

Mental Health in Minnesota

DATA BRIEF: 2016 CSTE MENTAL HEALTH INDICATORS

The Suicide rate in Minnesota has steadily increased since 2000. The age-adjusted suicide rate rose from 8.9 per 100,000 population in 2000 to 13.1 per 100,000 population in 2015. The emergency department visit rate for self-inflicted violence has also increased, jumping 15 percent in one year with 15,258 in 2015 compared to 13,293 in 2014. However, survey data suggest the overall prevalence of mental illness does not seem to be increasing.

This data brief analyzes data from death certificates, hospital discharge data, and survey data to examine the trends in mental health and self-directed violence, mortality and morbidity by age group, race/ethnicity and gender.

Mental Health Indicators

Mental illness and its manifestations have a substantial impact on our society. For example, suicide mortality is the tenth leading cause of death in the U.S. and the national age-adjusted suicide mortality rate increased from 10.5 per 100,000 population in 2000 to 13.4 per 100,000 population in 2015 (1). Care for mental illness cost an estimated \$57.8 billion in the United States in 2006 (2). Depression has become the fifth most common cause of disability in the U.S. (3).

The Council of State and Territorial Epidemiologists (CSTE) established a Substance Abuse Subcommittee in 2006 to develop substance abuse and mental health surveillance indicators for state and local public health departments (4). Due to economic cost, disability, suffering and mortality from mental health disorders, CSTE recommended the eight surveillance indicators for mental health detailed below (5). These indicators coincide with Healthy People 2020's objectives to reduce the suicide rate, suicide attempts by adolescents and the proportion of persons who experience major depressive episodes (6). Data sources are referenced at the end of this Data Brief; availability of county level data is also indicated.

Youth Suicide Attempts

Suicide mortality is correlated with suicide attempts – those who attempt are at increased risk for suicide death (7, 8). In 2015, suicide was the second leading cause of death among youth ages 13 to 19 years in the U.S., with a mortality rate of 8.1 per 100,000 population (9). In 2015, 8.6% of U.S. high school students who participated in the Youth Risk Behavior Surveillance System (YRBSS) had attempted suicide within the past year, and were higher among females (11.6%) than males (5.5%) (10).

In the Minnesota Student Survey (MSS), 4% of 9th graders reported attempting suicide within the past year. Females had higher rates compared to males (6% vs 2%). The rates were considerably higher among Pacific Islander 9th grade females (17%) and American Indian 9th grade females (14%) (See chart 1). For 11th graders, 3% reported attempting suicide within the

past year, with the proportion of females decreasing (4%), although still higher than males (2%). Suicide attempts remained higher among American Indian and Pacific Islanders but were lower compared with 9th graders (10% and 8%), especially among Pacific Islanders (See chart 2). American Indian males, however, had higher rates in 9th grade compared to 11th grade.

