deaths in participating states are included. Data from 2005–2009 are included in this report.

NVDRS data are publicly accessible through CDC's Web-based Injury Statistics Query and Reporting System (WISQARS) (11). Potentially identifiable NVDRS microdata are also available via a formal request to CDC.

National Vital Statistics System

Mortality statistics from the National Vital Statistics System (NVSS) are based on information from death certificates filed in the 50 states and DC and processed by CDC (60) (available at <http://www.cdc.gov/nchs/deaths.htm>). Vital statistics mortality

data are a fundamental source of demographic, geographic, and cause-of-death information for the United States.

The mortality file includes medical information on cause of death (including suicide) and demographic information on age, sex, race, Hispanic origin, state of residence, and educational attainment. The death registration area for all states and DC has been in existence since 1932. CDC obtains information on deaths from the registration offices of each of the 50 states, New York City, DC, Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, and the Northern Mariana Islands. Data are sent to CDC through the Vital Statistics Cooperative Program.

The completion and filing of the death certificate with the state vital registrar is the responsibility of the funeral director. The funeral director obtains demographic data for the death certificate from an informant. The physician in attendance at the death is required to certify the cause of death. For suicides and other unnatural causes of death, a coroner or medical examiner typically is required to investigate and certify the cause of death.

All NVSS mortality files have an underlying cause of death for each record. The underlying cause of death is defined as 1) the disease or injury that initiated the train of morbid events leading directly to death or 2) the circumstances of the accident or violence that produced the fatal injury. Beginning with data year 1999, underlying causes of death coded as any of the ICD-10 codes *U03, X60–X84, or Y87.0 result in the death being categorized as a suicide. Data from 2010 are included in this report.

NVSS data are publicly accessible through CDC WONDER (61) and CDC WISQARS (11) (available at <http://www.cdc.gov/nchs/deaths.htm>). Restricted access to NVSS records for individual cases also are available via a formal request to CDC.

School-Associated Violent Death Surveillance Study

The School-Associated Violent Death Surveillance Study (SAVD), conducted by CDC in collaboration with the U.S. Department of Education and the U.S. Department of Justice, describes the epidemiology of school-associated violent deaths, identifies common features of these deaths, estimates the rate of school-associated violent death in the United States, and identifies potential risk factors for these deaths (62) (available at <http://www.cdc.gov/violenceprevention/youthviolence/schoolviolence/SAVD.html>). SAVD includes descriptive data on all identified school-associated violent deaths in the United States, including all homicides, suicides, or legal intervention incidents in which the fatal injury occurred on the campus of a functioning elementary or secondary school, while the victim was on the way to or from regular sessions

at such a school, or while the victim was attending or on the way to or from an official school-sponsored event. Victims of such incidents include nonstudents, students, and staff members. Data reported here are restricted to those pertaining to children aged 5–18 years. SAVD includes descriptive information about the school, event, victims, and offenders. Although SAVD attempts to include all school-associated violent deaths, deaths that did not appear in media databases during the case-identification period for specific years and were not identified by supplemental case finding efforts might be missed. In addition, cases that are never reported by the media might be overlooked altogether because case-finding strategies rely heavily on news reports. However, because most of the recognized cases receive extensive, often nationwide, coverage, it is unlikely that many cases of school-associated homicide or suicide went entirely unreported. If any such cases did occur, they might differ from the cases that were deemed more newsworthy and are characterized in this report. SAVD has collected data from July 1, 1992, through the present.

SAVD uses an ongoing four-step process to identify and collect data on school-associated violent deaths: 1) identification through a media search; 2) confirmation with law enforcement officials to determine whether the event meets the case definition; 3) interviews with law enforcement and school officials regarding details about the school, event, victims, and offenders; and 4) request for a copy of the full law enforcement report for each case. Detailed event information is collected for each case including the geographic location of injury, the context of injury (while classes were being held, during break, etc.), motive for injury, method of injury, and school and community events happening around the time period. Information obtained on victims and offenders includes demographics, circumstances of the event (date and time, alcohol or drug use, and number of persons involved), types and origins of weapons, criminal history, psychological risk factors, school-related problems, extracurricular activities, and family history, including structure and stressors.

SAVD currently collects mental health-related information (for victims and offenders) at the time of the event and in the year before the event. At the time of the event, information collected includes demonstration of symptoms consistent with an attention deficit or a hyperactivity disorder (e.g., impulsivity, short attention span, distractibility), whether the victim or offender has a diagnosis of ADHD or another hyperactivity disorder, treatment for ADHD or another hyperactivity disorder, and presence of a diagnosed learning disability. Information assessed for the year before the event includes receipt of school-sponsored psychological counseling services, treatment for depression, presence of thoughts of suicide or threats of suicide, presence of plans for suicide, and previous

suicide attempts. Data from July 1, 2005–June 30, 2011, are included in this report.

National Youth Risk Behavior Survey

The national Youth Risk Behavior Survey (YRBS) (63) was developed in the late 1980s to monitor health-risk behaviors that contribute substantially to the leading causes of death, disability, and social problems among children and young adults in the United States (available at <http://www.cdc.gov/yrbs>). CDC conducts the national YRBS to monitor priority health-risk behaviors, obesity, and asthma among high school students in the United States.

The national YRBS uses a three-stage cluster sample design to produce a representative sample of public and private high school students in grades 9–12 in the 50 states and DC. The national YRBS has been conducted biennially since 1991. In 2011, a total of 15,425 questionnaires were completed in 158 schools. YRBS questionnaires are self-administered; students record their responses on a computer-scannable booklet or answer sheet. In 2011, the student response rate was 87%, the school response rate was 81%, and the overall response rate was 71%.

The national YRBS assesses several categories of behaviors that are associated with children's mental health, including behaviors that contribute to unintentional injuries and violence, bullying, sexual behavior, body weight, nutrition, and physical activity. Indicators of mental health covered by YRBS include feeling sad or hopeless; tobacco, alcohol, and other drug use; and suicide-related behaviors. One symptom of depression, feeling sad or hopeless, is assessed by the question: "During the past 12 months, did you ever feel so sad or hopeless almost every day for 2 weeks or more in a row that you stopped doing some usual activities?" To assess suicidal ideation and attempts during the past 12 months, adolescents are asked: "Did you ever seriously consider attempting suicide? Did you make a plan about how you would attempt suicide? How many times did you actually attempt suicide? Did any suicide attempt result in an injury, poisoning, or overdose that had to be treated by a doctor or nurse?"

The national YRBS is part of a large surveillance system, the Youth Risk Behavior Surveillance System (YRBSS), which also includes state and local school-based surveys (64). Data for the national YRBS and the YRBSS are publicly available.

Findings from Surveillance Systems and Surveys and Descriptions of Mental Disorders and Mental Health Indicators

This section presents findings from recent independent federal surveillance systems and surveys that collect data on mental disorders and mental health indicators among children in the United States. A summary of prevalence estimates of childhood mental disorders for which data are not routinely collected (and that are not included in this report) is provided (Table 2). Also provided is a summary of prevalence estimates for which data are routinely collected and that are included in this report (Table 3). Although children are defined as persons aged <18 years, estimates are generally restricted to children aged ≥3 years and <18 years.

Mental Disorders

ADHD, ODD, and Conduct Disorder

ADHD

ADHD, ODD, and conduct disorder are a set of behavioral disorders that frequently occur together (65). ADHD is characterized by developmentally inappropriate levels of inattention, hyperactivity, impulsivity, or a combination of these, which impair functioning in multiple settings (5). DSM-IV-TR classifies children with ADHD into one of three subtypes corresponding to their symptom profile: predominantly inattentive, predominantly hyperactive and impulsive, or combined. The functional limitations related to ADHD symptoms commonly result in academic, peer, and family problems (5,66,67). In addition, children with ADHD are more likely to have higher rates of unintentional injuries, emergency department visits, smoking, alcohol use, and illicit substance use (68–75).

Household adults who have knowledge of the child's health status (usually parents) who participated in NHIS were asked whether a doctor or other health-care provider ever told them that the sampled child has ADD or ADHD. The 2003 and 2007 NSCH included the same question. NSCH also included questions about current ADHD and level of severity among children with an ADHD diagnosis. NHANES (2000–2004) assessed ADHD among children aged 8–15 years using parents as respondents to the DISC-IV diagnostic interview.

The prevalence of parents reporting that their child had ever received an ADHD diagnosis among children aged 3–17 years in 2007 was lower on the NHIS (7.6%) than NSCH (8.9%) (Table 3 and Table 4). Differences in the method of

data collection (i.e., in-person versus telephone interview), question placement, context, and other survey methods might have affected the estimates. Demographic patterns from the two surveys are consistent, with estimates higher among boys, older children, non-Hispanic children, children living in families in which the most highly educated adult was a high school graduate, children in families with insurance, children in the Midwest and South, and children living in households with incomes $\leq 100\%$ of the federal poverty level.

Based on DISC-IV (NHANES) data, the estimated prevalence of ADHD in the past 12 months was 8.6% among children aged 8–15 years during 2001–2004 (9), which is very similar to the estimate from NHIS, based on parent report, for children aged 8–15 years during 2001–2004 (8.9%, 95% confidence interval: 8.4–9.3). However, children who meet DISC criteria for ADHD are not necessarily the same population of children who have a parent-reported diagnosis of ADHD (76).

Parents who participated in the 2007 NSCH and reported that their child had ever received a diagnosis of ADHD also were asked whether the child had a current diagnosis of the condition. Based on parent report, the estimated national prevalence of current ADHD among children aged 3–17 years was 6.8% in 2007. Although estimates of parent-reported current ADHD are lower than estimates of ever-diagnosed ADHD, they have a similar demographic pattern (Tables 3 and 4).

Most recently, NHIS data indicate that parents of 8.5% of children aged 3–17 years in 2009–2010 and 8.4% in 2011 had ever been told their child had ADHD. Demographic patterns were similar to those reported above. Based on parent-reported data in 2011, ever having ADHD was more common among boys than girls, increased with age, was higher among those with health insurance than without health insurance and was highest among those with the lowest poverty-income ratio. Prevalence was highest among white non-Hispanic children and black non-Hispanic children and lower among Hispanic children, non-Hispanic “other” children, and non-Hispanic children of multiple races. Prevalence was higher in the South than the West or Northeast and lower in the West than the Midwest. Prevalence did not differ by the highest level of education in the household.

ODD and Conduct Disorder

ODD is characterized by a pattern of developmentally inappropriate, negative, aggressive, and defiant behavior that occurs for ≥ 6 months (5). Children with ODD frequently lose their temper, argue with adults, defy or refuse to comply with rules and requests, deliberately annoy others, blame their behavior on others, are easily annoyed, and are spiteful or

vindictive. Children with conduct disorder consistently ignore the basic rights of others and violate social norms and rules (5). To meet DSM-IV criteria for conduct disorder, three or more behaviors (e.g., aggression to persons and animals, destruction of property, deceitfulness or theft, and serious violations of rules) must have been present in the past 12 months, with at least one exhibited in the past 6 months. When occurring with ADHD, ODD and conduct disorder often predict later antisocial personality disorder, psychoactive substance use disorders, smoking, and bipolar disorder (77).

Only NSCH has asked parents to report about these other disruptive behavioral disorders. A question included in the 2007 NSCH asked the parent whether a doctor or other health-care provider ever told them that the child had behavioral or conduct problems, such as ODD or conduct disorder. Conduct disorder also was previously assessed using parent report of symptoms on DISC-IV in NHANES from 2000–2004.

Parent-reported data from NSCH indicated that 4.6% of children aged 3–17 years had a history of a behavioral or conduct problem such as ODD or conduct disorder. In addition, an estimated 3.5% of children had a current behavioral or conduct problem (Table 3 and Table 5). Prevalence of these disorders was twice as high among boys as among girls (ever had the diagnosis: 6.2% versus 3.0%; current diagnosis: 4.6% versus 2.2%). Reported prevalence increased with age, from a low of 1.3% among children aged 3–5 years age to a high of 4.2% among children aged 12–17 years. Reported prevalence increased with decreasing household educational attainment and household income but was similar regardless of whether the child had insurance coverage. Prevalence of these disorders was similar across different regions of the United States. Among the various racial and ethnic groups, the highest prevalence of behavioral or conduct disorders was found among black non-Hispanic children. National data from the 2001–2004 NHANES indicate that 2.1% of children aged 8–15 years met the criteria for conduct disorder in the past 12 months (9).

