

The CBHSQ Report

Short Report

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STATE ESTIMATES OF MAJOR DEPRESSIVE EPISODE AMONG ADOLESCENTS: 2013 AND 2014

AUTHORS

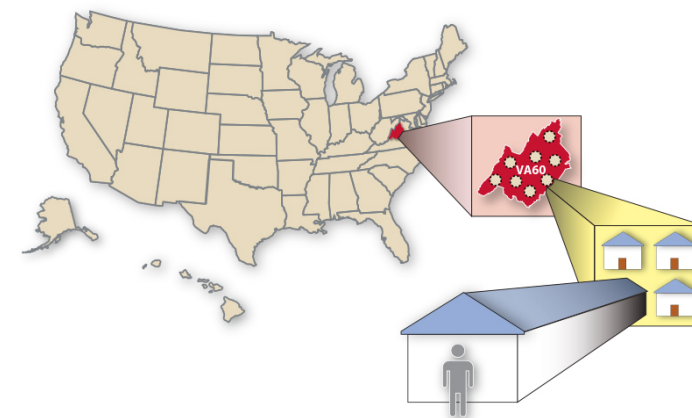
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INTRODUCTION

Depression affects adolescents in every part of the United States. Depression has been shown to affect adolescents' physical, emotional, and social development. Adolescents who suffer from depression are at increased risk for substance use, high-risk sexual behaviors, problems at school, problems with peer and family relationships, and suicide attempts.^{1,2} Like many mental disorders, depression can emerge during adolescence,³ and the prevalence of major depressive episode (MDE) generally increases with age through the adolescent years.⁴ Studies have shown that there is nearly a twofold increase in mood disorders from the 13- and 14-year-old age group to the 17- and 18-year-old age group.⁵ Because adolescent depression is a problem in every American community, this report provides state-level information on the prevalence of depression among adolescents. This information can inform policymakers' and prevention specialists' efforts to develop effective education, treatment, and prevention programs in their communities.

The National Survey on Drug Use and Health (NSDUH) provides up-to-date estimates of MDE and treatment for depression among adolescents. NSDUH asks adolescents aged 12 to 17 about past year symptoms to determine whether they had MDE in the past year. MDE is defined using the diagnostic criteria from the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders*.⁶ Adolescents were assessed as having MDE if they had a period of 2 weeks or longer during which they had either depressed mood or loss of interest or pleasure in usual activities, as well as at least four other symptoms that reflect a change in functioning, such as problems with sleep, eating, energy, concentration, and self-worth.

This issue of *The CBHSQ Report* uses data from NSDUH to present state (including the District of Columbia) estimates of past year MDE among adolescents aged 12 to 17.⁷ Findings in this report are annual averages based on combined 2013–2014 NSDUH data from 39,600 adolescent respondents. Comparisons are made with combined 2012–2013 data to examine changes over time; 2012–2013 data are based on information obtained from 45,000 adolescents aged 12 to 17.⁸ The inclusion of a common year (i.e., 2013) in these comparisons increases the precision of the estimates and the ability to detect statistically



In Brief

- Based on combined 2013–2014 National Surveys on Drug Use and Health, about 1 in 9 (11.0 percent) adolescents aged 12 to 17 across the United States had a major depressive episode (MDE) in the past year—or roughly 2.7 million of the 24.9 million adolescents in the nation.
- Rates of adolescent past year MDE in 2013–2014 varied across the states, ranging from 8.7 percent in the District of Columbia to 14.6 percent in Oregon.
- Compared with the estimate from combined 2012–2013 data, the estimate of adolescent past year MDE in 2013–2014 was higher in the nation as a whole (9.9 percent in 2012–2013 vs. 11.0 percent in 2013–2014).
- Thirteen states experienced a statistically significant increase from 2012–2013 to 2013–2014 in the rate of adolescent past year MDE, while the remaining 37 states and the District of Columbia experienced no change in the percentage of adolescents who had an MDE in the past year.

significant differences between the two periods. Statistically significant differences between 2012–2013 and 2013–2014 indicate average annual change between 2012 and 2014. All changes discussed in this report are statistically significant at the .05 level of significance.

