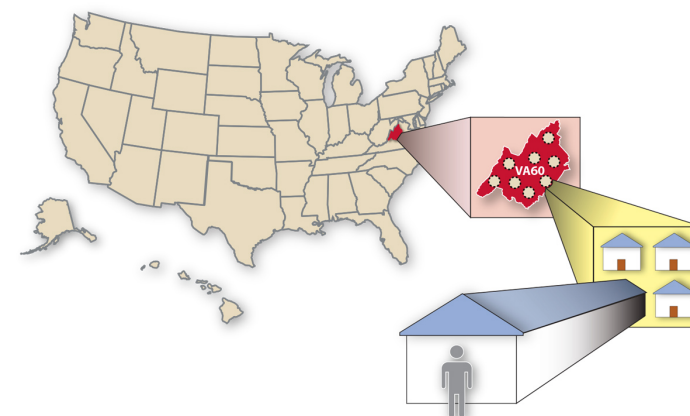


The CBHSQ Report

Short Report

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STATE ESTIMATES OF ADOLESCENT MARIJUANA USE AND PERCEPTIONS OF RISK OF HARM FROM MARIJUANA USE: 2013 AND 2014



AUTHORS

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INTRODUCTION

Marijuana is the most commonly used illicit drug in the United States for the population overall and for youths in particular.¹ Although the laws regarding marijuana use have changed in a number of states over the past decade, marijuana use remains illegal under federal laws in all states (e.g., the Controlled Substances Act; <http://www.fda.gov/regulatoryinformation/legislation/ucm148726.htm>).

Research has indicated that there are health risks associated with youth marijuana use,² including poorer education/employment outcomes,³ poorer cognitive outcomes,^{4,5} increased likelihood of vehicle crashes,⁶ and increased addiction risk.⁷ Even though research indicates that youth marijuana use is a health risk, nationally only 1 in 5 adolescents perceived great risk from monthly marijuana use in 2014, which is lower than in any other year from 2002 to 2013.⁸ Preventing adolescents from starting to use marijuana is an effective way to reduce the impact of marijuana use in the future. Thus, it is useful for state policymakers and prevention specialists to assess recent trends in youths' marijuana use and their perception of the great risk of harm to their health from marijuana use.

All states continue efforts to reduce adolescent marijuana use. As longitudinal research has shown, youth attitudes about the risks associated with substance use are often closely related to their use, with an inverse association between use and risk perceptions (i.e., the prevalence of use is lower among those who perceive high risk of harm from use).⁹ Thus, states with a high prevalence of adolescent marijuana use would be expected to have a low prevalence of adolescent perception that there is a great health risk from using marijuana. State-level information about marijuana use and attitudes about marijuana use can provide states with vital data to inform educational and prevention efforts.

This issue of *The CBHSQ Report* uses National Surveys on Drug Use and Health (NSDUH) data to present national and state (including the District of Columbia) estimates of past month marijuana use and perceptions of great risk from smoking marijuana once a month among youths aged 12 to 17.¹⁰ Estimates are annual averages based on combined 2013 and 2014 NSDUH data from 39,600 respondents.¹⁰ The combined 2013-2014 estimates are compared to estimates from combined 2012-2013 data, which are based on responses from 45,000 youths aged 12 to 17.¹¹

In Brief

- Based on 2013-2014 data, 7.22 percent of adolescents aged 12 to 17 across the nation used marijuana in the past month. Adolescent marijuana use ranged from 4.98 percent in Alabama to 12.56 percent in Colorado.
- In 2013-2014, about one out of four (23.54 percent) adolescents nationwide perceived great risk in smoking marijuana once a month (i.e., monthly use), ranging from 15.72 percent in the District of Columbia to 32.75 percent in Utah.
- Adolescent marijuana use remained unchanged in 48 states and declined in 3 (comparing 2013-2014 estimates to 2012-2013 estimates). However, youth perceptions of great risk of harm from monthly marijuana use decreased in 14 states, while 37 states experienced no change.