ASDs

ASDs are a group of neurodevelopmental disorders characterized by impairments in social interactions and communication as well as restricted, repetitive, and stereotyped patterns of behavior that typically emerge in the first few years of life (5). DSM-IV-TR currently classifies three ASD subtypes: 1) autistic disorder, 2) Asperger’s disorder, and 3) pervasive developmental disorder not otherwise specified (5). Studies document that children with ASDs have high levels of functional impairments and often have other developmental and mental disorders (78–80). In addition, children with ASDs have a higher prevalence of numerous health conditions than children without ASDs, including respiratory, gastrointestinal,

dermatologic, and neurologic conditions (78,80), and have a higher level of health-care services use and unmet health needs (78,80,81). Families of children with ASDs report more parenting stress (19) and financial difficulties (13) than families of children without ASDs.

The reported prevalence of ASDs has increased markedly in recent decades, both in the United States and other industrialized countries (82–84). In the United States, population-based ASD prevalence can be estimated using two nationally representative surveys (NHIS and NSCH) and ADDM, a monitoring network that tracks ASD prevalence in 14 population-based sites.

NHIS includes a single question on whether a doctor or other health-care provider has ever told the parent that the child has autism. The 2003 NHIS and 2003 NSCH included the same question. Because NHIS and NSCH are based on different samples and are both designed to be representative of noninstitutionalized children living in the United States, the reliability of estimates based on parent report could be assessed by comparing prevalence estimates. Results showed that autism prevalence estimates from each of the 2003 surveys were very close overall and within subgroups based on child age, sex, and race/ethnicity, suggesting high reliability (85). Moreover, parental reports of autism were associated with expected social, emotional, and behavioral difficulties and with special health-care needs suggesting convergent validity of the autism question.

NHIS retained the same autism question through 2010. The NSCH autism question was revised after the 2003 survey; the 2007 NSCH question more explicitly asked whether a doctor or other health-care provider ever told the parent that the child has autism, Asperger's disorder, pervasive developmental disorder, or other ASD. Additionally, in the 2007 NSCH interview, parents who responded affirmatively to the first question were asked whether their child currently has autism or ASD. Thus, from NHIS data (through 2010), the prevalence can be estimated of any past autism diagnosis that might or might not have been interpreted by parents to include all ASDs. From NSCH data, the prevalence can be estimated, separately, of both any past ASD diagnosis and current report of ASD diagnosis. The ADDM estimate is based on a cumulative health and education record review of ASD diagnoses and symptoms up to age 8 years.

The 2007–2008 and 2009–2010 NHIS prevalence estimates based on parent report of autism that has ever been diagnosed for children aged 3–17 years are 0.8% and 1.1% respectively (Table 3 and Table 6). However, the difference in these estimates is primarily influenced by lower estimates for the youngest and oldest age groups in 2007–2008. Thus, on the basis of parent report, the autism prevalence among

children aged 6–11 years is 1.0% according to data from the 2007–2008 NHIS and 1.1% from the 2009–2010 NHIS. The 2007 NSCH prevalence estimates for ever diagnosed ASD was 1.8% among children aged 3–17 years and 2.2% among children aged 6–11 years; both estimates are notably higher than the comparable NHIS autism estimates. Whether the higher estimates from NSCH more accurately reflect true ASD cases is difficult to assess with available data. However, the NSCH estimates of children with current autism or ASD (1.1% among children aged 3–17 years and 1.4% among children aged 6–11 years) were 40% lower than the estimates of children who ever received a diagnosis of ASD. The composite 2008 ADDM prevalence estimate for ASD among children aged 8 years was 1.1%, with a range of 0.5% to 2.1% among the 14 ADDM sites.

Estimates from these three systems show a strong predominance among boys, with boy:girl ratios ranging from 3.4 to 4.5. Other demographic differences vary somewhat among surveys and survey years. The prevalence tends to be higher among white non-Hispanic children and among children living in families in which the most highly educated adult has attained more than a high school degree. Although some regional differences exist, they are not consistent across surveys. NSCH estimates also suggest a higher prevalence among children with health insurance. Estimates did not vary by poverty level.

Mood and Anxiety Disorders

Mood and anxiety disorders represent a range of conditions commonly characterized by feelings of depression, exaggerated anxiety or fear, low self-esteem, or all of these that persist or repeat over a period of months or years (4). Examples of mood and anxiety disorders that can be diagnosed during childhood include major depressive disorder, dysthymia, bipolar disorder, generalized anxiety, separation anxiety, posttraumatic stress disorder, obsessive-compulsive disorder, and social or specific phobias (4,86). Mood and anxiety disorders in childhood frequently occur together (4,6,9,87) or recur over time (23,24,88). Mood and anxiety disorders also commonly occur with other health and medical conditions, including asthma, insulin resistance, and other chronic medical conditions and might affect treatment adherence for these conditions (27,28,30,89). Mood and anxiety disorders in children are associated with concurrent or subsequent substance use, abuse, or dependence; sexual risk-taking behaviors; criminal behavior; and poor coping and social skills (18,20,21,90–92). Long-term effects include poor psychosocial functioning (93); impaired functioning in domains of work, family, and parenting (94,95); and lower educational attainment (17).

Mood Disorders (Depression)

The prevalence of depression or depressive symptoms among children in the United States is measured in several nationally representative survey systems, including NSCH, NHIS, NHANES, NSDUH, and YRBS, although the methods differ among surveys and by survey year. Estimates for other specific mood disorders (e.g., bipolar or dysthymic disorder) are not available through these survey systems. Prevalence estimates for these and other DSM-IV mental disorders among adolescents aged 13–17 years are available from NCS-A, which was administered during 2001–2004 (25,39).

The 2007 NSCH included three questions related to the presence and severity of depression among children aged 2–17 years, including whether a doctor or health-care provider had ever told the parent that their child had depression, whether the child currently had depression, and if so, whether the child's depression was mild, moderate, or severe. In 2007, NHIS used a similar question to capture the prevalence of diagnosed depression, as reported by parents, in the past 12 months among children aged 4–17 years. During 2000–2004, NHANES assessed major depression and dysthymia during the past 12 months using parent and child report using DISC-IV. Currently, NHANES uses self-reported symptoms drawn from the Patient Health Questionnaire (PHQ-9) to assess depression during the past 2 weeks among adolescents aged 12–17 years. NSDUH (96,97) uses a series of questions asked through an audio computer-assisted self-interviewing (ACASI) household interview to assess whether adolescents have experienced an MDE. MDE, as defined in NSDUH, is based on the definition of MDE in DSM-IV (5) and is measured for the lifetime and past year. Lifetime MDE is defined as having at least five or more of nine symptoms of depression in the same 2-week period in a person's lifetime, in which at least one of the symptoms was a depressed mood or loss of interest or pleasure in daily activities. Respondents who had an MDE in their lifetime were defined as having a past year MDE if they had a period of depression lasting ≥ 2 weeks in the past 12 months while also having some of the other symptoms of MDE. Unlike the DSM-IV criteria for MDE, no exclusions were made in NSDUH for depressive symptoms caused by medical illness, bereavement, or substance use disorders (5). YRBS measures the prevalence of feeling sad or hopeless, which is one symptom of depression during the past 12 months, through a self-administered questionnaire completed at school by students in grades 9–12 (98).

The most recent estimates of depression among children from NSCH, NHIS, NHANES, and NSDUH are provided (Table 7). Data from the most recent NSCH based on parent report indicate that in 2007, 3.9% of children aged 3–17

years had ever received a diagnosis of depression (Table 3). As expected, this is higher than the prevalence of current depression among children aged 3–17 (2.1%), also based on parent report, in the 2007 NSCH. On the basis of data from the 2007 NHIS, the prevalence of depression based on parent report of a diagnosis in the past year among children aged 4–17 years was 3.0%.

NSDUH and NHANES collected data related to depression from adolescents aged 12–17 years. Based on self-report, the prevalence of lifetime and past year MDE among adolescents aged 12–17 years from the 2010–2011 NSDUH was 12.8% and 8.1%, respectively. The prevalence of depression in the past 2 weeks based on self-report on the PHQ-9 screener (NHANES 2007–2010) was 6.7%. According to parent report, data from the 2007 NSCH and NHIS indicate that the prevalence of diagnosed depression among adolescents aged 12–17 years was 7.1% for ever having received a diagnosis of depression, 3.5% for having current depression, and 5.1% for having had a diagnosis of depression in the past year (Table 7).

Parent-reported data from the 2007 NSCH indicate that the prevalence of depression, either current or ever diagnosed, was higher among older children (aged 12–17 years) and among children living in households with incomes $\leq 100\%$ of the federal poverty level and those living in families where the most highly educated adult had attained a high school degree or less. Although the proportion of boys and girls who were reported to have ever received a diagnosis of depression or to have a current diagnosis of depression was similar, some variation was observed by age. Additional analyses of the 2007 NSCH data showed a greater proportion of girls aged 14 and 16 years had a current diagnosis of depression compared with boys (3.3% versus 2.0% and 4.3% versus 2.6%, respectively). These results are consistent with previous research that has shown varying risk for mood disorders among girls with increasing age (23,99) and also with findings from the 2010–2011 NSDUH showing a higher prevalence of MDE in the past year among adolescent girls (12.0%) than among adolescent boys (4.5%) (57). Adolescent girls also were more likely to have a positive screen for depression (score of ≥ 11) through self-report on the PHQ-9 compared with adolescent boys (8.4% versus 5.2%). According to parent-report data from NSCH, the proportion of children currently or ever diagnosed with depression did not vary significantly by race or ethnicity, with the exception of non-Hispanic children of multiple races, of whom 5.9% were reported to have ever been diagnosed with depression (compared with 4.0% of white non-Hispanic children). According to the 2010–2011 NSDUH, MDE varied somewhat by race. For example, white non-Hispanic and non-Hispanic adolescents of multiple races were more likely to have had an MDE in their lifetime or in

the past year than black non-Hispanic adolescents (Table 7). Differences also occurred by poverty status; adolescents living in households with incomes $>100\%$ to $\leq 200\%$ of the federal poverty level were more likely to report MDE (both lifetime and past year) than those $\leq 100\%$ of the federal poverty level or $>200\%$ of the federal poverty level (Table 7).

Data previously reported from the 2011 nationwide YRBS (64), which are based on student self-report, indicated that during the past year, 28.5% of high school students (most aged 14–18 years) reported that they had felt so sad or hopeless almost every day for ≥ 2 weeks in a row that they had stopped doing some usual activities; this finding was higher among girls (35.9%) than boys (21.5%) and higher among Hispanic students (32.6%) than white non-Hispanic (27.2%) or black non-Hispanic students (24.7%). The overall estimate of 28.5% of children reporting they so felt sad or hopeless for 2 weeks is much higher than the NSDUH lifetime or past year MDE estimates (Table 7). This might be related to numerous differences in survey methodologies, including the setting and the mode of completing YRBS (at school through a paper survey) compared with completing NSDUH (a household ACASI), as well as the fact that YRBS assesses only a single symptom of depression, whereas NSDUH assesses whether an individual meets criteria for a MDE diagnosis using DSM-IV criteria.

Anxiety Disorders

The prevalence of parent-reported anxiety among children in the United States is estimated by the 2007 NSCH and the 2007 NHIS, which focuses on phobias. No ongoing national surveillance for specific anxiety disorders (e.g., posttraumatic stress disorder or OCD) exists. Previous estimates from NCS-A might be useful for estimates of specific types of anxiety disorders in this population (Table 2); however NCS-A does not include OCD (25).

As part of the 2007 NSCH, parents or guardians of children aged 2–17 years were asked whether a doctor or health-care provider had ever told the parent that their child had anxiety problems, whether the child had current anxiety problems, and if so, whether the child's anxiety problems were mild, moderate, or severe. In 2007, NHIS used a similar question to assess the prevalence of phobias or fears diagnosed in the past 12 months as reported by parents. Parents also were asked whether their child had anxiety or stress during the past 12 months; no distinction was made between conditions identified by a health-care provider and those that were not. During 1999–2004, NHANES assessed both generalized anxiety disorder and panic disorder during the past year through self-report by children aged 8–15 years using DISC-IV.

The most recent estimates based on parent report of anxiety among children from NSCH and NHIS are provided (Table 8).

Data from the 2007 NSCH indicate that 4.7% of children aged 3–17 years had ever had anxiety, and 3% had current anxiety. The prevalence of phobias or fears diagnosed in the past year among children aged 4–17 years was 2.6%. These estimates are considerably higher than the estimates based on 2001–2004 NHANES data (using DISC-IV): 0.7% of children aged 8–15 years were reported to have generalized anxiety disorder or panic disorder in the past 12 months (9).

According to parent-reported data from NSCH, the prevalence of anxiety was higher among older children, those who had insurance coverage, and those living in households with incomes $\leq 100\%$ of the federal poverty level (compared with those living in households with incomes $>200\%$ of the federal poverty level) regardless of whether the anxiety was current or had occurred at some point in the past. The prevalence of current anxiety was higher among boys (3.4%) than girls (2.6%). Black non-Hispanic children were less likely than white non-Hispanic children to have ever had anxiety or have current anxiety.