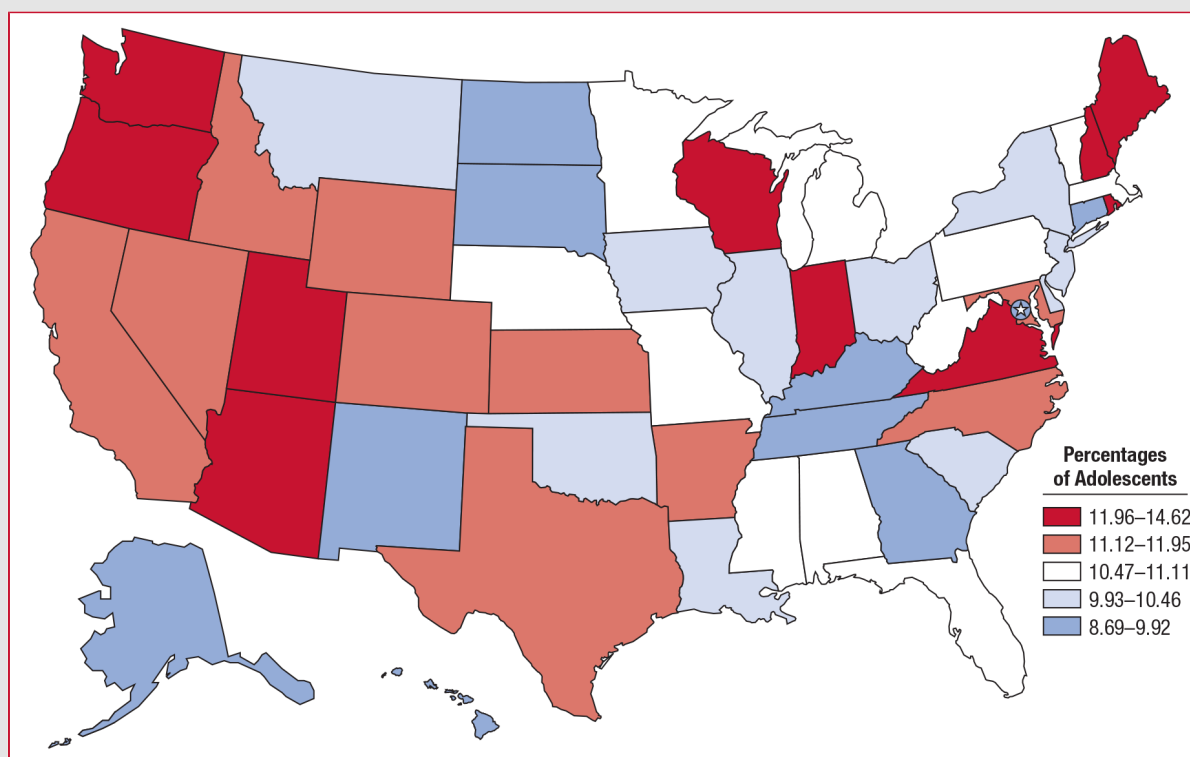
Estimates are displayed in a U.S. map (Figure 1) and in Table 1. For the estimates displayed in Table 1, states are listed alphabetically. Ninety-five percent confidence intervals are included as a measure of precision for each estimate. To produce the 2013–2014 MDE map (Figure 1), state estimates shown to two decimal places were first rank ordered from lowest to highest and then divided into quintiles (fifths). States with the lowest estimates (i.e., the lowest fifth) are assigned to the bottom quintile and are shown in dark blue. States with the highest estimates are assigned to the top quintile and are shown in dark red. All other states are assigned to one of three quintiles between the lowest and highest quintiles. A supporting table associated with the map (Table S1) provides estimates that are rank ordered from highest to lowest and then divided into quintiles.⁹

STATE ESTIMATES OF ADOLESCENT PAST YEAR MAJOR DEPRESSIVE EPISODE

The combined 2013–2014 data indicate that across the United States, about 1 in 9 (11.0 percent) or 2.7 million of the 24.9 million adolescents in the nation had an MDE in the past year. Rates of adolescent past year MDE ranged from 8.7 percent in the District of Columbia to 14.6 percent in Oregon (Figure 1).

