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Behavioral Health Trends

Introduction

Behavioral health symptoms and diagnoses, which encompass mental health and substance use disorders, are common across adult and pediatric populations in the United States, leading to considerable morbidity, mortality, healthcare utilization, and treatment costs.[1] This issue brief will discuss the epidemiology of depression, anxiety, substance use disorders, and suicidality while highlighting the impact of these conditions on health care costs and clinical outcomes.

Results

Depression, anxiety, substance use disorders (SUDs), and suicidality are common nationwide, as shown in Figures 1 and 2, based on data from the National Survey on Drug Use and Health (NSDUH)[2] and the National Health Interview Survey (NHIS).[3]

Details regarding the methods employed in this investigation are included in the Methodological Supplement.

Prevelance of Common Diagnoses Amongst Adults and Children

Figure 1

Adults (Ages 18 and over)
2018-2023

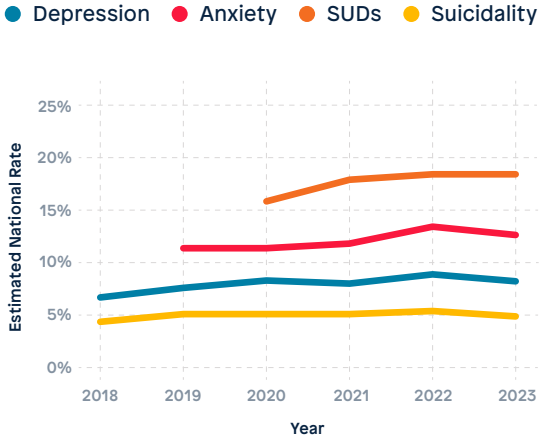
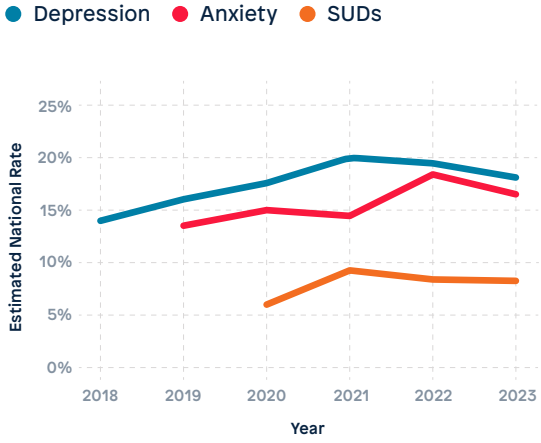


Figure 2

Children (Ages 17 and under)
2018-2023



1 Christensen, M. K., Lim, C. C. W., Saha, S., Plana-Ripoll, O., Cannon, D., Presley, F., Weye, N., Momen, N. C., Whiteford, H. A., Iburg, K. M., & McGrath, J. J. (2020). The cost of mental disorders: A systematic review. Epidemiology and Psychiatric Sciences, 29, e161. Cambridge Core. https://doi.org/10.1017/S2045796020000075X

2 Substance Abuse and Mental Health Services Administration (SAMHSA). (n.d.). National Survey on Drug Use and Health (NSDUH) (Version 2018-2023) [Data set]. Retrieved August 19, 2024, from https://www.datafiles.samhsa.gov/dataset/national-survey-drug-use-and-health-2022-nsduh-2022-ds0001

3 Centers for Disease Control and Prevention (CDC). (n.d.). National Health Interview Survey (Version 2019-2023) [Data set]. Retrieved August 24, 2024, from https://www.cdc.gov/nchs/nhis/index.htm

Trends in Behavioral Health Conditions Among Adults and Children

Anxiety

The percentage of adults experiencing moderate to severe anxiety increased slightly between 2019 and 2023 (10% and 12%, respectively). For those 17 years of age or younger, the report of weekly or daily anxiety symptoms increased from 13% in 2019 to 16% in 2023, with a recent peak of 19% in 2022.

Depression

Among adults, rates of past-year depressive episodes increased from 7% in 2018 to 9% in 2023.[4] The percentage of 12–17-year-olds experiencing a major depressive episode in the past year increased from 14% in 2018 to 18% in 2023 (and peaked at more than 20% in 2021).

Substance use disorders (SUDs)

The occurrence of SUDs, including alcohol and drug use disorders, increased from 15% in 2020 to approximately 18% among adults in 2023. Among children and youth aged 12–17 years, the rate of SUDs increased from 6% in 2020 to 9% in 2023.