Substance Use Disorders and Substance Use

The use of alcohol and illicit drugs such as marijuana and inhalants among children has social, financial, and health consequences (100,101). Substance use among adolescents can lead to poor academic performance, mental disorders, accidents and injuries, overdose, addiction, and unintended pregnancy (97,102–104). Research indicates that early substance use initiation is associated with substance use disorders in adulthood (97). Substance use disorders (abuse and dependence, based on DSM-IV criteria) affect approximately 20 million persons in the United States each year, including 1.7 million adolescents aged 12–17 years. Two thirds of these adolescents in 2011 had an illicit drug use disorder.

Based on NCS-A interviews conducted during 2001–2004, an estimated 8.3% of adolescents aged 13–17 years had a substance use disorder within the past year (105). Recent findings from NSDUH indicate that the prevalence of substance use disorders among adolescents has decreased over time, from 8.9% in 2002 to 6.9% in 2011 (97). Alcohol dependence or abuse among adolescents aged 12–17 years was 3.8% in 2011, which indicates a decline from 4.6% in 2010 and from 5.9% in 2002. The prevalence of illicit drug use disorder was higher in 2002 (5.6%) than in 2011 (4.6%). During 2004–2011, the prevalence of illicit drug use disorder has remained fairly stable (ranging from 4.3% to 4.7%).

NSDUH asks adolescents aged 12–17 years to report on symptoms of alcohol or illicit drug dependence or abuse (substance use disorder) during the past year. NSDUH defines

illicit drug or alcohol dependence or abuse using criteria specified in DSM-IV (5). Illicit drugs in NSDUH refer to marijuana/hashish, cocaine (including crack), inhalants, hallucinogens, heroin, and nonmedical use of prescription drugs.

NSDUH substance dependence questions ask about health and emotional problems associated with substance use, unsuccessful attempts to decrease use, tolerance, withdrawal, reducing other activities to use substances, spending substantial time engaging in activities related to substance use, or using the substance in greater quantities or for a longer time than intended. A respondent meets criteria for dependence when they have three or more of the symptoms of dependence. Substance abuse questions ask about problems at work, home, and school; problems with family or friends; physical danger; and legal problems because of substance use. A respondent meets criteria for abuse when they have one or more symptoms of abuse. When a respondent meets criteria for alcohol abuse or dependence or abuse of or dependence on any of the illicit drugs listed previously, they are deemed to have a substance use disorder.

NSDUH defines cigarette dependence differently from other substance use disorders. For persons who smoked cigarettes in the 30 days before the survey interview, NSDUH defines cigarette dependence using criteria derived from the Nicotine Dependence Syndrome Scale (NDSS) (106) and the Fagerstrom Test of Nicotine Dependence (FTND) (107,108). The conceptual roots of the NDSS (106) are similar to those of the DSM-IV concept of dependence (5). Although FTND is a multiitem measure of dependence, much of its ability to discriminate dependent smokers derives from a single item that assesses how soon after waking smokers have their first cigarette (108). Smokers who met the criteria for either NDSS or the FTND dependence were defined as having cigarette dependence in the past month.

During 2010–2011, a total of 4.2% of adolescents were dependent on or abused alcohol in the past year (Table 9). Alcohol use disorders in the past year were higher among girls than boys and higher among non-Hispanic adolescents of multiple races, white non-Hispanic adolescents, and Hispanic adolescents than among other races; these estimates were all higher than those reported by non-Hispanic “other” adolescents and black non-Hispanic adolescents. Adolescents without health insurance were more likely to have had an alcohol use disorder in the past year compared with adolescents with health insurance. Reported estimates of alcohol use disorder were highest among adolescents living in the West. The prevalence in the West was higher than in the Midwest or the South, and the prevalence in the Northeast was higher than that in the South.

An estimated 4.7% of adolescents had an illicit drug use disorder in the past year (Table 9). The prevalence of illicit drug use disorders was similar for boys and girls. The prevalence of illicit drug use disorder in the past year was highest among non-Hispanic adolescents of multiple races and Hispanic adolescents than among white non-Hispanic adolescents, black non-Hispanic adolescents, and non-Hispanic “other” adolescents. The prevalence among non-Hispanic “other” adolescents was significantly lower than the prevalence among black non-Hispanics and white non-Hispanics. The prevalence of illicit drug use disorder was higher in the West than in other regions of the country. Estimates of illicit drug use disorder were lower among those with a family income of >200% of the federal poverty level than those with a family income that was >100% to ≤200% of the federal poverty level or ≤100% of the federal poverty level.

The specific illicit drugs used in the past month varied by age in 2011 (97). Among adolescents aged 12–13 years, 1.3% used marijuana and 1.3% used psychotherapeutic drugs (nonmedical use). Among adolescents aged 14–15 years, 6.7% used marijuana, 2.6% used psychotherapeutic drugs (nonmedical use), and 0.8% used hallucinogens. Among adolescents aged 16–17 years, 15.1% used marijuana, 4.2% used psychotherapeutic drugs (nonmedical use), 1.6% used hallucinogens, and 0.5% used cocaine. Estimates of current use of inhalants were 1.0% for adolescents aged 12–13 years, 0.9% for adolescents aged 14–15 years, and 0.7% for adolescents aged 16–17 years.

During 2010 and 2011, a total of 2.8% of adolescents reported cigarette dependence in the past month (Table 9). Estimates of past month cigarette dependence were higher among boys than girls. Among adolescents aged 12–17 years, past month cigarette dependence was highest among non-Hispanic adolescents reporting two or more races and white non-Hispanic adolescents; these estimates were higher than among Hispanics, black non-Hispanics, and adolescents in the non-Hispanic “other” group. Adolescents without health insurance were more likely to have had past month cigarette dependence than those with health insurance. Estimates of cigarette dependence were higher in the Midwest than the South, the Northeast, and the West; the estimate in the West was lower than in the South. The percentage of adolescents with cigarette dependence in the past month was lower among those with a family income in the past year that was >200% of the federal poverty level than those with a family income >100% to ≤200% of the federal poverty level or ≤100% of the federal poverty level.

The 2010 and 2011 NSDUH indicate that 28.2% of adolescents aged 12–17 years reported using alcohol during the past year, 19.2% of adolescents used illicit drugs during the past

year, and 8.1% of adolescents used cigarettes in the past month (Table 9). Past month cigarette use among girls was estimated at 7.7% and among boys was 8.4%. Data from the 2011 YRBS indicated that 38.7% of students reported using alcohol during the past month, 23.1% reported using marijuana during the past month (the most frequently used illicit drug), and 18.1% reported using cigarettes during the past month (64). The estimates of use reported from NSDUH and YRBS might differ because of differences in methods, including different settings (NSDUH samples households and YRBS samples schools), mode, and the time period and ages assessed.

Tic Disorders (Tourette Syndrome)

Tic disorders include chronic motor or chronic vocal tic disorder, transient tic disorder, and Tourette syndrome. National surveillance data are available only for Tourette syndrome. Tourette syndrome is characterized by the presence of persistent motor and vocal tics that last for at least a year. Tic symptoms usually begin when a child is aged 6–8 years (5). Children with Tourette syndrome often have other mental disorders, particularly ADHD and OCD, that might contribute to the association between Tourette syndrome and lower educational outcomes, family stress, problems with social relationships, and increased health-care needs (109–111). The only prevalence estimate of Tourette syndrome among a nationally representative sample of children was based on parent-reported data from the 2007 NSCH. Parents were asked whether a doctor or other health-care provider had ever told them that their child had Tourette syndrome. Based on these data, 0.3% of children aged 6–17 years had ever had Tourette syndrome, as previously reported (112). A parent-reported diagnosis of Tourette syndrome was more common in boys than girls (0.4% versus 0.2%), more likely for white non-Hispanic children (0.4%) than for Hispanic children (0.2%) or black non-Hispanic children (0.2%), and more likely for children aged 12–17 years (0.4%) than children aged 6–11 years (0.2%). Among children who had ever received a diagnosis of Tourette syndrome, 79% also had received a diagnosis of at least one other mental disorder (ADHD, behavioral problems such as conduct disorder, depression, anxiety, or an autism spectrum disorder), and 62% currently had Tourette syndrome (0.2% of children aged 6–17 years). Among those with current Tourette syndrome, most cases were described as mild (72.9%) (111). Although the 2007 NSCH estimate relies on parent report of diagnosed Tourette syndrome, community samples that include previously undiagnosed cases report a higher prevalence of Tourette syndrome (113–115).

Indicators of Mental Health

Mentally Unhealthy Days

The mentally unhealthy days measure assesses impaired mental health using the following question: “Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?” For adolescents aged 12–17 years, NHANES is the only data source available to estimate the national prevalence of mentally unhealthy days. Higher numbers of mentally unhealthy days have been associated with higher numbers of physically unhealthy days, more activity limitations, smoking, being unable to work, lower income and education, and not having health insurance (48,49,116,117).

The mentally unhealthy days measure was dichotomized at ≥ 14 days or ≤ 13 days in the past 30 days. This level has been used previously to identify populations with more persistent mental distress and because it is similar to the timeframe used by clinicians in the assessment of the presence and severity of depression and anxiety disorders (48,118). Based on self-reported data for the 2005–2010 data cycles, 8.3% (Table 10) of adolescents aged 12–17 years reported ≥ 14 mentally unhealthy days in the past month, representing nearly 2 million adolescents (Table 3). White non-Hispanic adolescents were more likely than Mexican-American adolescents to report ≥ 14 mentally unhealthy days.

Suicide

Suicide is defined as a death caused by self-directed injurious behavior with any intent to die as a result of the behavior (119). Suicidal behavior is a multifaceted human behavior that is associated with psychiatric and psychological factors, biologic factors, a history of trauma, and societal and cultural factors (120). Suicide is a problem throughout the lifespan and is the second leading cause of death among adolescents aged 12–17 years (120).

A combination of individual, relational, community, and societal factors contribute to the risk for suicide. Some of the risk factors include but are not limited to a history of mental disorders, particularly clinical depression, history of alcohol and substance abuse, barriers to accessing treatment for mental disorders, unwillingness to seek help because of the public perception attached to mental and substance abuse disorders or to suicidal thoughts, and easy access to lethal methods. To date, protective factors have not been studied as extensively or rigorously as risk factors. Some of the known protective factors include effective clinical treatment for mental and substance abuse disorders and physical health problems, support from

ongoing medical and mental health care relationships, and family, peer, and community support (121).

Data on suicide are available from the national NVSS and NVDRS (16 states). The overall suicide rate for children aged 10–19 years was 4.5 suicides per 100,000 based on the 2010 NVSS and 4.2 suicides per 100,000 based on the 2005–2009 NVDRS (Table 11). In both data sources, the rate was higher for boys than girls and older children (aged 15–19 years) than younger children (aged 10–14 years). White non-Hispanic children and non-Hispanic children of other races had higher rates of suicide than black non-Hispanic and Hispanic children. The most common mechanisms of injury among children were hanging/suffocation and firearms. Among children who died by suicide with known circumstances reported in NVDRS, 29.5% disclosed intent to die by suicide before the act; 35.5% had a diagnosed mental disorder at the time of death, 26.4% were under treatment for a current mental disorder at the time of death, and 21.1% had made a previous suicide attempt (11).

Nationwide estimates from the national YRBS for seriously considering suicide, making a suicide plan, and attempting suicide during the year before the 2011 YRBS have been reported (64). The prevalence of having seriously considered attempting suicide among students was 15.8% nationwide; this was higher among girls (19.3%) than boys (12.5%) and higher among Hispanic students (16.7%) and white students (15.5%) than black students (13.2%). Nearly 13% (12.8%) of students had made a plan about how they would attempt suicide; this was higher for girls (15.0%) than boys (10.8%) and higher among Hispanic (14.3%) than white (12.1%) and black (11.1%) students. Last, 7.8% of students had attempted suicide one or more times during the year before the survey, with the prevalence of having attempted suicide being higher among girls (9.8%) than boys (5.8%) and higher among black (8.3%) and Hispanic (10.2%) than white (6.2%) students.

SAVD data indicate that a total of 28 school-associated suicides occurred among children aged 5–18 years during July 1, 2005–June 30 2011. Of the decedents in these incidents, 89% were boys, 86% were white, 11% were black, and 3% were Hispanic. The mean age and median age of the decedents was 16 years (range: 9–18 years). Most (82%) involved firearms.