Of the 10 states with the highest rates of past year MDE among adolescents, 4 were in the West (Oregon, Arizona, Utah, and Washington), 3 were in the Northeast (Rhode Island, Maine, and New Hampshire), 2 were in the Midwest (Wisconsin and Indiana), and 1 was in the South (Virginia).¹⁰ Of the 10 states with the lowest rates of past year MDE among adolescents, 4 were in the South (Tennessee, Georgia, Kentucky, and the District of Columbia), 3 were in the West (Alaska, New Mexico, and Hawaii), 2 were in the Midwest (North Dakota and South Dakota), and 1 was in the Northeast (Connecticut).

Figure 1. Major depressive episode in the past year among adolescents aged 12 to 17, by state: percentages, annual averages, 2013-2014



Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health (NSDUHs), 2013 and 2014.

Table 1. Major depressive episode in the past year among adolescents aged 12 to 17, by state: percentages, annual averages, combined 2012-2013 and combined 2013-2014

State	Annual averages: 2012–2013		Annual averages: 2013–2014	
	Estimate	95% Confidence interval	Estimate	95% Confidence interval
National	9.86*	(9.48–10.26)	11.01	(10.59–11.44)
Alabama	9.56	(7.86–11.57)	10.74	(8.87–12.94)
Alaska	9.40	(7.74–11.36)	9.92	(8.11–12.07)
Arizona	10.91*	(9.02–13.14)	13.23	(10.93–15.92)
Arkansas	10.17*	(8.42–12.25)	11.95	(9.86–14.42)
California	10.48	(9.37–11.71)	11.53	(10.34–12.83)
Colorado	9.66*	(7.93–11.73)	11.68	(9.63–14.11)
Connecticut	9.40	(7.70–11.43)	9.70	(7.86–11.92)
Delaware	9.44	(7.74–11.45)	10.44	(8.65–12.55)
District of Columbia	7.38	(5.93–9.15)	8.69	(7.02–10.70)
Florida	9.64	(8.60–10.79)	10.50	(9.32–11.82)
Georgia	8.49	(6.93–10.35)	9.80	(8.05–11.89)
Hawaii	9.75	(7.94–11.92)	9.32	(7.57–11.41)
Idaho	10.55	(8.86–12.52)	11.55	(9.60–13.84)
Illinois	9.31	(8.27–10.46)	10.17	(8.92–11.57)
Indiana	9.82*	(8.08–11.88)	12.19	(10.13–14.60)
Iowa	10.03	(8.34–12.03)	10.35	(8.50–12.55)
Kansas	9.87	(8.16–11.90)	11.34	(9.45–13.55)
Kentucky	9.09	(7.55–10.90)	9.34	(7.66–11.33)
Louisiana	9.31	(7.68–11.25)	10.06	(8.27–12.19)
Maine	11.20	(9.39–13.31)	12.04	(9.91–14.57)
Maryland	10.28	(8.50–12.39)	11.33	(9.31–13.73)
Massachusetts	8.61*	(7.03–10.50)	11.11	(9.18–13.38)
Michigan	10.19	(9.11–11.38)	10.55	(9.34–11.91)
Minnesota	8.20*	(6.63–10.10)	10.98	(9.11–13.17)
Mississippi	8.98	(7.39–10.86)	10.59	(8.73–12.78)
Missouri	9.91	(8.25–11.86)	10.78	(8.90–13.00)
Montana	9.23	(7.67–11.07)	10.21	(8.35–12.43)
Nebraska	8.80*	(7.12–10.83)	10.97	(9.00–13.31)
Nevada	9.62*	(7.99–11.55)	11.64	(9.59–14.07)
New Hampshire	10.27*	(8.60–12.23)	12.00	(10.06–14.25)
New Jersey	9.06	(7.47–10.93)	10.22	(8.48–12.28)
New Mexico	10.73	(8.94–12.83)	9.79	(7.99–11.95)
New York	8.76*	(7.71–9.94)	10.46	(9.23–11.84)
North Carolina	9.64*	(7.88–11.74)	11.44	(9.54–13.67)
North Dakota	7.95*	(6.43–9.80)	9.68	(7.89–11.84)
Ohio	9.81	(8.80–10.92)	10.33	(9.11–11.71)
Oklahoma	9.23	(7.63–11.13)	10.29	(8.37–12.59)
Oregon	12.65*	(10.44–15.26)	14.62	(12.15–17.49)
Pennsylvania	9.54	(8.49–10.70)	10.73	(9.44–12.18)
Rhode Island	11.32	(9.36–13.64)	12.86	(10.66–15.43)
South Carolina	9.44	(7.89–11.27)	9.95	(8.24–11.97)
South Dakota	8.61	(6.98–10.57)	8.95	(7.16–11.13)
Tennessee	9.39	(7.73–11.36)	9.91	(8.14–12.02)
Texas	10.47	(9.38–11.66)	11.25	(9.99–12.63)
Utah	11.45	(9.43–13.85)	12.47	(10.37–14.94)
Vermont	9.50	(7.79–11.54)	11.01	(9.07–13.30)
Virginia	10.96	(9.06–13.21)	12.02	(10.11–14.23)
Washington	11.08	(9.28–13.19)	12.05	(10.08–14.34)
West Virginia	9.34	(7.77–11.18)	10.92	(9.17–12.95)
Wisconsin	11.40	(9.44–13.70)	12.30	(10.23–14.72)
Wyoming	10.41	(8.72–12.38)	11.68	(9.72–13.97)