Suicidality

Suicidality, though challenging to accurately assess and measure over time, increased slightly among adults between 2018 and 2023 (4% to 5%, respectively). A comparable figure was unavailable for children or adolescents using available data sources.

Details regarding the methods employed in this investigation are included in the Methodological Supplement. Notable trends in the prevalence of each condition are described below and summarized in Table 1.

Table 1

Summary of Trends in the Prevalence of Behavioral Health Conditions (2018 - 2023)

Population	Prevalence Trends (2018 - 2023)		
	Declining	**Stable**	**Increasing**
Children/Adolescents	None	None	Anxiety Depression SUDs
Adults	None	Depression Suicidality	Anxiety SUDs

4 Depression prevalence figures vary across sources as a result of different operational definitions and methodologies. According to Meadows' proprietary methodology, which incorporates data from the 2012-2013 National Epidemiologic Survey on Alcohol and Related Conditions-III (NESARC-III) and models annual changes using U.S. Census-derived demographic adjustments, the prevalence of Major Depressive Disorder (MDD) among adults in 2022 is approximately 10%. Additionally, the U.S. Census Bureau's Household Pulse Survey, which incorporates PHQ-2 data, estimated that 13.2% of adults had symptoms of a depressive disorder in 2024.

Discussion

As was widely reported, the COVID-19 pandemic negatively impacted behavioral health across the age spectrum.[5] Data limitations prevent this issue brief from specifically assessing the impact of COVID-19 on all reported diagnoses and age groups; however, there is evidence in the available data to suggest that adolescent depression was increasing in prevalence before the pandemic, and that this trend accelerated between 2020-2021. Other conditions, such as adult and pediatric anxiety, increased predominately in the initial years of the pandemic. Still other conditions, especially adult depression and adult suicidality, changed negligibly between 2018 and 2023. Of note, for adult and pediatric SUDs, comparable data using the same methodology were not available prior to 2020, so it is challenging to ascertain trends prior to that year, though prevalence for both age groups increased notably after 2020.

> Mental health conditions were rising before COVID-19, but the pandemic accelerated and worsened the trend, leading to broader health impacts and higher healthcare costs.[6]

From a public health perspective, the generally high prevalence of behavioral health conditions is concerning, as it invariably leads to worse general health outcomes, reduced quality of life, lower functional status, and higher overall health costs.[7,8]

5 Carlo, A. D., Barnett, B. S., & Unützer, J. (2021). Harnessing Collaborative Care to Meet Mental Health Demands in the Era of COVID-19. JAMA Psychiatry, 78(4), 355–356. https://doi.org/10.1001/jamapsychiatry.2020.3216

6 Substance Abuse and Mental Health Services Administration (SAMHSA). (n.d.). National Survey on Drug Use and Health (NSDUH) (Version 2018-2023) [Data set]. Retrieved August 19, 2024, from https://www.datafiles.samhsa.gov/dataset/national-survey-drug-use-and-health-2022-nsduh-2022-ds0001

7 Momen, N. C., Plana-Ripoll, O., Agerbo, E., Christensen, M. K., Iburg, K. M., Laursen, T. M., Mortensen, P. B., Pedersen, C. B., Prior, A., Weye, N., & McGrath, J. J. (2022). Mortality Associated With Mental Disorders and Comorbid General Medical Conditions. JAMA Psychiatry, 79(5), 444–453. https://doi.org/10.1001/jamapsychiatry.2022.0347

8 Prince, M., Patel, V., Saxena, S., Maj, M., Maselko, J., Phillips, M. R., & Rahman, A. (2007). No health without mental health. The Lancet, 370(9590), 859–877. https://doi.org/10.1016/S0140-6736(07)61238-0

Impacts to individuals and society, and the cost of care, are prevalent across diagnoses:

Depression's Impact on Physical Health and Economic Costs

The National Institute of Mental Health notes that depression is associated with an increased likelihood of co-morbid chronic diseases such as heart disease, diabetes, stroke, and chronic pain.[9] These adverse physical health conditions are driven by challenges completing health tasks (e.g., exercise), difficulties accessing medical care that could help prevent, detect, or treat chronic disease, and changes in the way the body functions due to depression (e.g., increased inflammation, abnormalities in stress hormones).[10] Additionally, the economic burden of major depressive disorder has increased over time, representing $236.6 billion in 2010 (2020 dollar values) and $326.2 billion in 2018 (2020 dollar values).[11]