Discussion

Mental disorders in children are a substantial public health concern with considerable associated costs to individuals, families, and society (6,10,15). Although each of the surveillance systems used to collect data on mental disorders in children have different goals, each system provides a unique

context; together, these systems begin to illustrate the impact of mental disorders among children. The percentage of children reported to be experiencing these outcomes varies by condition, survey, and age. In general, ADHD was most prevalent, followed by depression, behavioral or conduct problems, anxiety, substance use disorders, ASDs, and Tourette syndrome. Because these conditions often occur together (24,26), these estimates cannot be combined for an overall estimate of the prevalence of mental disorders among children. Suicide, which often occurs in the presence of mental disorders, was the second leading cause of death among children aged 12–17 years in 2010 (11), and approximately 8% of children aged 12–17 years reported ≥ 14 mentally unhealthy days in the past month.

All demographic groups are affected by mental disorders in childhood, although the prevalence estimates vary by all demographic groups. The prevalence of all conditions and indicators increased with age, with the exception of ASD, which was highest in the group aged 6–11 years. Boys were more likely than girls to have most of the disorders, including ADHD, behavioral or conduct problems, ASD, anxiety, Tourette syndrome, and cigarette dependence, and boys were more likely than girls to die by suicide. Girls were more likely to have an alcohol use disorder, and adolescent girls were more likely to have depression.

The prevalences of different conditions and indicators varied by race and ethnicity. The children in the non-Hispanic multirace group generally had the highest prevalence of ADHD, depression, and substance use disorders. ADHD was lowest among Hispanic children, behavioral or conduct problems were highest among black non-Hispanic children, and ASD tended to be higher among white non-Hispanic children. Anxiety was more common among white non-Hispanic children than black non-Hispanic children. Black non-Hispanic children and non-Hispanic children of other races had a lower prevalence of alcohol use disorder. Tourette syndrome was more common among white non-Hispanic children than black non-Hispanic children or Hispanic children.

The prevalence of ADHD, ASD, and anxiety were higher among children with health insurance, whereas those without health insurance were more likely to report substance use disorders. As household education decreased, the prevalence of parent-reported behavioral or conduct problems, depression, and anxiety increased. As poverty levels increased, the prevalence of parent-reported ADHD, behavioral or conduct problems, depression and anxiety increased, as did illicit drug use disorders and cigarette dependence. The prevalence of self-reported symptoms of depression (MDE, PHQ-9) was more similar among groups, with the highest prevalence in the

middle income group. Regional differences generally were not consistent except that both alcohol and illicit drug use disorders were higher in the West and lower in the South, as opposed to ADHD, which was higher in the South and lower in the West.

Surveillance during 1994–2011 has identified increased reported prevalence of ADHD, ASDs, and bipolar disorder, as well as changes in patterns of drug use, among children (82–84,97,122–125). NHIS data indicate an average annual increase in ADHD diagnosis of 3% during 1997–2006, whereas NSCH data indicate a 21.8% increase in ADHD during 2003–2007 (123,126). NHIS data indicate a nearly fourfold increase in autism from 1997–1999 to 2006–2008; NSCH data also indicate increases in autism (82,127).

Changes in estimated prevalence over time might be associated with an actual change in prevalence, changes in case definition, changes in the public perception of mental disorders, or improvements in diagnosis, which might be associated with changes in policies and access to health care. For example, substantive revisions have been proposed to the diagnostic criteria for many of the disorders presented in this report and will appear in the fifth edition of DSM (DSM-5), which has an expected release date of May 2013 (128–133). Changes in the required number of symptoms, age of onset, or duration of symptoms will change the number of children with conditions that meet the case definition, which will affect prevalence. However, until these new criteria are implemented, how they will affect the prevalence rates of these disorders is unclear. Policy changes also might affect rates, including the implementation of the Mental Health Parity and Addiction Equity Act (P.L. No. 110–343) (134) and the Patient Protection and Affordable Care Act (P.L. No. 111–148) (135). These policies promote the integration of primary and mental health services (136) and include specific provisions for children with preexisting conditions. Additional measures or modification of existing surveillance methods that focus on children's mental health are needed to assess the potential impact of these policies.

Although numerous systems provide estimates of the prevalence of individual mental disorders in children, additional information is needed regarding the overall prevalence and impact of mental health issues on children. First, because many of the ongoing surveillance systems discussed are based on ascertaining previously diagnosed cases, cases that have not been previously identified (e.g., those in children without access to care) are not represented in the available estimates. Second, similar to the findings of the report on surveillance of mental illness among adults (31), limited data are available on many conditions, particularly specific anxiety disorders and bipolar disorder. Third, and also similar to the adult report (31), no

dedicated surveillance system on mental health in children exists. Available data do not allow for an overall estimate of the prevalence of all childhood mental disorders. Previous reports of the overall prevalence of having any mental disorder have been limited by the disorders included within the surveillance system. The 2007 NSCH indicates that 11.3% of children aged 2–17 years had been diagnosed with an emotional, behavioral, or developmental condition (26). Using the Composite International Diagnostic Interview to assess 14 disorders (and therefore identify previously undiagnosed cases), NCS-A found that nearly 50% of adolescents aged 13–18 years had ever had a mental disorder, including substance use disorders, with 28% meeting the criteria for severe impairment (25). Differences in methods between these two systems, including conditions assessed, age of assessment, and how the conditions were assessed, might be responsible for the substantial difference in overall estimates.

Substantial but not insurmountable challenges to surveillance of mental disorders in children exist. An overall challenge is the establishment of consistent surveillance case definitions that allow for comparability and reliability of estimates among surveillance systems. Standard surveillance case definitions are needed to reliably categorize and count mental disorders among surveillance systems. Criteria for mental disorders are subjective, are based on a symptom count instead of a biologic measure, might require assessment by different persons or in different settings, and might change over the course of development. In addition, there has been little study on the validation of case ascertainment methodology for surveillance of childhood mental disorders (85). For example, although national telephone surveys are cost-effective, the validity of measuring mental disorders using the telephone needs to be studied. Even when standardized diagnostic interviews are used, the findings might differ depending on whether or not the child or parent is reporting the symptoms and might also differ with expert clinical judgment (137–140). Different strengths and limitations are associated with surveillance efforts based on symptoms and those based on previous diagnoses. Assessing symptoms requires more time and might limit sample size but might identify previously undiagnosed cases. However, if a child is receiving adequate treatment for a condition, symptoms might not be reported, and the case might be missed. Relying on report of previous diagnoses takes little time and can be easily integrated into ongoing surveys but does not catch undiagnosed cases and might include misdiagnosed cases.

To improve comprehensive surveillance of mental disorders among children, validation of current methods (e.g., studies comparing parent report or screening instruments with diagnostic interviews) is needed, including those that can be

incorporated into national surveys. In addition, targeted and longitudinal epidemiologic studies are needed to complement national surveys to better describe mental disorders among children, as well as their impact and course during development. For example, ADDM data address issues regarding ASDs, whereas NCS-A provides national estimates for a large number of mental disorders based on a clinical interview.

The Great Smoky Mountains Study and the Project to Learn about ADHD in Youth (PLAY) monitored community samples of children longitudinally (23,141). Longitudinal studies can provide data on incidence, emerging health risk behaviors and comorbid conditions, and risk and protective factors to guide intervention strategies for diagnosis, treatment, and prevention. Targeted epidemiologic studies also can increase understanding of mental disorders that are difficult to diagnose and are not being monitored in existing surveillance systems, including childhood-onset schizophrenia (142); however, they might not be generalizable to the U.S. population.

Validation and complementary approaches to better document the prevalence and impact of childhood mental disorders might best be achieved by strengthening partnerships and strategic coordination of surveillance efforts. One way this has been addressed is through the partnership between HRSA and CDC in the sponsorship and execution of NSCH and its associated survey, the National Survey of Children with Special Health Care Needs. In addition, SAMHSA, NIMH, and CDC are working together to develop an indicator of serious emotional disturbance (143). CDC collaborated with several organizations including NIMH and the Department of Veterans Affairs, state health departments, and clinicians over several years to develop uniform definitions and recommended data elements for surveillance of self-directed violence (119). NIMH, HRSA, and CDC collaborated on the Survey of Pathways to Diagnosis and Services, a follow-back survey with parents of children with ASD, intellectual disability, or developmental delay (or all of these) when first interviewed for the 2009–2010 National Survey of Children with Special Health Care Needs. This survey examined the emergence of symptoms; the history of diagnoses, treatments, and interventions used; and current behavioral, diagnostic, and functional status. Collaboration among partnering agencies could improve surveillance efforts.

Although this report focused on selected mental disorders and indicators of mental health among children, surveillance of mental health service use (144) and use of psychotropic medications also are important for understanding the public health impact of mental disorders among children (145–149). In addition, more attention to the prevalence and treatment of mental disorders among preschool-age children is needed (146,149).

Surveillance is a critical first step in the public health approach to mental health among children. Data collection and monitoring are important to identify need and target resources at the national, state, and local levels. Surveillance data can help prioritize areas for research on risk and protective factors and provide empirical evidence to develop effective interventions that can prevent mental disorders and promote mental health as recommended by a recent IOM report (6,37,150). As intervention and prevention strategies are implemented, surveillance is needed to continually monitor progress in reducing the impact of mental disorders and improving mental health.

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TABLE 1. Federal surveys and surveillance systems that collect data on mental disorders among children

Name, website, and sponsor	Description	Method of data collection	Survey topics related to children	Mental health topics and questions related to children	Populations and periodicity
Autism and Developmental Disabilities Monitoring Network (ADDM) http://www.cdc.gov/ncbddd/autism/addm.html Sponsor: CDC National Center on Birth Defects and Developmental Disabilities	The ADDM Network is a group of CDC-funded programs that determine the prevalence of ASDs in U.S. communities. ADDM sites collect data using the same surveillance methods, which are modeled after the CDC Metropolitan Atlanta Developmental Disabilities Surveillance Program.	Screening and abstraction of existing health and education records containing professional assessments of the children's developmental progress at health-care or education facilities	Child demographic characteristics including sex, race/ethnicity, and year of birth Previous diagnoses of intellectual disability and cerebral palsy Use of special education services Previous and current special education exceptionality (eligibility) classification Results from standardized developmental assessments (such as IQ) Risk factors	Previous diagnosis of ASD Clinical features, symptoms, and behaviors associated with ASD, intellectual disability, or cerebral palsy Age of child when first symptoms noted and at first diagnosis of ASD, intellectual disability, or cerebral palsy Other developmental and mental disorders that occur with ASD, intellectual disability, and cerebral palsy (e.g., ADHD)	Selected sample based on grantees 14 ADDM network sites (areas of Alabama, Arizona, Arkansas, Colorado, Florida, Georgia, Maryland, Missouri, New Jersey, North Carolina, Pennsylvania, South Carolina, Utah, and Wisconsin) for 2008. Children aged 8 years with evidence documented in abstracted evaluations indicating the presence of autistic disorder; pervasive developmental disorder, not otherwise specified; or Asperger's disorder Biennial (even years): 2000, 2002, 2004, 2006, and 2008
National Health and Nutrition Examination Survey (NHANES) http://www.cdc.gov/nchs/nhanes.htm Sponsor: CDC National Center for Health Statistics	NHANES is designed to assess the health and nutritional status of adults and children in the United States. The survey combines interviews and physical examinations.	In-person household interviews Nutritional assessments Laboratory tests Physical examinations DNA repository	Nutrition and nutritional disorders Environmental risk factors Health-care use Mental, behavioral, and emotional problems of children Infectious diseases Weight and physical fitness Numerous diseases, medical conditions, and health indicators Risk factors	Alcohol and drug use Use of mental health-care services Activity limitations because of poor physical or mental health Mental disorder diagnosis using the National Institute of Mental Health Diagnostic Interview Schedule for Children (1999–2004: generalized anxiety disorder and panic disorder; 2000–2004: eating disorders, elimination disorders, major depression/dysthymic disorder, ADHD, and conduct disorder); ages 8–15 years, varying by module Depression screener (PHQ-9; since 2005) Mentally unhealthy days (since 2001)	Nationally representative sample 5,000 people per year, including approximately 1,000 persons aged 12–19 years Oversampling, which changes periodically; in 2011–2012 and 2013–2014, oversample of Hispanics, blacks, Asians, and older adults
National Health Interview Survey (NHIS) http://www.cdc.gov/nchs/nhis.htm Sponsor: CDC National Center for Health Statistics	NHIS is a national survey of the health of the civilian noninstitutionalized U.S. population. The main objective of NHIS is to monitor the health of the U.S. population through the collection and analysis of data on a broad range of health topics.	In-person household interviews	Child and family demographic characteristics, including family income and parental education Health insurance coverage Injuries Vaccinations Health status and behaviors Diagnosed health conditions Other health problems Use of educational and health-care services	Diagnosed mental disorders (including ADHD, autism, intellectual disability, learning disabilities, and developmental delay) Emotional and behavioral difficulties Use of special education services for emotional or behavior problems Use of mental health-care services	Nationally and regionally representative sample Approximately 12,000 households with children aged ≤17 years Oversample of Hispanics, non-Hispanic blacks, Asians Ongoing; data files released annually since 1963

See table footnotes on page 25.