Suicide Attempts High among American Indian & Pacific Islander 9th Grade Girls

Chart 1: Youth Suicide Attempts by Sex & Race, 9th Grade, MN

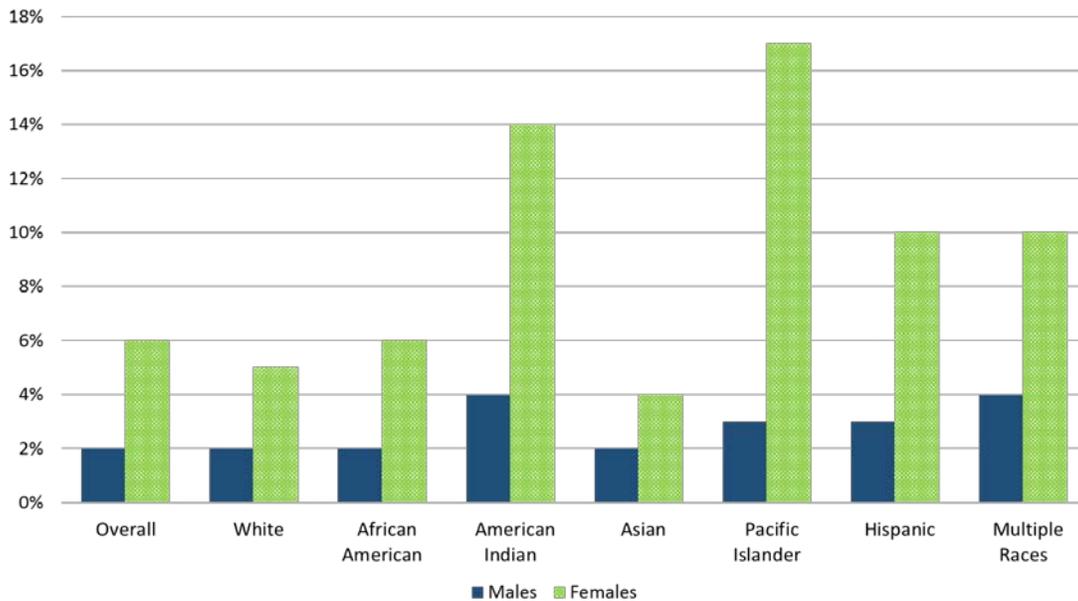


Chart 1: 9th grade females had the highest prevalence of suicide attempts, with 17% of Pacific Islander 9th grade females who reported that they had attempted suicide during the past year followed by 14% of American Indian 9th grade females. However, there were few Pacific Islanders who participated in the survey and in 2013 the rate for 9th grade female Pacific Islanders was only 5%.

Suicide Attempts Remain High among American Indian 11th Grade Females

Chart 2: Youth Suicide Attempts by Sex & Race, 11th Grade, MN

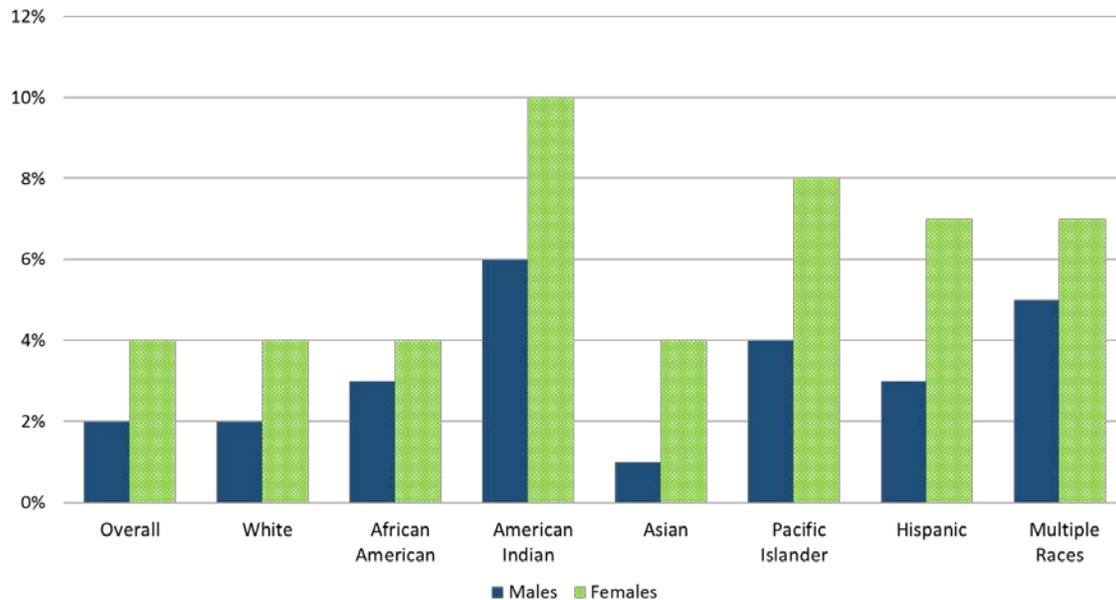


Chart 2: 11th grade females also have higher rates than males, with American Indian and Pacific Islanders still high but the prevalence is lower than 9th grader, particularly among Pacific Islanders. The American Indian males increased from 9th grade compared to 11th grade. MSS 2016.

Emergency Department Visits for Self-directed Violence

In 2014, there were 469,096 emergency department visits for self-directed violence among all ages in the U.S., with an age-adjusted rate of 152 per 100,000 population (11). In Minnesota in 2014, there were 3,518 emergency department visits for self-directed violence, with an overall age-adjusted rate of 68.6 per 100,000 population. Females had higher rates than males with 86 and 52 per 100,000 population, respectively. The highest rate was found among young women ages 10 to 24 years with a rate of 357.7 per 100,000 population.