High Economic Burden of Anxiety Disorders, Particularly Generalized Anxiety Disorder

High treatment costs have also been noted for anxiety disorders, which are widely known to be underdiagnosed and under-treated, especially in primary care settings.[12] Generalized Anxiety Disorder (GAD) has been associated with impairments in psychosocial functioning, work productivity, and health-related quality-of-life, resulting in an average annual medical cost of almost $6,500 per person.[13]

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9 National Institute of Mental Health (NIMH). (n.d.). Understanding the Link Between Chronic Disease and Depression. Retrieved August 19, 2024, from https://www.nimh.nih.gov/health/publications/chronic-illness-mental-health#:~:text=People%20who%20have%20depression%20are,due%20to%20symptoms%20like%20

10 National Institute of Mental Health (NIMH). (n.d.). Understanding the Link Between Chronic Disease and Depression. Retrieved August 19, 2024, from https://www.nimh.nih.gov/health/publications/chronic-illness-mental-health#:~:text=People%20who%20have%20depression%20are,due%20to%20symptoms%20like%20fatigue

11 Greenberg, P. E., Fournier, A. A., Sisitsky, T., Simes, M., Berman, R., Koenigsberg, S. H., & Kessler, R. C. (2021). The economic burden of adults with major depressive disorder in the United States (2010 and 2018). Pharmacoeconomics, 39(6), 653-665. https://doi.org/10.1007/s40273-021-01019-4

12 Olariu, E., Forero, C. G., Castro-Rodriguez, J. I., Rodrigo-Calvo, M. T., Álvarez, P., Martín-López, L. M., Sánchez-Toto, A., Adroher, N. D., Blasco-Cubedo, M. J., Vilagut, G., Fullana, M. A., & Alonso, J. (2015). Detection of Anxiety Disorders in Primary Care: A Meta-Analysis of Assisted and Unassisted Diagnoses. Depression and Anxiety, 32(7), 471–484. https://doi.org/10.1002/da.22360

13 DiBonaventura, M., Toghanian, S., Järbrink, K., & Locklear, J. (2014). Economic and humanistic burden of illness in generalized anxiety disorder: An analysis of patient survey data in Europe. ClinicoEconomics and Outcomes Research, 151. https://doi.org/10.2147/CEOR.S55429

Understanding the Economic and Human Cost of Substance Use Disorders in America

SUDs, including alcohol and drug use disorders, are associated with immense morbidity and mortality nationwide, especially among working age adults, where the majority of direct treatment costs are incurred.[14] Investigators from the Centers for Disease Control and Prevention (CDC) estimated that between 2001 and 2020, more than 90% of deaths caused by drug or alcohol poisoning and approximately 80% of non-fatal poisoning-related emergency department visits occurred among people between the ages of 20 and 64 years.[15] Furthermore, annual treatment costs attributable to SUDs among employer-sponsored insurance plans have been estimated to be upwards of $15,000 per affected enrollee, totaling more than $35 billion overall.[16] Similarly high treatment costs have been found for public insurance beneficiaries, with one study estimating that average Medicaid spending is twice as high for enrollees with a SUD diagnosis compared with other enrollees – costing upwards of $1,200 per month compared to less than $550 per month, respectively.[17]

> The COVID-19 pandemic accelerated overdose rates, with a significant spike between 2019 and 2020.

The broader societal cost of SUDs extends far beyond finances, as rates of deaths due to drug overdose or accidental poisoning have increased markedly in recent decades. Starting at 6.2 per 100,000 in 2000, the rate surged to 31.4 by 2023, representing a 406% increase, while the total number of these deaths grew from 17,415 to 105,002, marking a 503% increase. The onset of the COVID- 19 pandemic impacted overdose or accidental poisoning rates, which increased by 31% from 21.6 per 100,000 in 2019 to 28.3 in 2020. This trend continued through 2022, with the overdose rate reaching 32.6 per 100,000 in 2022 before slightly decreasing to 31.4 in 2023.[18,19] These trends highlight the urgent need for better solutions to address the ongoing challenge of drug overdoses or accidental poisonings in the United States.