TABLE 1. (Continued) Federal surveys and surveillance systems that collect data on mental disorders among children

Name, website, and sponsor	Description	Method of data collection	Survey topics related to children	Mental health topics and questions related to children	Populations and periodicity
National Survey of Children's Health (NSCH) http://www.cdc.gov/nchs/slaits/nsch.htm Sponsor: Health Resources and Services Administration Administrator: CDC National Center for Health Statistics	NSCH examines the physical and emotional health of children aged 0–17 years, emphasizing factors that might relate to the well-being of children.	Telephone interviews, with National Immunization Survey sampling frame	Physical, emotional, and dental health	Activity, social, or learning limitation resulting from mental, emotional, or behavior problems	Representative sample nationally and within each state of households with children
			Medical home		
			Child, family, and neighborhood well-being	Common acute and chronic conditions (including learning disability, ADHD, depression, anxiety, behavior and conduct disorders, ASD, Tourette syndrome, and epilepsy)	Approximately 95,000 children aged ≤17 years
			Children with special health-care needs		Periodic: data collected approximately every 4 years and currently available for 2003, 2007, and 2011–2012
			Health-care access, use, and barriers		
			Satisfaction with health-care services	Sleep and exercise difficulties	
			Neighborhood and community characteristics, including perceived safety, violence, and social capital	Social behavior, emotional difficulties, and school engagement	
			Health insurance	Mental health-care treatment and services used	
National Survey on Drug Use and Health (NSDUH) http://www.samhsa.gov/data/NSDUH.aspx Sponsor: Substance Abuse and Mental Health Services Administration	NSDUH data are used to provide national and state-level estimates on the use of tobacco products, alcohol, illicit drugs (including nonmedical use of prescription drugs), and mental illness in the United States.	In-person household interviews	Timing and frequency of use of tobacco products, alcohol, marijuana, cocaine, heroin, inhalants, hallucinogens, and prescription drugs (nonmedical use)	Lifetime and past year major depressive episode	State and nationally representative sample
			Risk and protective factors	Substance use disorder and treatment	7,200 primary sampling units each year and approximately 70,000 respondents aged ≥12 years, including 23,000 aged 12–17 years and 23,000 aged 18–25 years
			Employment, income, program participation, health insurance, and education	Level of impairment resulting from major depressive disorder, substance use, and substance use disorder	Annual and continuous since 1992
			Health conditions	Treatment for depression	
			Health-care use	Mental health service use	
				Parental mental illness, substance use, and substance use disorder	

See table footnotes on page 25.

TABLE 1. (Continued) Federal surveys and surveillance systems that collect data on mental disorders among children

Name, website, and sponsor	Description	Method of data collection	Survey topics related to children	Mental health topics and questions related to children	Populations and periodicity
National Violent Death Reporting System (NVDRS) http://www.cdc.gov/ncipc/wisqars/NVDRS/About-NVDRS.htm#disclaimer Sponsor: CDC National Center for Injury Prevention and Control	NVDRS is a state-based surveillance system that links data from law enforcement, coroners and medical examiners, vital statistics, and crime laboratories to assist participating states in designing and implementing tailored prevention and intervention efforts. An incident-based, relational database collects and stores the data and is available free of charge from the NVDRS Web-based Injury Statistics Query and Reporting System (WISQARS).	State-collected information from numerous data sources, including death certificates, coroner and medical examiner records, police records, and input from data abstractors	Violent deaths:	Intent, cause, and manner of injury (including suicide and homicide)	19 states; not nationally representative
			Suicides	Child maltreatment	All ages
			Homicides	Poisoning (alcohol or other drug)	Annual since 2003
			Deaths from legal intervention (a subtype of homicide)	Type of victim-suspect relationship	
			Child maltreatment deaths	Suicide and undetermined death circumstances:	
			Intimate partner homicides	Current depressed mood	
			Other deaths:	Current treatment for mental health problem	
			Deaths from undetermined intent	Ever treated for mental health problem	
			Unintentional firearm deaths	Suicide note	
				Disclosure of intent to commit suicide	
				History of suicide attempts	
				Crisis in past 2 weeks	
				Intimate partner problem	
				Other relationship problem	
				Alcohol dependence	
				Other substance problem	
National Vital Statistics System (NVSS) http://www.cdc.gov/nchs/deaths.htm Source: CDC National Center for Health Statistics	NVSS mortality data provide demographic, geographic, and cause-of-death information about persons who have died in the United States in a given year.	Compilation of data from all death certificates filed in the United States into an annual file	Underlying cause of death	Information for children who die as a result of homicide, suicide, or other external causes of death (e.g., drug overdose)	National (including all states and DC, with available data on Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, and the Northern Mariana Islands)
			Multiple causes of death	Underlying cause of death	All ages
			Year, month, and day of week of death	Multiple causes of death	Annual since 1960
			Place of death		
			Residence of decedent (state, county, city, population size, standard metropolitan statistical area, and metropolitan and nonmetropolitan counties)		
			State and county of occurrence		
			Demographic information about decedent (e.g., age at death, education, Hispanic origin, marital status, race, sex, state of birth)		

See table footnotes on page 25.

TABLE 1. (Continued) Federal surveys and surveillance systems that collect data on mental disorders among children

Name, website, and sponsor	Description	Method of data collection	Survey topics related to children	Mental health topics and questions related to children	Populations and periodicity
National Youth Risk Behavior Survey (YRBS) http://www.cdc.gov/yrbs Sponsor: CDC National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention	The national YRBS is a survey that is part of a large surveillance system, the Youth Risk Behavior Surveillance System, which also includes state and local school-based surveys. The national YRBS monitors priority health-risk behaviors that contribute substantially to the leading causes of death, disability, and social problems among U.S. children and adults.	School-based survey	Tobacco use Dietary behaviors Inadequate physical activity Alcohol and other drug use Sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases Behaviors that might contribute to unintentional injuries and violence	Activity limitations resulting from mental or emotional problems Suicide ideation and attempt behaviors Alcohol, tobacco, and other drug use Drug use during sexual activity	Nationally representative 16,000 public and private high school students (grades 9–12), with available state and local data Oversample of blacks and Hispanics Biennial since 1991 (odd years)
School-Associated Violent Death Study (SAVD) http://www.cdc.gov/violenceprevention/youthviolence/schoolviolence/SAVD.html Sponsors: CDC National Center for Injury Prevention and Control, the Department of Education, and the Department of Justice	SAVD is an ongoing, national study that monitors trends related to school-associated violent deaths (including suicide), identifying risk factors, and assessing the effects of prevention efforts.	Compiled data from media databases (such as Lexis-Nexis), law enforcement officials, and school officials, mortality data from the National Center for Health Statistics, and data from the U.S. Department of Education	Common features of the event Potential risk factors for perpetration and victimization Possible prevention measures Warning signs Risk estimates	<i>At the time of the event:</i> Demonstration of symptoms consistent with ADHD or another hyperactivity disorder Diagnosis of ADHD or another hyperactivity disorder Treatment of ADHD or another hyperactivity disorder Presence of a diagnosed learning disability <i>Year before the event:</i> Receipt of school-sponsored psychological counseling services Treatment for depression Presence of thoughts or threats of suicide Previous suicide attempts	National Only includes violent deaths associated with U.S. elementary and secondary schools, both public and private All ages Annual since 1992

Abbreviations: ADHD = attention-deficit/hyperactivity disorder; ASD = autism spectrum disorder; IQ = intelligence quotient; PHQ-9 = nine-item Patient Health Questionnaire.

TABLE 2. Prevalence estimates of childhood mental disorders for which data are not routinely collected

Disorder	Surveillance system	Estimate (%)
Anxiety disorders		
Agoraphobia	NCS-A*	2.4
Generalized anxiety disorder	NCS-A*	2.2
	NHANES†	0.3
Obsessive-compulsive disorder	DSM-IV‡	1.0–2.3
Panic disorder	NCS-A*	2.3
	NHANES†	0.4
Posttraumatic stress disorder	NCS-A*	5.0
Separation anxiety	NCS-A*	7.6
Social phobia	NCS-A*	9.1
Specific phobia	NCS-A*	19.3
Bipolar I or II disorder	NCS-A*	2.9
Childhood onset schizophrenia	Primary study¶	0.014
Eating disorder	NHANES†	0.1

Abbreviations: DISC = Diagnostic Interview Schedule for Children; DSM-IV = *Diagnostic and Statistical Manual of Mental Disorders, 4th edition, text revision*; NCS-A: National Comorbidity Survey—Adolescent Supplement; NHANES = National Health and Nutrition Examination Survey.

* NCS-A 2001–2004, adolescents aged 13–18 years, lifetime prevalence. (Source: Merikangas KR, He JP, Burstein M, et al. Lifetime prevalence of mental disorders in U.S. adolescents: results from the National Comorbidity Survey Replication—Adolescent Supplement [NCS-A]. *J Am Acad Child Adolesc Psychiatry* 2010;49:980–9.)

† NHANES 2001–2004, children aged 8–15 years, 12-month estimate based on DISC. (Source: Merikangas KR, He JP, Brody D, Fisher PW, Bourdon K, Koretz DS. Prevalence and treatment of mental disorders among U.S. children in the 2001–2004 NHANES. *Pediatrics* 2010;125:75–81.)

‡ The estimates for obsessive-compulsive disorder were taken from DSM-IV because no national estimates were identified; the estimate is for lifetime for children and adolescents. (Source: American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*. 4th ed, text revision. Washington, DC: American Psychiatric Association; 2000.)

¶ Childhood-onset schizophrenia is defined as onset before age 13 years. Childhood-onset schizophrenia is not included in ongoing national surveillance, at least in part because of its rarity and the challenges in accurately identifying schizophrenia through survey measures or nonclinical interviews. (Sources: Thomsen PH. Schizophrenia with childhood and adolescent onset—a nationwide register-based study. *Acta Psychiatr Scand* 1996;94:187–93; Gochman P, Miller R, Rapoport JL. Childhood-onset schizophrenia: the challenge of diagnosis. *Curr Psychiatry Rep* 2011;13:321–2; and McKenna K, Gordon CT, Rapoport JL. Childhood-onset schizophrenia: timely neurobiological research. *J Am Acad Child Adolesc Psychiatry* 1994; 33:771–81.)

TABLE 3. Estimated prevalence and number of children with mental disorders, by surveillance system, age range, and year — National Health Interview Survey, National Survey of Children's Health, National Survey on Drug Use and Health, and National Health and Nutrition Examination Survey, United States, 2007–2011

Condition	Surveillance system and years	Age range (yrs)	Sample size (no. of persons surveyed)	Weighted prevalence (%)	Weighted* no. of children
Attention-deficit/hyperactivity disorder	NHIS 2007–2008	3–17	14,970	7.6 (ever)	4,718,000
	NHIS 2009–2010	3–17	18,411	8.5 (ever)	5,232,000
	NHIS 2011	3–17	10,554	8.4 (ever)	5,246,000
	NSCH 2007	3–17	78,042	8.9 (ever)	5,482,000
	NSCH 2007	3–17	78,042	6.8 (current)	4,188,000
Behavioral or conduct problems	NSCH 2007	3–17	78,042	4.6 (ever)	2,833,000
	NSCH 2007	3–17	78,042	3.5 (current)	2,156,000
Autism spectrum disorders	NHIS 2007–2008	3–17	14,970	0.8 (ever autism)	485,000
	NHIS 2009–2010	3–17	18,411	1.1 (ever autism)	667,000
	NSCH 2007	3–17	78,042	1.8 (ever ASD)	1,109,000
	NSCH 2007	3–17	78,042	1.1 (current ASD)	678,000
Depression	NHIS 2007	4–17	7,103	3.0 (past year)	1,706,000
	NSCH 2007	3–17	78,042	3.9 (ever)	2,402,000
	NSCH 2007	3–17	78,042	2.1 (current)	1,293,000
	NSDUH 2010–2011	12–17	45,500	12.8 (lifetime)	3,106,000
	NSDUH 2010–2011	12–17	45,500	8.1 (MDE past year)	1,961,000
	NHANES 2007–2010	12–17	1,782	6.7 (PHQ-9, past 2 weeks)	1,708,000
Anxiety	NHIS 2007	4–17	7,103	2.6 (phobia, past year)	1,515,000
	NSCH 2007	3–17	78,042	4.7 (ever)	2,895,000
	NSCH 2007	3–17	78,042	3.0 (current)	1,848,000
Alcohol use disorder	NSDUH 2010–2011	12–17	45,500	4.2 (past year)	1,028,000
Illicit drug use disorder	NSDUH 2010–2011	12–17	45,500	4.7 (past year)	1,155,000
Cigarette dependence	NSDUH 2010–2011	12–17	45,500	2.8 (past month)	691,000
Tourette syndrome	NSCH 2007	6–17	64,034	0.3 (ever)	148,000
			64,034	0.2 (current)	99,000
≥14 mentally unhealthy days	NHANES 2005–2010	12–17	3,312	8.3 (past 30 days)	1,995,000

Abbreviations: MDE = major depressive episode; NHANES = National Health and Nutrition Examination Survey; NHIS = National Health Interview Survey; NSCH = National Survey of Children's Health; NSDUH = National Survey on Drug Use and Health; PHQ-9 = nine-item Patient Health Questionnaire.