However, these numbers underestimate the true impact of self-directed violence by excluding suicidal ideation (more information in methodology). In 2014, there were 13,293 emergency department visits for self-directed violence (including suicidal ideation) in Minnesota, with an overall age-adjusted rate of 256.8 per 100,000 population. Females had higher rates than males with 287.7 and 227.3 per 100,000 population, respectively. The highest rates were found among young women ages 10 to 24 years with a rate of 640.5 per 100,000 population. This did not follow the trend of suicide mortality rates (See chart 3). Hospital visits for self-directed violence were also higher in greater Minnesota than in the metro area (315.5 vs 211.5 per 100,000 population). For more information on the burden of suicide ideation nationally see [Emergency Department Visits Related to Suicidal Ideation, 2006-2013 #220](#)

Suicide Mortality Rate

In 2015, suicide was the tenth leading cause death in the U.S. accounting for over 44,000 deaths. However, it is the second leading cause of death among those ages 15 to 34 years and fourth among those 35 to 44 years. There was an overall age-adjusted rate of 13.3 per 100,000 population (9). This ranged from 8 to 28 per 100,000 population among all states.

In 2015, suicide was Minnesota’s ninth leading cause of death with a mortality rate of 13.2 per 100,000 population. In 2015, 726 suicides were reported, with 78% of the suicides among males (563 deaths). Suicide rates for males were 3.4 times higher compared to females, 20.5 per 100,000 population vs. 5.9 per 100,000 population. The highest mortality rate was among males ages 45 to 54 years (30 per 100,000 population). American Indian/Alaskan Natives had the highest rate of 21.3 per 100,000 population.