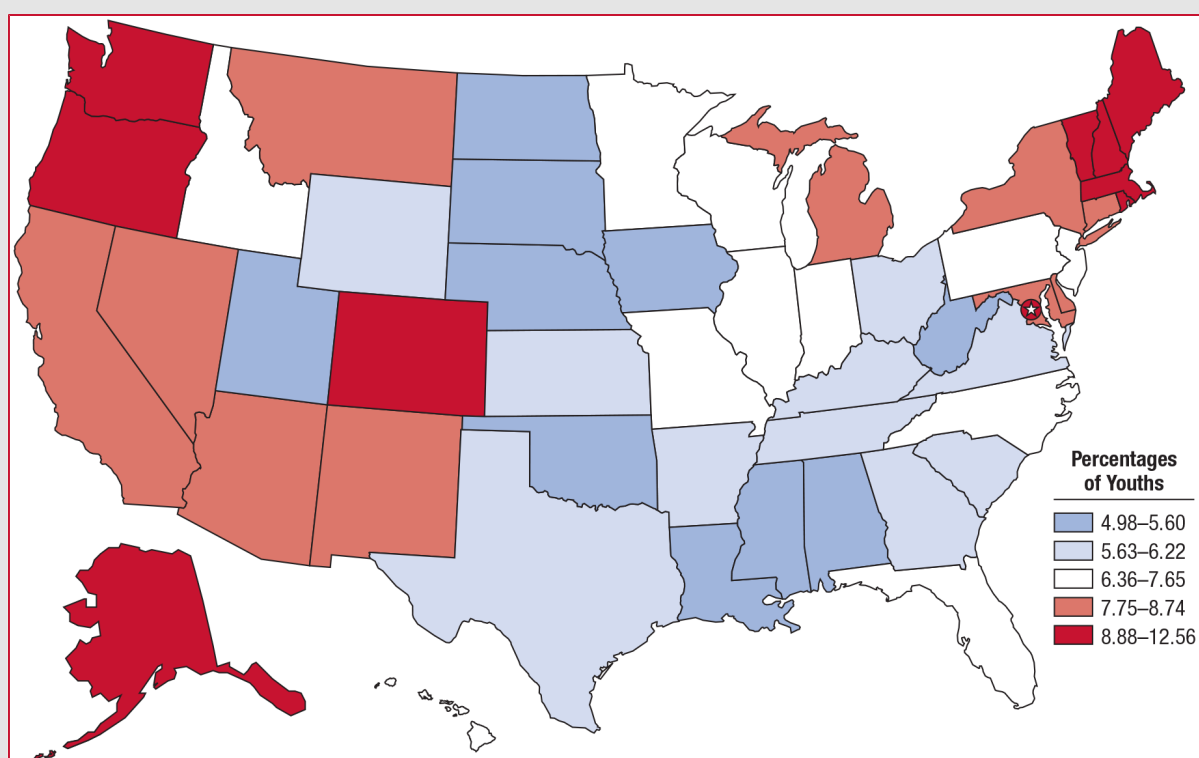
Estimates are displayed in U.S. maps and tables. To produce the marijuana use map (Figure 1), state estimates were first rank ordered from lowest to highest and then divided into quintiles (fifths). States with the lowest estimates (i.e., the lowest fifth) are assigned to the bottom quintile and are 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. Figure 2, the map showing perceived great risk from smoking marijuana monthly, was produced in a similar fashion, except that the rank ordering was done in reverse order so that the lower estimates of youths' perceptions of risk of marijuana use are assigned to the top quintile and are shown in dark red. Supporting tables associated with the maps (Tables S1 and S2) provide estimates that are rank ordered from highest to lowest and divided into quintiles (fifths).¹²