* Weighted estimates of the number of children with mental disorders or with ≥14 mentally unhealthy days were calculated by multiplying the prevalence estimate by the U.S. Census Bureau's population estimate of the total number of noninstitutionalized children in the age group, as determined by census population estimates for the year of the survey.

TABLE 4. Prevalence of children aged 3–17 years who ever received a diagnosis of ADHD or with current ADHD, by sociodemographic characteristics and year — National Health Interview Survey and National Survey of Children's Health, United States, 2007–2011

Characteristic	Ever received a diagnosis of ADHD (parent report)								Current ADHD (parent report)	
	NHIS 2007–2008 (N = 14,970 persons surveyed)		NHIS 2009–2010 (N = 18,411 persons surveyed)		NHIS 2011 (N = 10,554 persons surveyed)		NSCH 2007 (N = 78,042 persons surveyed)		NSCH 2007 (N = 78,042 persons surveyed)	
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Sex										
Male	10.6	(9.7–11.4)	11.5	(10.7–12.3)	12.0	(11.0–13.1)	12.3	(11.6–13.1)	9.6	(8.9–10.4)
Female	4.6	(4.0–5.3)	5.4	(4.8–6.0)	4.7	(4.0–5.6)	5.3	(4.8–5.9)	3.8	(3.4–4.2)
Age group (yrs)										
3–5	2.1	(1.5–2.8)	2.5	(1.9–3.4)	2.1	(1.4–3.0)	1.5	(1.1–1.9)	1.1	(0.9–1.5)
6–11	7.4	(6.6–8.3)	8.2	(7.4–9.0)	8.4	(7.4–9.5)	9.1	(8.3–9.9)	7.5	(6.8–8.2)
12–17	10.8	(9.8–11.8)	11.9	(11.0–12.9)	11.9	(10.7–13.2)	12.4	(11.5–13.3)	8.8	(8.1–9.6)
Race/Ethnicity*										
Hispanic	4.1	(3.4–4.9)	4.6	(3.9–5.4)	5.6	(4.6–6.8)	5.4	(4.4–6.6)	4.0	(3.1–5.0)
Black, non-Hispanic	8.1	(6.9–9.5)	10.3	(9.1–11.7)	8.8	(7.3–10.5)	10.0	(8.8–11.4)	7.7	(6.6–9.0)
White, non-Hispanic	9.1	(8.3–10.0)	10.0	(9.2–10.8)	10.1	(9.1–11.2)	10.0	(9.4–10.6)	7.6	(7.0–8.1)
Multirace, non-Hispanic	10.2	(7.3–14.0)	11.5	(8.6–15.2)	5.5	(3.4–8.6)	13.0	(10.4–16.2)	10.2	(7.9–13.0)
Other, non-Hispanic	3.1	(1.8–5.3)	2.0	(1.4–2.9)	4.1	(2.4–6.9)	4.0	(3.1–5.1)	3.0	(2.2–3.9)
Highest education in household†										
Less than high school	6.5	(4.9–8.5)	7.9	(6.5–9.5)	7.7	(6.1–9.7)	8.5	(7.1–10.2)	6.6	(5.3–8.1)
High school graduate	8.9	(7.8–10.1)	10.5	(9.3–11.7)	7.5	(6.3–9.0)	11.8	(10.5–13.2)	8.7	(7.7–9.8)
More than high school	7.4	(6.8–8.2)	8.0	(7.4–8.7)	8.8	(8.0–9.7)	8.1	(7.6–8.7)	6.3	(5.8–6.8)
Insurance										
Yes	7.9	(7.3–8.5)	8.7	(8.2–9.3)	8.7	(8.0–9.5)	9.2	(8.7–9.7)	7.1	(6.7–7.6)
No	5.4	(4.2–6.9)	5.9	(4.6–7.5)	4.7	(3.2–6.7)	6.3	(4.9–8.2)	3.5	(2.7–4.5)
Region										
Northeast	6.8	(5.8–8.0)	8.6	(7.4–9.9)	7.5	(6.0–9.4)	8.8	(7.8–9.9)	7.0	(6.1–8.0)
Midwest	8.8	(7.5–10.2)	9.4	(8.3–10.7)	8.7	(7.3–10.3)	9.3	(8.6–10.1)	7.1	(6.5–7.8)
South	8.9	(8.0–10.0)	10.1	(9.2–11.0)	10.3	(9.2–11.6)	10.3	(9.5–11.1)	7.7	(7.1–8.5)
West	5.1	(4.3–6.0)	5.2	(4.4–6.1)	6.0	(4.9–7.3)	6.6	(5.4–7.9)	4.8	(3.9–6.0)
Poverty-income ratio‡										
≤100% FPL	8.9	(7.5–10.4)	11.4	(10.1–12.7)	10.5	(8.9–12.4)	11.1	(9.9–12.4)	8.7	(7.7–10.0)
>100% to ≤200% FPL	8.6	(7.3–10.0)	9.2	(8.0–10.6)	6.7	(5.6–8.1)	9.7	98.6–11.0)	7.2	(6.3–8.3)
>200% FPL	6.9	(6.3–7.6)	7.1	(6.5–7.8)	8.3	(7.5–9.3)	8.0	(7.5–8.6)	6.1	(5.6–6.6)
Total	7.6	(7.1–8.2)	8.5	(8.0–9.0)	8.4	(7.8–9.1)	8.9	(8.4–9.4)	6.8	(6.4–7.2)

Abbreviations: ADHD = attention-deficit/hyperactivity disorder; CI = confidence interval; FPL = federal poverty level; NHIS = National Health Interview Survey; NSCH = National Survey of Children's Health.

* Other, non-Hispanic, includes American Indian/Alaska Native, Hawaiian/other Pacific Islander, and Asian. Persons categorized as multirace selected more than one race.

† The highest education in the household is based on the highest education of adults in the sample child's family for NHIS and on the education of parents or respondents (adults) for NSCH.

‡ FPL is based on family income and family size and composition using federal poverty thresholds that are updated annually by the U.S. Census Bureau using the change in the average annual consumer price index for all urban consumers. (Additional information available at <http://www.census.gov/hhes/www/poverty/index.html>.)

TABLE 5. Prevalence of children aged 3–17 years who ever received a diagnosis of behavioral or conduct problems or with current behavioral or conduct problems, by sociodemographic characteristics — National Survey of Children's Health, United States, 2007

Characteristic	Ever received a diagnosis of behavioral or conduct problems (parent report) (N = 78,042 persons surveyed)		Current behavioral or conduct problems (parent report) (N = 78,042 persons surveyed)	
	%	(95% CI)	%	(95% CI)
Sex				
Male	6.2	(5.7–6.8)	4.6	(4.1–5.1)
Female	3.0	(2.6–3.4)	2.2	(1.9–2.7)
Age group (yrs)				
3–5	1.5	(1.2–1.8)	1.3	(1.0–1.6)
6–11	5.1	(4.5–5.8)	3.8	(3.3–4.4)
12–17	5.7	(5.2–6.3)	4.2	(3.7–4.7)
Race/Ethnicity*				
Hispanic	3.9	(3.1–5.0)	3.2	(2.4–4.2)
Black, non-Hispanic	8.1	(6.9–9.4)	6.0	(5.0–7.2)
White, non-Hispanic	4.2	(3.7–4.6)	3.0	(2.7–3.4)
Multirace, non-Hispanic	4.8	(3.6–6.2)	4.0	(2.9–5.4)
Other, non-Hispanic	2.6	(1.8–3.7)	1.6	(1.0–2.6)
Highest education in household†				
Less than high school	7.3	(5.8–9.0)	6.1	(4.8–7.7)
High school graduate	7.0	(6.1–8.1)	5.3	(4.5–6.3)
More than high school	3.5	(3.2–3.9)	2.5	(2.2–2.9)
Insurance				
Yes	4.7	(4.3–5.1)	3.5	(3.2–3.8)
No	4.0	(2.8–5.8)	3.3	(2.2–5.1)
Region				
Northeast	5.1	(4.3–6.1)	3.7	(2.9–4.6)
Midwest	4.6	(4.1–5.2)	3.3	(2.9–3.8)
South	5.2	(4.6–5.9)	4.0	(3.5–4.6)
West	3.4	(2.7–4.3)	2.6	(2.0–3.5)
Poverty-income ratio‡				
≤100% FPL	9.0	(7.9–10.3)	7.3	(6.3–8.4)
>100% to ≤200% FPL	5.9	(5.0–6.9)	4.5	(3.7–5.4)
>200% FPL	2.9	(2.6–3.3)	2.0	(1.7–2.3)
Total	4.6	(4.3–5.0)	3.5	(3.1–3.8)

Abbreviations: CI = confidence interval; FPL = federal poverty level.

* Other, non-Hispanic, includes American Indian/Alaska Native, Hawaiian/other Pacific Islander, and Asian. Persons categorized as multirace selected more than one race.

† The highest education in the household is based on the education of parents or respondents (adults).

‡ FPL is based on family income and family size and composition using federal poverty thresholds that are updated annually by the U.S. Census Bureau using the change in the average annual consumer price index for all urban consumers. (Additional information available at <http://www.census.gov/hhes/www/poverty/index.html>.)

TABLE 6. Prevalence of children who ever received a diagnosis of autism or autism spectrum disorder or with current autism or autism spectrum disorder, by sociodemographic characteristics and year — National Health Interview Survey, National Survey of Children's Health, and the Autism and Developmental Disabilities Monitoring Network, United States, 2007–2010

Characteristic	Ever received a diagnosis of autism or ASD (parent report)*						Current autism or ASD (parent report)*		Met surveillance case definition at time of interview (health and education record reviews)	
	NHIS 2007–2008 Ages: 3–17 years (N = 14,970 persons surveyed)		NHIS 2009–2010 Ages: 3–17 years (N = 18,411 persons surveyed)		NSCH 2007 Ages: 3–17 years (N = 78,042 persons surveyed)		NSCH 2007 Ages: 3–17 years (N = 78,042 persons surveyed)		ADDM 2008 ASD age: 8 years† (N = 337,093 persons surveyed)	
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Sex										
Male	1.3	(1.0–1.6)	1.7	(1.4–2.0)	2.8	(2.4–3.3)	1.7	(1.4–2.1)	1.8	(1.8–1.9)
Female	0.3	(0.2–0.4)	0.5	(0.3–0.7)	0.8	(0.6–1.0)	0.4	(0.3–0.6)	0.4	(0.37–0.43)
Age group (yrs)										
3–5	0.8	(0.5–1.2)	1.1	(0.8–1.6)	1.6	(1.2–2.3)	0.9	(0.6–1.2)	NA	NA
6–11	1.0	(0.7–1.3)	1.1	(0.8–1.4)	2.2	(1.8–2.7)	1.4	(1.1–1.7)	NA	NA
12–17	0.6	(0.4–0.9)	1.1	(0.8–1.4)	1.6	(1.3–1.9)	1.0	(0.8–1.2)	NA	NA
Race/Ethnicity§										
Hispanic	0.5	(0.3–0.9)	0.7	(0.5–1.0)	1.3	(0.9–2.0)	1.0	(0.6–1.7)	0.8	(0.7–0.9)
Black, non-Hispanic	0.4¶	(0.2–0.8)¶	0.9	(0.5–1.4)	1.9	(1.3–2.8)	0.6	(0.4–1.0)	1.0	(1.0–1.1)
White, non-Hispanic	0.9	(0.7–1.2)	1.3	(1.0–1.6)	2.0	(1.7–2.3)	1.3	(1.1–1.5)	1.2	(1.2–1.3)
Multirace, non-Hispanic	—**	—	2.0¶	(1.1–3.9)¶	1.1	(0.8–1.6)	0.7	(0.4–1.1)	NA	NA
Other, non-Hispanic	1.1¶	(0.4–2.6)¶	0.7¶	(0.4–1.5)¶	1.8	(1.0–3.4)	0.7	(0.4–1.2)	1.0	(0.8–1.2)
Highest education in household††										
Less than high school	0.3¶	(0.1–0.6)¶	0.5¶	(0.2–1.0)¶	2.6	(1.6–4.0)	1.7	(1.0–3.0)	NA	NA
High school graduate	0.6	(0.4–0.9)	0.8	(0.5–1.3)	1.8	(1.4–2.4)	0.7	(0.5–0.9)	NA	NA
More than high school	0.9	(0.7–1.2)	1.2	(1.0–1.5)	1.8	(1.5–2.0)	1.2	(1.0–1.4)	NA	NA
Insurance										
Yes	0.8	(0.7–1.0)	1.1	(0.9–1.3)	1.9	(1.7–2.2)	1.2	(1.0–1.4)	NA	NA
No	—	—	—	—	1.0	(0.6–1.7)	0.5	(0.3–0.8)	NA	NA
Region										
Northeast	0.8	(0.5–1.4)	1.3	(0.9–1.9)	2.3	(1.8–3.0)	1.3	(1.0–1.8)	NA	NA
Midwest	1.0	(0.7–1.3)	1.4	(1.0–2.0)	1.8	(1.6–2.2)	1.2	(1.0–1.5)	NA	NA
South	0.7	(0.5–1.0)	0.8	(0.6–1.1)	1.8	(1.4–2.3)	1.1	(0.8–1.5)	NA	NA
West	0.7	(0.4–1.2)	1.0	(0.7–1.4)	1.5	(1.0–2.1)	0.8	(0.6–1.2)	NA	NA
Poverty-income ratio§§										
≤100% FPL	0.9	(0.5–1.6)	1.1	(0.7–1.6)	1.9	(1.4–2.7)	1.1	(0.7–1.7)	NA	NA
>100% to ≤200% FPL	0.6	(0.3–0.9)	1.0	(0.7–1.6)	1.9	(1.4–2.5)	1.0	(0.7–1.3)	NA	NA
>200% FPL	0.8	(0.6–1.1)	1.1	(0.9–1.4)	1.8	(1.5–2.1)	1.2	(0.9–1.4)	NA	NA
Total	0.8	(0.6–1.0)	1.1	(0.9–1.3)	1.8	(1.6–2.1)	1.1	(0.9–1.3)	1.1	(1.1–1.2)