* Difference between 2012–2013 and 2013–2014 is statistically significant at the .05 level.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health (NSDUHs), 2012, 2013, and 2014.

CHANGES OVER TIME

When the 2012–2013 national MDE estimate was compared with the 2013–2014 estimate, the nation as a whole experienced a statistically significant increase in the rate of past year MDE among adolescents (9.9 percent in 2012–2013 to 11.0 percent in 2013–2014) (Table 1). On an individual state level, 13 states experienced a statistically significant increase in the rate of adolescent past year MDE. The remaining 37 states and the District of Columbia experienced no change in the percentage of adolescents who had an MDE in the past year.

DISCUSSION

Addressing adolescents' mental health needs is fundamental to the future of the nation and each state. The NSDUH data in this report show that depression is a challenge for nearly 2.7 million adolescents in the United States. As shown in Figure 1, adolescent depression occurs in every state. To put this in context, in nearly every state, at least 1 in 10 adolescents had an MDE in the past year.

In addition to understanding the current prevalence of MDE among adolescents, it is also useful to monitor the MDE trends. This issue of *The CBHSQ Report* finds that past year MDE among adolescents in the United States has become more common in the nation overall and in several states. The short-term trends in adolescent MDE show that the rates of past year MDE have increased between 2012–2013 and 2013–2014 in 13 states and have remained the same in the remaining 37 states and the District of Columbia. This is in contrast to past year MDE rates among adults aged 18 or older where there were no increases between 2012–2013 and 2013–2014.¹¹ Among adults aged 18 or older, 47 states experienced no change in past year MDE between 2012–2013 and 2013–2014, while declines were observed in the remaining 4 states (Michigan, Oklahoma, Texas, and Utah).¹¹ The findings in this report suggest a continuing need for programs to address depression among adolescents.

Highlighting the prevalence of adolescent MDE at the state level may help state and local prevention specialists in their efforts to raise awareness of the signs of adolescent depression, to increase screening for adolescent depression, and to more widely disseminate information on the availability of treatment for adolescents with MDE. Despite the effectiveness of treatment for depression and the variety of treatment options available, nearly two-thirds of adolescents who had past year MDE did not receive treatment for depression in the past year.¹² Resources to help parents, teachers, and caregivers to recognize the signs and symptoms of adolescent depression and to locate mental health services are available from the Substance Abuse and Mental Health Services Administration at <http://www.samhsa.gov/children> and the U.S. Department of Health and Human Services at <http://www.mentalhealth.gov/talk/parents-caregivers/index.html>.