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14 Hernández, A., Lan, M., MacKinnon, N. J., Branscum, A. J., & Cuadros, D. F. (2021). "Know your epidemic, know your response": Epidemiological assessment of the substance use disorder crisis in the United States. PloS One, 16(5), e0251502. https://doi.org/10.1371/journal.pone.0251502

15 Li, M., Peterson, C., Xu, L., Mikosz, C. A., & Luo, F. (2023). Medical Costs of Substance Use Disorders in the US Employer-Sponsored Insurance Population. JAMA Network Open, 6(1), e2252378. https://doi.org/10.1001/jamanetworkopen.2022.52378

16 Li, M. et al., (2023), Medical Costs of Substance Use Disorders in the US Employer-Sponsored Insurance Population, JAMA Network Open, 6(1), e2252378

17 Kaiser Family Foundation. (2024). SUD Treatment in Medicaid: Variation by Service Type, Demographics, States and Spending. https://www.kff.org/mental-health/issue-brief/sud-treatment-in-medicaid-variation-by-service-type-demographics-states-and-spending/#:~:text=Average%20Medicaid%20spending%20is%20twice,%241%2C400%20per%20month%20per%20enrollee.

18 Provisional data are preliminary data that may not yet be complete. These data are subject to change as information continues to be collected and analyzed and may differ from the final counts released in late 2024.

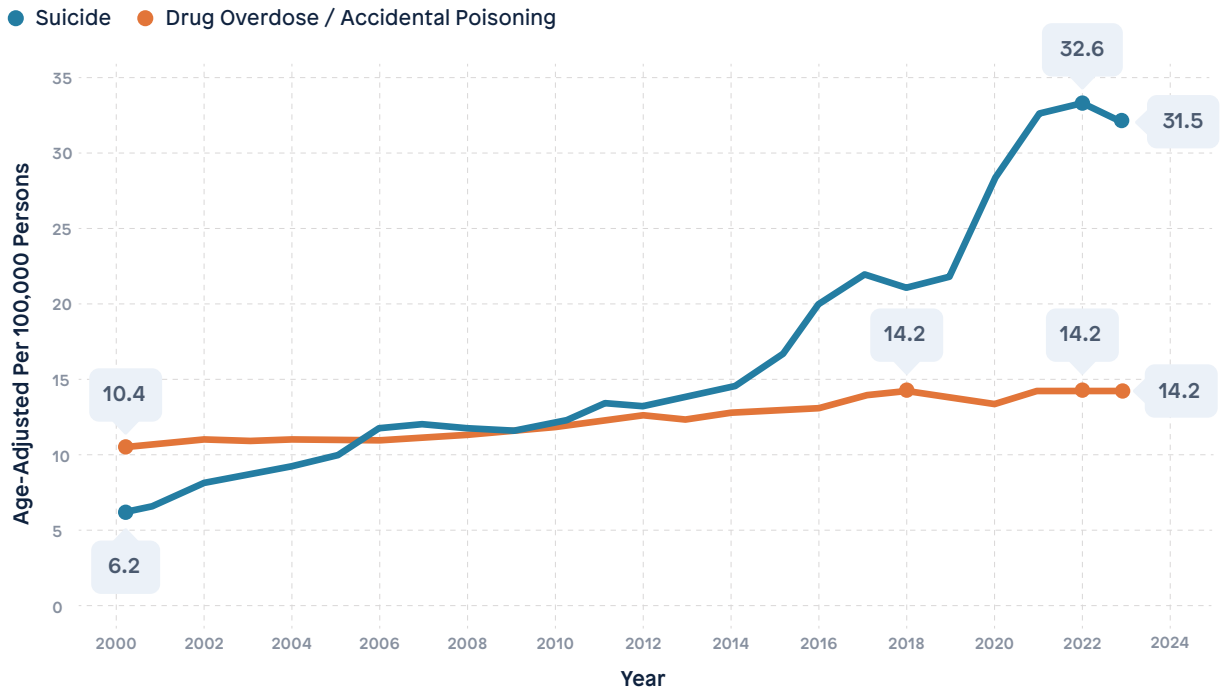
19 Underlying data were abstracted from the Centers for Disease Control and Prevention, National Center for Health Statistics. (2024, August). Data are from the final Multiple Cause of Death Files, 2000-2022, and provisional data for years 2023, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Deaths from suicide are classified using underlying cause-of-death ICD-10 codes U03, X60–X84, and Y87.0. Overdose/accidental poisoning deaths are classified using underlying cause-of-death ICD-10 codes: X40–44, X60–64, X85, and Y10–Y14. http://wonder.cdc.gov/mcd-icd10.html.