Suicides and Self-directed Violence Occur among Different Populations

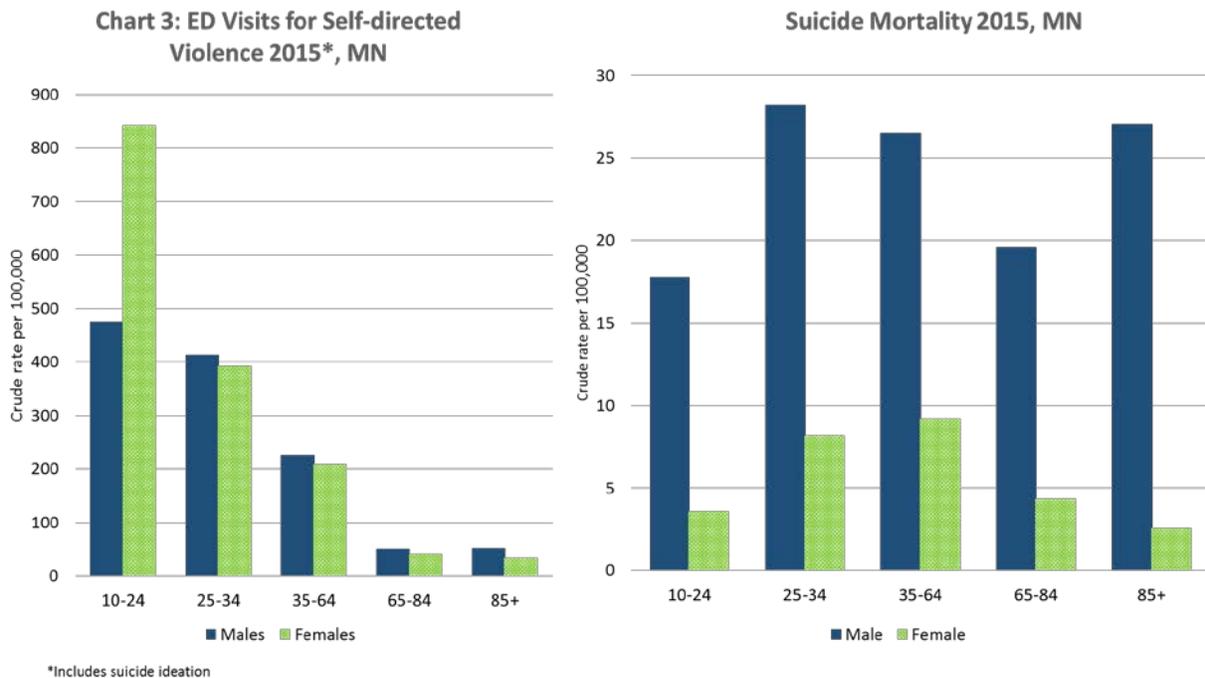


Chart 3: The populations with the highest rates of ED visits for self-directed violence are different than those with the highest suicide mortality rate. ED visits are primarily among young females and decrease with age. Suicides occur mostly in young and middle-aged adult males and have a second peak after age 85. The female rate of suicide is much lower and does not increase again after 85. MDH MIDAS & MN Vital Statistics.

Hospital Discharge Rate for Mental Disorders

Serious mental disorders left untreated can cause significant morbidity, reduced quality of life, and increased burden on health care systems (4). In 2015, mood, depressive, and anxiety disorders contributed to 11.5% of the total years lived with disability (YLDs) in the U.S. and 5.4% of the total disability-adjusted life years lost (DALYs) (12).

In 2014 in Minnesota, the overall age-adjusted rate of hospital discharges for mental disorders was 130.7 per 10,000 population. The highest rate was among those ages 15 to 24 years at 230 per 10,000 population. The rate is higher among men than women, 132.2 vs 123.6 per 10,000 population, and higher in the metro area compared to Greater Minnesota, 134.2 vs 120.3 per 10,000 population. All diagnoses except schizophrenia seem to peak at ages 15 to 24, with schizophrenia peaking among 25 to 34 year olds.

Hospitalizations for Mental Disorders High among Young Adults

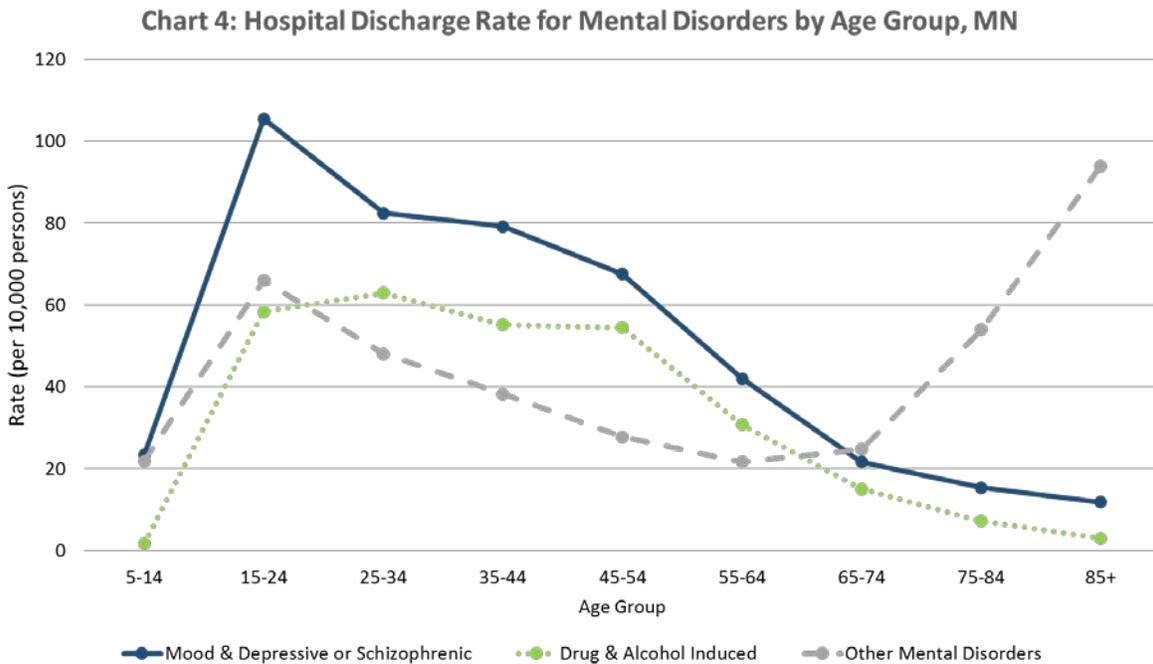


Chart 4: The highest rate of overall hospital discharges for mental disorders was among those aged 15-24 at 230.0 per 10,000 population.