Abbreviations: ADDM = Autism and Developmental Disabilities and Monitoring Network; ASD = autism spectrum disorder; CI = confidence interval; FPL = federal poverty level; NA = not available; NHIS = National Health Interview Survey; NSCH = National Survey of Children's Health.

* Autism was addressed by NHIS; ASD was addressed by NSCH.

† ADDM data based on 14 population-based sites.

§ Other, non-Hispanic, includes American Indian/Alaska Native, Hawaiian/other Pacific Islander, and Asian. Persons categorized as multirace selected more than one race.

¶ Relative standard error is >30% and <50%.

** Data suppressed because relative standard error is ≥50%.

†† The highest education in the household is based on the highest education of adults in the sample child's family for NHIS and on the education of parents or respondents (adults) for NSCH.

§§ FPL is based on family income and family size and composition using federal poverty thresholds that are updated annually by the U.S. Census Bureau using the change in the average annual consumer price index for all urban consumers. (Additional information available at <http://www.census.gov/hhes/www/poverty/index.html>.)

TABLE 7. Prevalence of children who, during the past 12 months, received a diagnosis of depression or had a major depressive episode; who ever received a diagnosis of depression or had a major depressive episode; and with current depression or depression within the past 2 weeks, by sociodemographic characteristics and year — National Health Interview Survey, National Survey of Children's Health, National Survey on Drug Use and Health, and National Health and Nutrition Examination Survey, United States, 2007–2011

Characteristic	Received a diagnosis of depression during past 12 months (parent report)		Ever received a diagnosis of depression (parent report)		Current depression (parent report)		Lifetime major depressive episode (child report)		Major depressive episode during past 12 months (child report)		Current depression during past 2 weeks (child report, score of ≥ 10 on PHQ-9)	
	NHIS 2007 Ages: 4–17 years (N = 7,103 persons surveyed)		NSCH 2007 Ages: 3–17 years (N = 78,042 persons surveyed)		NSCH 2007 Ages: 3–17 years (N = 78,042 persons surveyed)		NSDUH 2010–2011 Ages: 12–17 years (N = 45,500 persons surveyed)*		NSDUH 2010–2011 Ages: 12–17 years (N = 45,500 persons surveyed)*		NHANES 2007–2010 Ages: 12–17 years (N = 1,782 persons surveyed)	
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Sex												
Male	2.8	(2.2–3.6)	4.1	(3.7–4.7)	2.1	(1.8–2.5)	7.7	(7.3–8.2)	4.5	(4.1–4.8)	5.2	(3.5–7.4)
Female	3.1	(2.3–4.1)	3.7	(3.2–4.3)	2.0	(1.7–2.4)	18.2	(17.5–18.9)	12.0	(11.5–12.6)	8.4	(6.4–10.9)
Age group (yrs)												
3–5	— [†]	—	0.6	(0.2–1.6)	0.5	(0.1–1.6)	NA	NA	NA	NA	NA	NA
6–11	1.7	(1.2–2.4)	2.3	(1.9–2.8)	1.4	(1.0–1.8)	NA	NA	NA	NA	NA	NA
12–17	5.1	(4.1–6.4)	7.1	(6.4–7.8)	3.5	(3.2–4.0)	12.8	(12.4–13.3)	8.1	(7.8–8.5)	6.7	(5.5–8.3)
Race/Ethnicity[§]												
Hispanic	2.4	(1.7–3.3)	3.9	(2.9–5.2)	1.8	(1.3–2.7)	13.0	(12.0–14.1)	7.9	(7.1–8.8)	5.7	(3.8–8.3)
Black, non-Hispanic	2.5	(1.5–4.1)	3.7	(2.9–4.7)	2.2	(1.5–3.1)	11.1	(10.2–12.2)	6.9	(6.1–7.7)	7.4	(5.5–9.9)
White, non-Hispanic	3.2	(2.5–4.2)	4.0	(3.6–4.5)	2.1	(1.9–2.4)	13.2	(12.7–13.7)	8.6	(8.1–9.0)	7.3	(5.3–10.0)
Multirace, non-Hispanic	8.1 [¶]	(4.3–14.9) [¶]	5.9	(4.4–7.8)	3.5	(2.4–5.0)	16.2	(13.8–19.0)	10.1	(8.1–12.6)	NA	NA
Other, non-Hispanic	1.5 [¶]	(0.7–3.4) [¶]	2.6	(1.8–3.7)	1.4	(0.8–2.4)	11.7	(9.7–14.0)	6.7	(5.3–8.4)	NA	NA
Highest education in household^{**}												
Less than high school	5.0	(2.8–8.7)	6.7	(4.9–9.0)	3.4	(2.2–5.2)	NA	NA	NA	NA	6.6	(4.8–9.1)
High school graduate	2.7	(1.9–3.7)	5.6	(4.7–6.8)	3.2	(2.6–3.9)	NA	NA	NA	NA	7.0	(4.2–11.4)
More than high school	2.8	(2.2–3.6)	3.1	(2.8–3.5)	1.6	(1.4–1.8)	NA	NA	NA	NA	7.0	(5.0–9.8)
Insurance												
Yes	2.9	(2.4–3.6)	3.9	(3.6–4.3)	2.1	(1.9–2.4)	12.7	(12.3–13.1)	8.1	(7.7–8.4)	6.7	(5.3–8.3)
No	3.6	(2.4–5.3)	4.0	(2.7–5.9)	1.8	(1.2–2.7)	14.5	(12.9–16.3)	9.1	(7.8–10.5)	5.3	(8.3–13.9)
Region												
Northeast	2.3	(1.6–3.5)	3.7	(3.1–4.5)	2.1	(1.6–2.7)	12.1	(11.2–13.1)	7.4	(6.7–8.2)	NA	NA
Midwest	4.0	(2.6–6.2)	4.5	(3.9–5.1)	2.5	(2.1–3.0)	12.5	(11.8–13.2)	8.2	(7.7–8.9)	NA	NA
South	2.8	(2.2–3.7)	3.7	(3.2–4.2)	2.0	(1.6–2.3)	12.9	(12.3–13.6)	8.1	(7.6–8.7)	NA	NA
West	2.6	(1.8–3.6)	4.0	(3.1–5.3)	1.9	(1.3–2.7)	13.6	(12.5–14.7)	8.6	(7.8–9.4)	NA	NA
Poverty-income ratio^{††}												
$\leq 100\%$ FPL	4.4	(3.2–6.0)	6.9	(5.7–8.2)	4.4	(3.5–5.5)	12.4	(11.5–13.3)	7.7	(7.0–8.4)	7.1	(5.3–9.5)
$>100\%$ to $\leq 200\%$ FPL	4.1	(2.6–6.4)	4.6	(3.8–5.6)	2.4	(1.9–3.0)	13.9	(13.0–14.8)	8.9	(8.3–9.7)	8.5	(5.1–13.8)
$>200\%$ FPL	2.1	(1.7–2.7)	2.9	(2.5–3.3)	1.3	(1.1–1.6)	12.6	(12.0–13.1)	8.0	(7.5–8.4)	5.9	(4.0–8.7)
Total	3.0	(2.5–3.6)	3.9	(3.6–4.3)	2.1	(1.8–2.4)	12.8	(12.4–13.3)	8.1	(7.8–8.5)	6.7	(5.5–8.3)

Abbreviations: CI = confidence interval; FPL = federal poverty level; NA = not available; NHANES = National Health and Nutrition Examination Survey; NHIS = National Health Interview Survey; NSCH = National Survey of Children's Health; NSDUH = National Survey on Drug Use and Health; PHQ-9 = nine-item Patient Health Questionnaire.

* Sample size rounded to the nearest 100 for disclosure reasons.

[†] Data suppressed because relative standard error is $\geq 50\%$.

[§] Other, non-Hispanic, includes American Indian/Alaska Native, Hawaiian/other Pacific Islander, and Asian. Persons categorized as multirace selected more than one race.

[¶] Relative standard error is $>30\%$ and $<50\%$.

^{**} The highest education in the household is based on the highest education of adults in the sample child's family for NHIS and the education of parents or respondents (adults) for NSCH, and the household reference person (usually an adult) for NHANES.

^{††} FPL is based on family income and family size and composition using federal poverty thresholds that are updated annually by the U.S. Census Bureau using the change in the average annual consumer price index for all urban consumers. (Additional information available at <http://www.census.gov/hhes/www/poverty/index.html>.)

TABLE 8. Prevalence of children aged 3–17 years who had phobias or fears in the past 12 months, ever received a diagnosis of anxiety, or had current anxiety, by sociodemographic characteristics — National Health Interview Survey and National Survey of Children's Health, United States, 2007

Characteristic	Phobias or fears during past 12 months (parent report)		Ever received a diagnosis of anxiety (parent report)		Current anxiety (in addition to previous diagnosis of anxiety) (parent report)	
	NHIS 2007		NSCH 2007		NSCH 2007	
	Ages: 4–17 years (N = 7,103 persons surveyed)		Ages: 3–17 years (N = 78,042 persons surveyed)		Ages: 3–17 years (N = 78,042 persons surveyed)	
	%	(95% CI)	%	(95% CI)	%	(95% CI)
Sex						
Male	2.4	(1.9–3.1)	5.0	(4.6–5.6)	3.4	(3.0–3.8)
Female	2.9	(2.3–3.6)	4.4	(3.8–5.0)	2.6	(2.3–3.0)
Age group (yrs)						
2–5	2.6	(1.6–4.1)	1.5	(1.0–2.4)	1.0	(0.7–1.4)
6–11	2.9	(2.3–3.7)	4.3	(3.8–5.0)	2.9	(2.5–3.4)
12–17	2.4	(1.9–3.1)	6.6	(6.0–7.3)	4.1	(3.6–4.6)
Race/Ethnicity*						
Hispanic	2.5	(1.8–3.4)	4.6	(3.5–6.0)	2.6	(1.8–3.6)
Black, non-Hispanic	3.0	(1.9–4.6)	3.3	(2.6–4.2)	2.2	(1.6–3.0)
White, non-Hispanic	2.6	(2.1–3.3)	5.2	(4.8–5.6)	3.4	(3.1–3.7)
Multirace, non-Hispanic	5.5 [†]	(2.6–11.2) [†]	6.4	(4.8–8.4)	4.7	(3.3–6.6)
Other, non-Hispanic	1.0 [†]	(0.4–2.6) [†]	2.8	(2.0–3.9)	2.0	(1.3–3.0)
Highest education in household[§]						
Less than high school	3.6	(2.4–5.6)	6.1	(4.3–8.4)	3.4	(2.4–4.9)
High school graduate	2.6	(1.8–3.6)	4.8	(4.0–5.8)	3.4	(2.8–4.3)
More than high school	2.5	(2.1–3.1)	4.6	(4.2–5.0)	2.9	(2.6–3.2)
Health insurance						
Yes	2.5	(2.1–3.0)	4.9	(4.5–5.3)	3.1	(2.9–3.5)
No	3.6	(2.2–5.8)	3.3	(2.2–4.9)	1.7	(1.2–2.3)
Region						
Northeast	2.3	(1.5–3.4)	5.1	(4.5–5.8)	3.2	(2.7–3.8)
Midwest	2.1	(1.5–3.1)	5.1	(4.5–5.7)	3.5	(3.0–4.1)
South	2.8	(2.1–3.8)	4.4	(4.0–5.0)	2.9	(2.5–3.3)
West	3.2	(2.3–4.3)	4.6	(3.5–5.9)	2.6	(1.9–3.5)
Poverty-income ratio[¶]						
≤100% FPL	4.0	(2.8–5.8)	6.3	(5.3–7.4)	4.2	(3.5–5.0)
>100% to ≤200% FPL	2.4	(1.7–3.5)	5.2	(4.2–6.3)	3.5	(2.8–4.5)
>200% FPL	2.3	(1.9–2.9)	4.1	(3.7–4.6)	2.5	(2.2–2.8)
Total	2.6	(2.2–3.1)	4.7	(4.4–5.1)	3.0	(2.7–3.3)

Abbreviations: CI = confidence interval; FPL = federal poverty level; NSCH, National Survey of Children's Health; NHIS = National Health Interview Survey.