Alarming Trends in U.S. Suicide Statistics

Deaths from suicide have increased to unprecedented numbers in the United States. According to the CDC, approximately 50,000 people die from suicide annually, equating to one death every 11 minutes.[20] Roughly 1.5 million people attempt suicide each year,[21] and the age-adjusted suicide rate rose steadily from 10.4 per 100,000 in 2000 to 14.2 in 2023, with the total number of suicide deaths rising by 68% from 29,350 to 49,315. Between 2022 and 2023, the age- adjusted suicide rate remained steady at 14.2 per 100,000, indicating a persistent public health challenge (Figure 3).[22,23] As of 2022, suicide is the second leading cause of death for people 44 years of age and younger.[24]

Figure 3

Mortality from Suicide and Drug Overdose / Accidental Poisoning in the United States, 2000-2023 [25,26,27]



20 Centers for Disease Control and Prevention (CDC). (2024). Suicide Data and Statistics. https://www.cdc.gov/suicide/facts/data.html

21 Centers for Disease Control and Prevention (CDC). (2024). Previously Cited.

22 Provisional data are preliminary data that may not yet be complete. These data are subject to change as information continues to be collected and analyzed and may differ from the final counts released in late 2024.

23 Centers for Disease Control and Prevention, National Center for Health Statistics. (2024, August). Data are from the final Multiple Cause of Death Files, 2000-2022, and from provisional data for years 2023, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Deaths from suicide are classified using underlying cause-of-death ICD-10 codes U03, X60–X84, and Y87.0. Overdose/accidental poisoning deaths are classified using underlying cause-of-death ICD-10 codes: X40–44, X60–64, X85, and Y10–Y14. http://wonder.cdc.gov/mcd-icd10.html

24 Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS) [online]). (2024, August). https://wisqars.cdc.gov/

25 Graphic and interpretation generated by the Meadows Institute. Underlying data were abstracted from the Centers for Disease Control and Prevention, National Center for Health Statistics. (2024, August). Previously Cited.

26 Provisional data are preliminary and may not yet be complete. These data are subject to change as information continues to be collected and analyzed and may differ from the final counts released in late 2024.

27 Causes of death are not mutually exclusive. Therefore, the rates and number of deaths should not be added together, as there is overlap between the causes.

Looking Ahead

Behavioral health symptoms are often under-reported due to associated stigma or social and cultural conceptualizations of health.[28] Without objective measures (e.g., laboratory tests, medical imaging) or standardized clinical interviews to assess behavioral health symptoms, diagnosis is often measured using patient-reported symptoms or observations. Given these challenges, estimated behavioral health prevalence rates often vary considerably.

In the case of depression and other common behavioral health conditions, the rates reported above from the NSDUH and NHIS may differ from those reported through other sources, as criteria for having the disorders often differ across assessments. For example, a widely cited study reported that 28% and 33% of United States adults had depression in 2020 and 2021, respectively, using depression operationalized as a Patient Health Questionnaire-9 (PHQ-9) score of 10 or higher.[29] Conversely, the NSDUH measures depression using the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V) criteria for major depressive episodes in the past year. Another study demonstrated that symptoms of depressive disorders increased from 25% to 30% between August and December 2020, though findings in that evaluation were informed by the four-item Patient Health Questionnaire (PHQ-4) for depression and anxiety and not past-year major depressive episodes.[30] Similar findings have been noted for other conditions and populations, such as anxiety and substance use disorders in children and adolescents and depression in older adults.[31,32]

These examples illustrate the importance of examining the underlying datasets used, methodologies, inclusion or exclusion criteria, and measures to avoid comparing fundamentally different sources when interpreting national psychiatric epidemiology data, especially for psychiatrically under- resourced and disenfranchised populations.[33] Nonetheless, it is important to note that, regardless of the methods or definitions chosen, the prevalences of common behavioral health conditions are substantial at population scale, leading to immense morbidity, mortality and cost. To mitigate the harm from these alarming trends, community leaders, payers, government, and health care entities must partner to promote evidence- based, scalable, equitable, and sustainable solutions.