Major Depressive Episodes

Depression is common and is a major cause of disability and morbidity (3, 4). In 2014 to 2015 in the U.S., 6.6% of National Survey on Drug Use and Health (NSDUH) respondents aged 18 and over had at least one major depressive episode in the last year. This ranged from 4.3% to 8.7% among all states. Among respondents ages 12 to 17 years, 11.9% had at least one major depressive episode in the last year. This ranged from 9.9% to 14.6% among all states.

In NSDUH’s 2014-2015 report, 7.3% of respondents aged 18 and over in Minnesota had at least one major depressive episode in the last year. The rate was highest among those ages 12 to 17 years (12.6%). The rate among those 12 to 17 years has increased recently (See chart 5).

Major Depressive Episodes Increasing among Teens

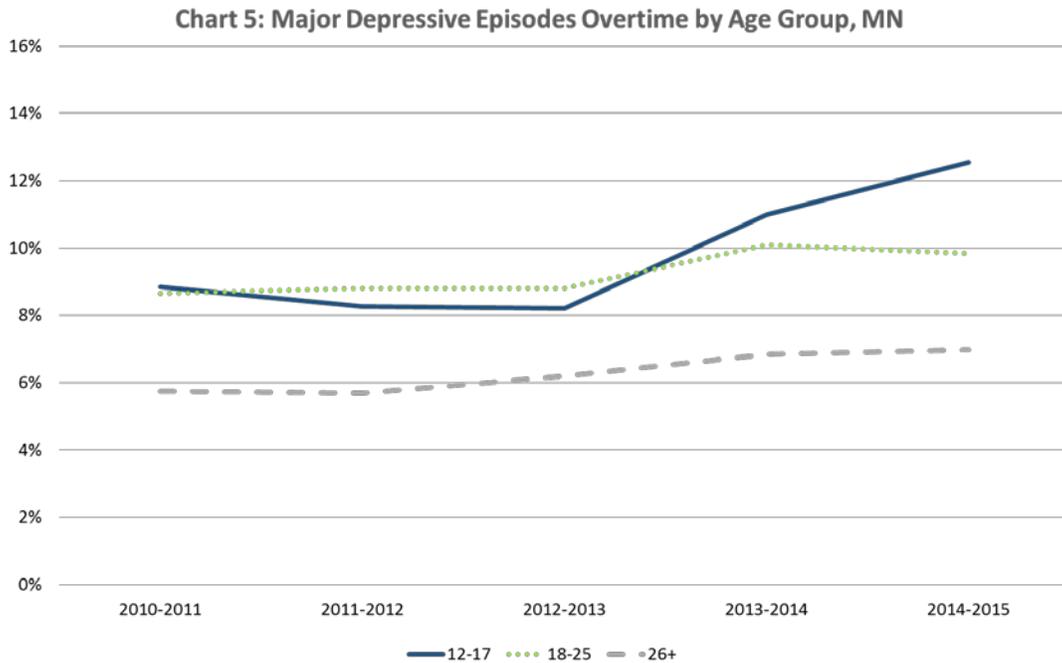


Chart 5: 12.6% (10.5%-15.0%) of those aged 12-17 reported having a major depressive episode within the past year. The rate among those 12-17 increased from 8.2% (2012-2013) to 12.6% (2014-2015). NSDUH.

Mental Illness Prevalence

In 2014 to 2015 in the U.S., 18% of National Survey on Drug Use and Health (NSDUH) respondents aged 18 and over met the criterion of any mental illness in the last year. This ranged from 15.9% to 21.7% among all states.

In NSDUH’s 2014 to 2015 report, 18.8% of respondents aged 18 and over in Minnesota met the criterion of any mental illness in the last year. The rate was higher among those ages 18 to 25 years (22.6%). Not much change in prevalence has occurred in the last few years.