ENDNOTES

1. Keenan-Miller, D., Hammen, C. L., & Brennan, P. A. (2007). Health outcomes related to early adolescent depression. *Journal of Adolescent Health, 41*, 256-262.
2. Bhatia, S. K., & Bhatia, S. C. (2007). Childhood and adolescent depression. *American Family Physician, 75*, 73-80.
3. Kessler, R. C., Amminger, G. P., Aguilar-Gaxiola, S., Alonso, J., Lee, S., & Ustün, T. B. (2007). Age of onset of mental disorders: A review of recent literature. *Current Opinion in Psychiatry, 20*(4), 359-364.
4. Center for Behavioral Health Statistics and Quality. (2011). *The NSDUH Report: Major depressive episode and treatment among adolescents: 2009*. Rockville, MD: Substance Abuse and Mental Health Services Administration.
5. Merikangas, K. R., He, J.-P., Burstein, M., Swanson, S. A., Avenevoli, S., Cui, L., et al. (2010). Lifetime prevalence of mental disorders in U.S. adolescents: Results from the National Comorbidity Survey Replication-Adolescent Supplement (NCS-A). *Journal of the American Academy of Child and Adolescent Psychiatry, 49*(10), 980-989.
6. American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
7. All estimates in this report are based on a small area estimation (SAE) methodology in which state-level NSDUH data are combined with local-area county and census block group/tract-level data from the state. This model-based methodology provides more precise estimates of substance use at the state level than those based solely on the sample, particularly for smaller states. The precision of the SAE estimates, particularly for states with smaller sample sizes, can be improved significantly by combining data across 2 years (i.e., 2012 and 2013, 2013 and 2014).
8. The difference in sample sizes between 2012-2013 and 2013-2014 is due to a sample redesign in 2014. For additional information, go to <http://www.samhsa.gov/data/>.
9. In this report, state estimates are discussed in terms of their observed rankings because they provide useful context. However, a state having a highest or lowest estimate does not imply that the state's estimate is significantly higher or lower than the estimate of the next highest or lowest state. Similarly, the quintiles were not selected to represent statistical differences across quintiles or to correspond to proximity to a target public health threshold for a particular measure. For example, the division of states into quintiles does not indicate that states in the same quintile are statistically similar to each other. Although a nearly equal number of states are contained in each quintile, the size of the intervals (i.e., the difference between the upper and lower limits of each quintile) that define the map boundaries is not necessarily uniform across each quintile. When comparing two state prevalence rates, the method of overlapping confidence intervals is more conservative (i.e., it rejects the null hypothesis of no difference less often) than the standard method based on Z statistics when the null hypothesis is true. Even if confidence intervals for two states overlap, the two estimates may be declared significantly different by the test based on Z statistics. Hence, the method of overlapping confidence intervals is not recommended to test the difference of two state estimates. A detailed description of the method of overlapping confidence intervals and its comparison with the standard methods for testing of a hypothesis is given in the following articles: (a) Schenker, N., & Gentleman, J. F. (2001). On judging the significance of differences by examining the overlap between confidence intervals. *American Statistician, 55*(3), 182-186. (b) Payton, M. E., Greenstone, M. H., & Schenker, N. (2003). Overlapping confidence intervals or standard error intervals: What do they mean in terms of statistical significance? *Journal of Insect Science, 3*, 34.
10. The West has 13 states: AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, and WY. The South has 16 states plus the District of Columbia: AL, AR, DE, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, and WV. The Northeast has 9 states: CT, MA, ME, NH, NJ, NY, PA, RI, and VT. The Midwest has 12 states: IA, IL, IN, KS, MI, MN, MO, ND, NE, OH, SD, and WI.
11. Tables containing MDE rates for adolescents in 2012 and 2013 and MDE rates for adults in 2013 and 2014 can be obtained at <http://www.samhsa.gov/data/>.
12. Center for Behavioral Health Statistics and Quality. (2015). *Receipt of services for behavioral health problems: Results from the 2014 National Survey on Drug Use and Health*. Retrieved from <http://www.samhsa.gov/data/>

SUGGESTED CITATION

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Table S1. Major depressive episode in the past year among adolescents aged 12 to 17, by quintile group and size of state estimate: percentages, annual averages, 2013-2014