Tables 1 and 2 show comparisons between estimates for combined 2013–2014 data and estimates for combined 2012–2013 data to examine changes over time. In these tables, estimates for the states are listed alphabetically. Ninety-five percent confidence intervals are included as a measure of precision for each estimate. Figure 3 is a map summarizing these changes (supporting Table S3). The inclusion of a common year (i.e., 2013) in these comparisons increases the precision of the estimates and the ability to detect statistically significant differences between the two time periods. Statistically significant differences between 2013–2014 and 2012–2013 indicate average annual changes between 2012 and 2014. All changes discussed in this report are statistically significant at the .05 level.¹³

STATE ESTIMATES OF ADOLESCENT PAST MONTH MARIJUANA USE

The combined 2013–2014 NSDUH data indicate that across the United States about 1 in 14 (7.22 percent) adolescents aged 12 to 17 used marijuana in the past month. This percentage corresponds to approximately 1.8 million adolescents using marijuana in the past month. Rates of adolescent past month marijuana use ranged from 4.98 percent in Alabama to 12.56 percent in Colorado (Figure 1; Table S1).

Figure 1. Marijuana use in the past month among youths 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.

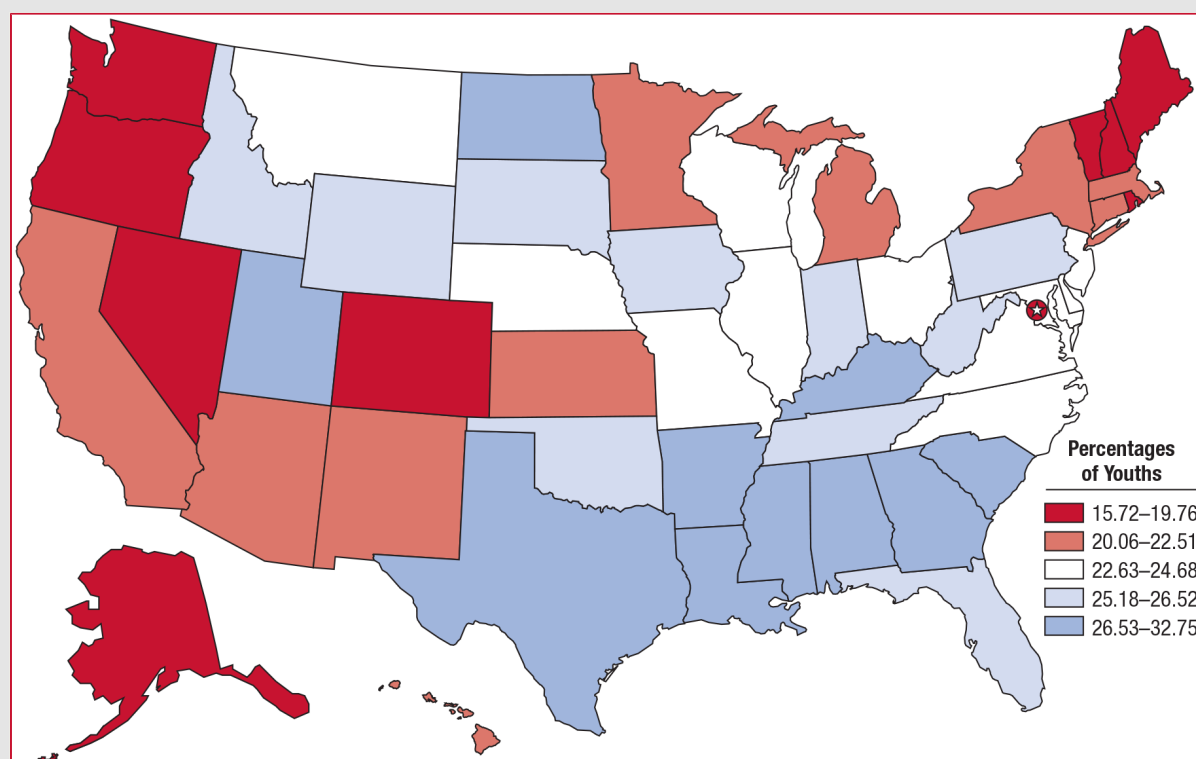
Of the 10 states with the highest rates of past month marijuana use among adolescents, 5 were in the Northeast (Vermont, Rhode Island, Maine, New Hampshire, and Massachusetts), 4 were in the West (Colorado, Oregon, Washington, and Alaska), and 1 was in the South (District of