Little Change in Prevalence of Mental Illness

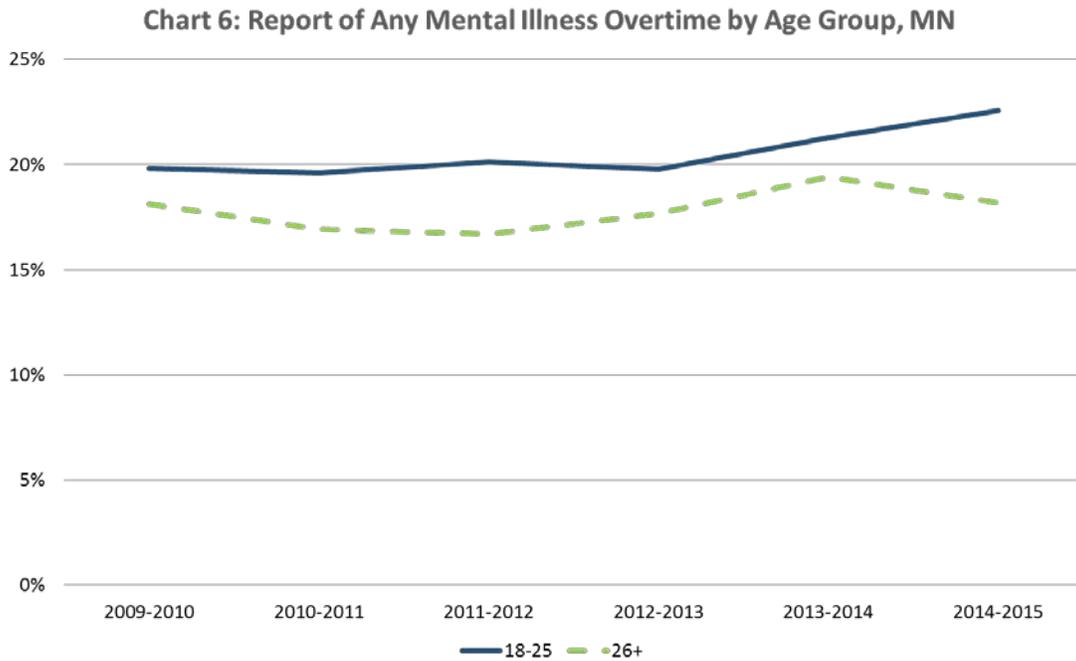


Chart 6: In the NSDUH 2014-2015 report, 18.2% (16.1%-20.4%) of adults aged 18 or older reported having any mental illness in the past year. NSDUH.

Severe Mental Illness

In 2014 to 2015 in the U.S., 4% of National Survey on Drug Use and Health (NSDUH) respondents ages 18 and over met the criterion of a serious mental illness in the last year. This ranged from 3% to 5.4% among all states.

In NSDUH’s 2014-2015 report, 4.3% of respondents ages 18 and over in Minnesota met the criterion of a serious mental illness in the last year. The rate was higher among those ages 18 to 25 years (5.5%). Not much change in prevalence has occurred in the last few years.

Frequent Mental Distress

Frequent mental distress is correlated with mental illness, which can cause morbidity and increase health care costs (3, 4). In 2015 in the U.S., 11.5% of adults had at least 14 days of mental distress in the past 30 days in the Behavioral Risk Factor Surveillance System (BRFSS). This ranged from 7.1% to 15.6% among all states.

In 2015 in Minnesota, 8.7% of adults had at least 14 days of mental distress in the past 30 days (BRFSS). The rate was higher among females compared to males, 10.3% vs 7.1%. It was also higher among those ages 18 to 24 years, 11%, especially among females ages 18 to 24 years (15.2%). The rate was also higher among African Americans (10.8%) and those of multiple races (14%).

Prevention

In 2015, the Minnesota State Suicide Prevention Taskforce and the Minnesota Department of Health (MDH) released the *Minnesota Suicide Prevention Plan: Goals and Objectives for Action 2015-2020* based on the National Strategy for Suicide Prevention. Based on the evidence that most **suicides are preventable, mental illness is treatable, and recovery is possible**, the goal of the plan is to reduce suicide in Minnesota by 10% in 2020 and 20% in 2025.