* Other, non-Hispanic, includes American Indian/Alaska Native, Hawaiian/other Pacific Islander, and Asian. Persons categorized as multirace selected more than one race.

[†] Relative standard error is >30% and <50%.

[§] The highest education in the household is based on the highest education of adults in the sample child's family for NHIS and the education of parents or respondents (adults) for NSCH.

[¶] FPL is based on family income and family size and composition using federal poverty thresholds that are updated annually by the U.S. Census Bureau using the change in the average annual consumer price index for all urban consumers. (Additional information available at <http://www.census.gov/hhes/www/poverty/index.html>.)

TABLE 9. Prevalence of adolescents aged 12–17 years who reported having had an alcohol use disorder or illicit drug use disorder in the past year, dependence on cigarettes in the past month, alcohol or illicit drug use in the past year, or cigarettes use in the past month, by sociodemographic characteristics — National Survey on Drug Use and Health,* United States, 2010–2011

Characteristic	Past year alcohol use disorder [†]		Past year illicit drug use disorder [§]		Past month cigarette dependence [¶]		Past year alcohol use		Past year illicit drug use		Past month cigarette use	
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Sex												
Male	3.7	(3.4–4.0)	4.8	(4.4–5.2)	3.0	(2.8–3.4)	27.4	(26.6–28.2)	19.3	(18.5–20.0)	8.4	(7.9–8.9)
Female	4.7	(4.3–5.1)	4.6	(4.2–5.0)	2.5	(2.3–2.8)	29.1	(28.3–29.9)	19.2	(18.5–19.9)	7.7	(7.3–8.2)
Race/Ethnicity**												
Hispanic	4.5	(4.0–5.2)	5.7	(5.0–6.4)	1.8	(1.4–2.3)	28.5	(27.1–29.8)	20.9	(19.8–22.1)	6.9	(6.2–7.8)
Black, non-Hispanic	2.4	(1.9–3.0)	4.1	(3.5–4.8)	1.6	(1.2–2.0)	23.7	(22.3–25.2)	19.6	(18.4–20.9)	4.7	(4.0–5.4)
White, non-Hispanic	4.6	(4.2–4.9)	4.6	(4.2–4.9)	3.6	(3.3–3.9)	30.0	(29.3–30.7)	18.9	(18.3–19.5)	9.6	(9.1–10.1)
Multirace, non-Hispanic	5.6	(4.2–7.5)	6.4	(4.8–8.5)	4.1	(2.7–6.0)	32.7	(29.2–36.4)	26.7	(23.4–30.3)	10.0	(7.9–12.6)
Other, non-Hispanic	2.7	(2.0–3.7)	2.8	(2.0–3.9)	1.2	(0.8–2.0)	18.6	(16.4–21.1)	11.6	(9.9–13.7)	4.5	(3.4–5.9)
Insurance												
Yes	4.0	(3.8–4.3)	4.7	(4.4–4.9)	2.7	(2.5–3.0)	28.0	(27.4–28.6)	19.0	(18.5–19.5)	7.8	(7.5–8.2)
No	5.9	(4.8–7.2)	5.1	(4.2–6.3)	3.7	(2.9–4.6)	31.1	(28.9–33.4)	22.2	(20.3–24.3)	11.0	(9.5–12.8)
Region												
Northeast	4.4	(3.9–5.0)	4.7	(4.1–5.3)	2.7	(2.3–3.3)	32.3	(31.0–33.6)	19.9	(18.8–21.0)	8.2	(7.5–9.0)
Midwest	3.8	(3.4–4.2)	4.3	(3.9–4.7)	3.5	(3.0–4.0)	27.8	(26.8–28.8)	18.1	(17.3–18.9)	8.7	(8.0–9.4)
South	3.7	(3.3–4.1)	4.2	(3.7–4.6)	2.8	(2.5–3.2)	26.8	(25.8–27.8)	17.8	(16.9–18.7)	8.0	(7.4–8.6)
West	5.2	(4.5–5.8)	5.9	(5.3–6.6)	2.2	(1.8–2.6)	27.9	(26.5–29.4)	22.0	(20.7–23.3)	7.5	(6.8–8.3)
Poverty-income ratio^{††}												
≤100% FPL	4.4	(3.8–5.0)	5.7	(5.0–6.4)	3.9	(3.4–4.4)	26.0	(24.7–27.4)	20.7	(19.6–22.0)	9.2	(8.5–10.0)
>100% to ≤200% FPL	4.0	(3.5–4.6)	4.9	(4.4–5.5)	3.4	(2.9–3.9)	27.2	(26.0–28.3)	19.8	(18.8–20.9)	8.9	(8.2–9.8)
>200% FPL	4.2	(3.8–4.5)	4.2	(3.9–4.6)	2.1	(1.9–2.4)	29.5	(28.7–30.3)	18.4	(17.7–19.1)	7.3	(6.8–7.7)
Total	4.2	(3.9–4.4)	4.7	(4.4–5.0)	2.8	(2.6–3.0)	28.2	(27.7–28.8)	19.2	(18.7–19.7)	8.1	(7.7–8.4)

Abbreviations: CI = confidence interval; DSM-IV = *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*; FPL = federal poverty level; NSDUH = National Survey on Drug Use and Health.

* N ≈ 45,500 surveys. Sample size rounded to the nearest 100 for disclosure reasons.

[†] Alcohol use disorder is defined as alcohol dependence or abuse, based on definitions found in DSM-IV. (Source: American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*. 4th ed, text revision. Washington, DC: American Psychiatric Association; 2000.)

[§] Illicit drug use disorder is defined as illicit drug dependence or abuse, based on definitions found in DSM-IV. Illicit drugs include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically, including data from original methamphetamine questions but not including new methamphetamine items added in 2005 and 2006.

[¶] Nicotine (cigarette) dependence is based on criteria from the Nicotine Dependence Syndrome Scale or the Fagerstrom Test of Nicotine Dependence. (Source: Substance Abuse and Mental Health Services Administration. Results from the 2009 National Survey on Drug Use and Health. Vol II. Technical appendices and selected prevalence tables. Rockville, MD: US Department of Health and Human Services; 2010.)

** Other, non-Hispanic, includes American Indian/Alaska Native, Hawaiian/other Pacific Islander, and Asian. Persons categorized as multirace selected more than one race.

^{††} FPL is based on family income and family size and composition using federal poverty thresholds that are updated annually by the U.S. Census Bureau using the change in the average annual consumer price index for all urban consumers. (Additional information available at <http://www.census.gov/hhes/www/poverty/index.html>.)

TABLE 10. Prevalence of adolescents aged 12–17 years who reported ≥ 14 mentally unhealthy days in the past month, by sociodemographic characteristics and year — National Health and Nutrition Examination Survey,* United States, 2005–2010

Characteristic	%	(95% CI)
Sex		
Male	6.7	(4.7–8.7)
Female	10.0	(8.0–12.1)
Race/Ethnicity[†]		
Mexican-American	4.9	(3.3–6.6)
Black, non-Hispanic	6.6	(4.9–8.3)
White, non-Hispanic	9.6	(7.5–11.8)
Education of household reference person[§]		
Less than high school	5.9	(4.3–7.4)
High school graduate	9.6	(5.7–13.4)
More than high school	8.7	(6.9–10.5)
Health insurance		
Yes	8.2	(6.7–9.7)
No	9.8	(4.7–14.8)
Poverty-income ratio[¶]		
$\leq 100\%$ FPL	8.1	(5.3–10.9)
$> 100\%$ to $\leq 200\%$ FPL	10.5	(7.5–13.5)
$> 200\%$ FPL	7.6	(5.8–9.3)
Total	8.3	(6.9–9.8)

Abbreviations: CI = confidence interval; FPL = federal poverty level; NHANES = National Health and Nutrition Examination Survey.

* N = 3,312 surveys.

[†] Persons of other race not presented because of the small sample size.

[§] The highest education in the household is based on the household reference person (usually an adult) for NHANES.

[¶] FPL is based on family income and family size and composition using federal poverty thresholds that are updated annually by the U.S. Census Bureau using the change in the average annual consumer price index for all urban consumers. (Additional information available at <http://www.census.gov/hhes/www/poverty/index.html>.)

TABLE 11. Number and rate of suicide deaths among persons aged 10–19 years, by sociodemographic characteristics, mechanism of death, and known circumstances — National Vital Statistics System, United States, 2010, and National Violent Death Reporting System, 16 states,* 2005–2009

Characteristic	NVSS 2010				NVDRS 2005–2009									
					Suicide deaths with known circumstances [†]									
	Suicide deaths		Suicide deaths		Total	Previous suicide attempt		Disclosed intent to commit suicide		Current mental disorder		Current mental disorder treatment		
	No.	Rate [§]	No.	Rate [§]	Total	No.	%	No.	%	No.	%	No.	%	
Sex														
Male	1,503	6.9	1,890	6.54	1570	263	16.8	457	29.1	508	32.4	369	23.5	
Female	423	2.0	500	1.83	451	163	36.1	140	31	210	46.6	165	36.6	
Age group (yrs) [¶]														
10–14	267	1.3	302	1.13	255	50	19.6	76	29.8	90	35.3	65	25.5	
15–19	1,659	7.5	2,088	7.39	1766	376	21.3	521	29.5	628	35.6	469	26.6	
Race/Ethnicity**														
Hispanic	295	3.3	234	3.81	201	48	23.9	68	33.8	54	26.9	41	20.4	
Black, non-Hispanic	189	2.8	280	2.64	206	29	14.1	47	22.8	64	31.1	40	19.4	
White, non-Hispanic	1,299	5.3	1,658	4.51	1427	310	21.7	427	29.2	543	38.1	412	28.9	
Other, non-Hispanic	135	5.3	188	8.46	158	35	22.2	50	31.7	46	29.1	36	22.8	
Mechanism														
Poisoning	121	0.3	145	0.26	—††	—††	—††	—††	—††	—††	—††	—††	—††	
Hanging/Suffocation	920	2.2	1,082	1.93	—††	—††	—††	—††	—††	—††	—††	—††	—††	
Motor vehicle			58	0.10	—††	—††	—††	—††	—††	—††	—††	—††	—††	
Firearm	748	1.8	1,024	1.81	—††	—††	—††	—††	—††	—††	—††	—††	—††	
Other/Unknown	137	0.3	81	— ^{§§}	—††	—††	—††	—††	—††	—††	—††	—††	—††	
Total	1,926	4.5	2,390	4.24	2021	426	21.1	597	29.5	718	35.5	534	26.4	

Abbreviations: NVDRS = National Violent Death Reporting System; NVSS = National Vital Statistics System.

* Alaska, Colorado, Georgia, Kentucky, Maryland, Massachusetts, New Jersey, New Mexico, North Carolina, Oklahoma, Oregon, Rhode Island, South Carolina, Utah, Virginia, and Wisconsin.

[†] Decedents can have one or more circumstances; therefore, subcategories might not sum to all known circumstances.

[§] Rate per 100,000 children; all rates are age adjusted using the 2000 U.S. standard population (all races, both sexes).

[¶] Suicide among children aged ≤9 years are suppressed in NVDRS reporting on the basis of a child's inability to form and understand suicidal intent and consequences.

** Other, non-Hispanic, includes American Indian/Alaska Native, Hawaiian/other Pacific Islander, and Asian.

†† Data available from restricted access dataset only. Data presented in this table were obtained using WISQARS.

§§ Rates based on these numbers from cell sizes <20 have been suppressed because they might be unstable.

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