State	Census region	Percentage of adolescents	Quintile group ¹
Oregon	West	14.62	5
Arizona	West	13.23	5
Rhode Island	Northeast	12.86	5
Utah	West	12.47	5
Wisconsin	Midwest	12.30	5
Indiana	Midwest	12.19	5
Washington	West	12.05	5
Maine	Northeast	12.04	5
Virginia	South	12.02	5
New Hampshire	Northeast	12.00	5
Arkansas	South	11.95	4
Colorado	West	11.68	4
Wyoming	West	11.68	4
Nevada	West	11.64	4
Idaho	West	11.55	4
California	West	11.53	4
North Carolina	South	11.44	4
Kansas	Midwest	11.34	4
Maryland	South	11.33	4
Texas	South	11.25	4
Massachusetts	Northeast	11.11	3
Vermont	Northeast	11.01	3
Minnesota	Midwest	10.98	3
Nebraska	Midwest	10.97	3
West Virginia	South	10.92	3
Missouri	Midwest	10.78	3
Alabama	South	10.74	3
Pennsylvania	Northeast	10.73	3
Mississippi	South	10.59	3
Michigan	Midwest	10.55	3
Florida	South	10.50	3
New York	Northeast	10.46	2
Delaware	South	10.44	2
Iowa	Midwest	10.35	2
Ohio	Midwest	10.33	2
Oklahoma	South	10.29	2
New Jersey	Northeast	10.22	2
Montana	West	10.21	2
Illinois	Midwest	10.17	2
Louisiana	South	10.06	2
South Carolina	South	9.95	2
Alaska	West	9.92	1
Tennessee	South	9.91	1
Georgia	South	9.80	1
New Mexico	West	9.79	1
Connecticut	Northeast	9.70	1
North Dakota	Midwest	9.68	1
Kentucky	South	9.34	1
Hawaii	West	9.32	1
South Dakota	Midwest	8.95	1
District of Columbia	South	8.69	1

Note: Quintile boundaries corresponding to Figure 1 are 1=8.69 to 9.92 percent, 2=9.93 to 10.46 percent, 3=10.47 to 11.11 percent, 4=11.12 to 11.95 percent, and 5=11.96 to 14.62 percent.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health (NSDUHs), 2013 and 2014.

SUMMARY

Background: Adolescents aged 12 to 17 are at a higher risk of depression than many other age groups. Because states have been at the center of efforts to address depression among adolescents, it is useful to monitor changes in the prevalence of major depressive episodes (MDEs) among this age group at the state level. **Method:** Combined 2013 and 2014 National Surveys on Drug Use and Health (NSDUHs) state (including the District of Columbia) estimates of past year MDEs among adolescents aged 12 to 17 were analyzed. Additionally, the combined 2013–2014 data are compared with combined 2012–2013 data to examine changes over time. **Results:** Based on combined 2013 and 2014 NSDUH data, in nearly every state, at least 1 in 10 adolescents had an MDE in the past year. Findings in this report suggest that short-term trends in adolescent MDE have increased between 2012–2013 and 2013–2014 in 13 states and have remained the same in the remaining 37 states and the District of Columbia. **Conclusion:** Highlighting the prevalence of depression among adolescents in each state, as well as monitoring changes, may help policymakers continue to raise awareness about the mental health of adolescents.

Keywords: depression, major depressive episode, adolescents, National Survey on Drug Use and Health, NSDUH

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KEYWORDS

All US States and Territories, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming, Short Report, Population Data, 2013, 2014, Adolescents as Audience, Depression, Adolescents as Population Group

The Substance Abuse and Mental Health Services Administration (SAMHSA) is the agency within the U.S. Department of Health and Human Services that leads public health efforts to advance the behavioral health of the nation. SAMHSA's mission is to reduce the impact of substance abuse and mental illness on America's communities.

The National Survey on Drug Use and Health (NSDUH) is an annual survey sponsored by SAMHSA. The data used in this report are based on information obtained from adolescents aged 12 to 17 (39,600 in 2013–2014 and 45,000 in 2012–2013). NSDUH collects data by administering questionnaires to a representative sample of the population through face-to-face interviews at their place of residence.

The CBHSQ Report is prepared by the Center for Behavioral Health Statistics and Quality (CBHSQ), SAMHSA, and by RTI International in Research Triangle Park, North Carolina. (RTI International is a registered trademark and a trade name of Research Triangle Institute.)

Information on the most recent NSDUH is available in the following publication:

Center for Behavioral Health Statistics and Quality. (2015). *Behavioral health trends in the United States: Results from the 2014 National Survey on Drug Use and Health* (HHS Publication No. SMA 15-4927, NSDUH Series H-50). Retrieved from <http://www.samhsa.gov/data/>

Also available online: <http://www.samhsa.gov/data/population-data-nsduh>.



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