The plan supports the establishment of community-based programs that provide education, outreach, and advocacy services. The Minnesota Legislature also invested \$47 million in new spending for mental health services and \$348,000 to MDH to support suicide prevention in communities by providing information and grants to implement effective strategies. The Minnesota Violent Death Reporting System, funded federally, is a public health data tool to describe circumstances leading up to deaths to identify areas for intervention.

New federal funding through SAMHSA's Garrett Lee Smith grant targets suicide prevention among 10 to 24 year olds. The goal is to improve the care for youth with suicide ideation or who attempt, identify youth and young adults at high risk, and connecting those at high risk to better care and improving protective factors.

Suicide prevention occurs at the local level through state support; however, everyone has a role in preventing suicide. A public health approach involves improving public awareness and the importance of mental well-being and resilience within the community, promoting supportive public policies, and building community capacity to support mental well-being. It also includes targeting key risk factors. As most people (>90%) who die by suicide have a substance use disorder and/or mental illness (13, 14), interventions such as depression screening and connecting substance abuse treatment patients to mental health services are important. **Data show that most people who think about suicides do not die by suicide, they find hope and help** (15, 16).

Methods

Youth Suicide Attempts: In 2016, the Minnesota Student Survey collected information from 85% of public high schools in Minnesota following a census methodology. It is collected from 9th and 11th graders within the state of Minnesota public schools every 3 years. Participation was voluntary with 71% of ninth graders and 61% of 11th graders participating in the 2016 survey administered during the first half of the year. The prevalence of youth suicide attempts is the proportion that reported attempting suicide within the past year. Those that only reported attempting suicide more than a year ago were not included.

Limitations: Data are based on self-report, with a relatively long 12-month recall period. This indicator is available every three years. As with all self-reported sample surveys, Minnesota Student Survey data might be subject to systematic error resulting from non-coverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). These data only apply to youth who are attending school in regular classrooms, and thus may not be representative of all persons in this age group.

Emergency Department Visits for Self-directed Violence: Data were obtained from Minnesota hospital discharge data. All emergency department visits of acute care, non-federal in state hospital settings are included. Excluded are those with unknown age, out-of-jurisdiction residence, unknown state of residence, non-acute care or federal hospital admission, and admission only for short stays or observation visits. Data were queried from the Minnesota Injury Data Access System (MIDAS) Injury database and Violence database. Those with any primary diagnosis of

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intentional self-injury using ICD-9 codes of E950-E959 first-listed valid E-code in secondary diagnosis field were included. Suicide ideation included a primary diagnosis of V6284 or 3009. Census Bureau was used for population estimates and age-adjusted rates were standardized by direct method to year 2000 standard U.S. population distribution. *Limitations:* Only self-injury presentations to the emergency department are included; persons who do not seek medical care are not counted. Intentionality may be misclassified by clinicians. This indicator does not perfectly measure suicide attempts: for example, injury may be intentional but not intended to result in death. Sequelae of intentional self-injury (E959) are included in this measure and may represent duplicate counts for individual suicide attempts. The Minnesota Injury Data Access System (MIDAS) captures 95% of discharge data in Minnesota, and accounts for only hospitals in Minnesota and bordering facilities. Residents who are treated in other geographic areas are not captured.

Suicide Mortality Rate: Data were obtained from death certificates using ICD-10 codes of X60-X84, Y87.0 for suicides among jurisdiction residents. Census Bureau was used for population estimates and age-adjusted rates were standardized by direct method to year 2000 standard U.S. population distribution.

Limitations: Medical examiners or coroners may misclassify intentionality of death. The proportion of deaths of undetermined intent varies by jurisdiction. The accuracy of indicators based on vital statistics codes is limited by the completeness and quality of coding.

Hospital Discharge Rate for Mental Disorders: Data were obtained from Minnesota hospital discharge data. All hospitalizations of acute care, non-federal in state hospital settings are included. Excluded are those with unknown age, out-of-jurisdiction residence, unknown state of residence, non-acute care or federal hospital admission, and admission only for short stays or observation visits. All jurisdiction residents discharged with primary diagnosis of mental disorder including ICD-9 codes of 290-319 or ICD-10 codes of F10-F48. Mood & Depressive disorders included ICD-9-CM: 296 and 311, ICD-10-CM: F30-F39. Schizophrenic disorders included ICD-9-CM: 295, ICD-10-CM: F20 to F29. Drug & alcohol induced disorders included ICD-9-CM: 291-292, 303-305, ICD-10-CM: F10-F19.