28 The epidemiology of common behavioral health problems, such as depression, anxiety and substance use disorders, is difficult to measure, describe, and report. All approaches to measuring population rates of health problems are complicated by the limitations of complex data acquisition strategies, stigma, and bias. Other difficulties are more closely related to communicating how diagnoses or symptoms are measured, assessed and reported at population scale.

29 Ettman, C. K. (2022). Persistent depressive symptoms during COVID-19: A national, population-representative, longitudinal study of U.S. adults. The Lancet - Regional Health Americas, 5. https://doi.org/10.1016/j.lana.2021.100091

30 Stephenson, J. (2021). CDC Study Finds Worsening Anxiety and Depression, Especially in Young Adults, During COVID-19 Pandemic. JAMA Health Forum, 4. https://doi.org/10.1001/jamahealthforum.2021.0724

31 Centers for Disease Control and Prevention (CDC). (2022). Mental Health Surveillance Among Children—United States, 2013–2019. https://www.cdc.gov/mmwr/volumes/71/su/su7102a1.htm

32 Zenebe, Y., Akele, B., W/Selassie, M., & Necho, M. (2021). Prevalence and determinants of depression among old age: A systematic review and meta-analysis. Annals of General Psychiatry, 20(1), 55. https://doi.org/10.1186/s12991-021-00375-x

33 Mongelli, F., Georgakopoulos, P., & Pato, M. T. (2020). Challenges and Opportunities to Meet the Mental Health Needs of Underserved and Disenfranchised Populations in the United States. Focus (American Psychiatric Publishing), 18(1), 16–24. https://doi.org/10.1176/appi.focus.20190028

Methodological Supplement[34]

Data presented in Figure 1 were obtained from the National Survey on Drug Use and Health (NSDUH),[35] an annual survey administered by the Substance Abuse and Mental Health Services Administration (SAMHSA) and the National Health Interview Survey (NHIS), an annual survey administered by the Centers for Disease Control and Prevention.[36] Both surveys use a complex sampling design to generate nationally representative estimates on SUDs, mental health, and receipt of treatment among adults, children, and adolescents in the United States.

Anxiety is not directly assessed by the NSDUH. As a result, NHIS was employed for adult and pediatric anxiety prevalence estimates between 2019 and 2023. Of note, NHIS was not used to estimate anxiety prevalence in 2018, as the survey methodology was markedly changed in 2019, making comparisons to years prior to 2019 unfeasible. For adults, the authors employed a framework described by the National Center for Health Statistics[37] and two questions developed by the Washington Group on Disability Statistics (WG) that specifically inquire about anxiety frequency and intensity (WG-ANX).[38] Using this framework, which links answers on the two WG-ANX questions to estimated anxiety severity, the authors coded respondents with "medium" or "high" levels of anxiety as "anxious" for the purposes of this evaluation. For children and adolescents in NHIS, only one WG-ANX question was publicly available – anxiety frequency. As a result, the authors coded participants who reported feeling "worried, nervous, or anxious" either daily or weekly as "anxious" for the purposes of this evaluation.

Important NSDUH methodological considerations are briefly outlined below:

- All measures are self-reported and did not include structured clinical interviews or professional evaluation.
- Measures are limited to major depressive episodes, alcohol or drug use disorder symptoms (as defined by DSM-V criteria) that occurred over the prior 12 months.
- For adults only, the NSDUH asks about suicidal thoughts or behaviors using measures of past year "serious thoughts of suicide," "made any suicide plans," or "attempted suicide." The NSDUH generates a composite variable from these three measures to report the prevalence of suicidality annually.

34 The Meadows Institute constructs annual estimates of behavioral health conditions for children, adolescents and adults. The estimates presented in this issue brief are obtained from other sources and may not reflect the precise prevalence estimates generated using the Meadows Institute's proprietary methodology.

35 Substance Abuse and Mental Health Services Administration (SAMHSA). (2022). Previously Cited.

36 Centers for Disease Control and Prevention (CDC), (n.d.), National Health Interview Survey (Version 2019-2023) [Data set]

37 Centers for Disease Control and Prevention (CDC). (2022). Assessing Anxiety and Depression: A Comparison of National Health Interview Survey Measures [National Health Statistics Reports]. https://www.cdc.gov/nchs/data/nhsr/nhsr172.pdf

38 Centers for Disease Control and Prevention (CDC), (n.d.), National Health Interview Survey (Version 2019-2023) [Data set]

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