Limitations: Severity of illness resulting in hospital admission varies by locale based on local mental health systems. It is not stratified by other disorders, such as bipolar affective disorder. Admissions with one of the designated codes present only as a secondary diagnosis are excluded. Changes in insurance reimbursement policies, or changes in recommendations for psychiatric diagnosis, may increase or decrease hospitalization rates without reflecting changes in true disease burden.

Mental Illness Prevalence: Data were obtained from the Substance Abuse and Mental Health Services Administration's (SAMHSA) National Survey on Drug Use and Health (NSDUH). Respondents who currently or at any time in the past year having had a diagnosable mental, behavioral, or emotional disorder (excluding developmental and substance use disorders) of sufficient duration to meet diagnostic criteria specified in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders*, without regard to level of functional impairment were counted. Includes responses from all respondents queried during two calendar years.

Limitations: This indicator relies on multiple NSDUH questionnaire items. It relies on self-report and has a long recall period. Classification of respondents does not come from a clinician's diagnosis. The indicator captures information only on non-institutionalized civilian persons (i.e., not in jail, hospitalized long-term or on active duty).

Major Depressive Episodes: Data were obtained from the SAMHSA's National Survey on Drug Use and Health (NSDUH). It calculated the percentage of respondents meeting inclusion criteria for major depressive episode during past 12 calendar months as defined in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders*. Includes responses from all respondents queried during two calendar years.

Limitations: This indicator relies on multiple NSDUH questionnaire items. It relies on self-report and has a long recall period. Classification of respondents does not come from a clinician's diagnosis. The indicator captures information only on non-institutionalized civilian persons (i.e., not in jail, hospitalized long-term or on active duty).

Severe Mental Illness: Data were obtained from the SAMHSA's National Survey on Drug Use and Health (NSDUH). It calculated the percentage of adult NSDUH respondents meeting inclusion criteria, defined as currently or at any time in the past year having had a diagnosable mental, behavioral, or emotional disorder (excluding developmental and substance use disorders) of sufficient duration to meet diagnostic criteria specified in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders*, and that resulted in serious functional impairment substantially interfering with or limiting one or major life activities. Includes responses from all respondents queried during two calendar years. Each respondent is asked about the previous 12 calendar months.

Limitations: This indicator relies on multiple NSDUH questionnaire items. It relies on self-report and has a long recall period. Classification of respondents does not come from a clinician's diagnosis. The indicator captures information only on non-institutionalized civilian persons (i.e., not in jail, hospitalized long-term or on active duty).

Frequent Mental Distress: Using the Behavioral Risk Factor Surveillance System (BRFSS) dataset, we used the proportion of respondents who reported that their mental health was not good for ≥ 14 days in the past month. We used an age-adjusted weighted prevalence per 100 respondents.

Limitations: There is limited validation of the 14-day frequent mental distress method of analyzing responses to this questionnaire item. As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from non-coverage (e.g., on college campuses, residential institutions or military bases), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).

Data Sources

2016: Minnesota Department of Health. Minnesota Student Survey. Published 2016.
County level data available at <http://w20.education.state.mn.us/MDEAnalytics/Data.jsp>

2015: Minnesota Department of Health. Minnesota Injury Data Access System (MIDAS), Violence Data, released 2016.
County level data available.

2014-2015: Minnesota Department of Health. Minnesota Center for Health Statistics, Vital Statistics Death Query, released 2016.
County level data available.

2014: Minnesota Department of Health. Minnesota Hospital Association. Minnesota Hospital Discharge Data.

County level data currently not available for the indicators in this Data Brief, but will become available soon through MDH's Minnesota Injury Data Access System (MIDAS).

<http://www.health.state.mn.us/injury/midas/index.cfm>

2009-2014: Substance Abuse and Mental Health Services Administration's (SAMHSA) National Survey on Drug Use and Health (NSDUH). State Estimates of Substance Use and Mental Disorders, released 2016.

2016: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. Behavioral Risk Factor Surveillance System (BRFSS), released 2016.

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