Columbia).¹⁴ Of the 10 states with the lowest rates of marijuana use among adolescents, 5 were in the South (Alabama, Oklahoma, Louisiana, West Virginia, and Mississippi), 4 were in the Midwest (Iowa, South Dakota, Nebraska and North Dakota), and 1 was in the West (Utah).

STATE ESTIMATES OF ADOLESCENT'S PERCEPTION OF GREAT RISK OF HARM FROM SMOKING MARIJUANA

The combined 2013–2014 data indicate that about 5.9 million adolescents perceived great risk of harm from smoking marijuana once a month. This translates to about 1 in 4 adolescents (23.54 percent) perceiving a great risk of harm from monthly marijuana use. The perception of great risk from smoking marijuana once a month ranged from 15.72 percent in the District of Columbia to 32.75 percent in Utah (Figure 2; Table S2).

Figure 2. Perceptions of great risk of harm from smoking marijuana once a month among youths 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.

Of the 10 states with the lowest rates of perception of great risk from smoking marijuana once a month (i.e., states with fewer adolescents indicating there was a great risk of harm from monthly marijuana use), 5 were in the West (Washington, Colorado, Alaska, Oregon, and Nevada), 4 were in the Northeast (Vermont, Rhode Island, New Hampshire, and Maine), and 1 was in the South (District of Columbia). Of the 10 states with the highest rates of adolescent's perception of great risk of harm from monthly marijuana use, 8 were in the South (Alabama, Mississippi, Louisiana, Kentucky, Arkansas, South Carolina, Georgia, and Texas), 1 was in the West (Utah), and 1 was in the Midwest (North Dakota).¹⁴

CHANGES OVER TIME IN ADOLESCENT PAST MONTH MARIJUANA USE

When combined 2012–2013 estimates are compared with combined 2013–2014 estimates, the nation as a whole did not experience a significant change in the rate of past month marijuana use among adolescents (7.15 percent in 2012–2013 and 7.22 percent in 2013–2014) (Table 1).

On an individual state level, three states experienced a statistically significant decrease in the rate of adolescent past month marijuana use (Hawaii: from 9.55 to 7.65 percent, Ohio: from 7.36 to 6.04 percent, and Rhode Island: from 12.95 to 10.69 percent). The remaining 47 states and the District of Columbia experienced no change in past month marijuana use.

Table 1. Marijuana use in the past month among youths aged 12 to 17, by state: percentages, annual averages, combined 2012–2013 and combined 2013–2014

State	Marijuana use in the past month: 2012–2013		Marijuana use in the past month: 2013–2014	
	Estimate	95% Confidence Interval	Estimate	95% Confidence Interval
National	7.15	(6.85–7.46)	7.22	(6.88–7.57)
Alabama	4.81	(3.72–6.20)	4.98	(3.88–6.37)
Alaska	8.73	(6.87–11.03)	9.19	(7.43–11.31)
Arizona	8.25	(6.62–10.23)	8.30	(6.67–10.28)
Arkansas	5.68	(4.39–7.31)	6.22	(4.89–7.88)
California	7.80	(6.84–8.89)	8.74	(7.67–9.94)
Colorado	11.16	(9.08–13.65)	12.56	(10.30–15.22)
Connecticut	8.57	(6.88–10.62)	7.91	(6.32–9.86)
Delaware	9.15	(7.41–11.25)	8.22	(6.66–10.11)
District of Columbia	9.89	(8.13–11.99)	10.56	(8.56–12.95)
Florida	7.52	(6.57–8.60)	7.51	(6.51–8.65)
Georgia	7.14	(5.67–8.95)	6.06	(4.81–7.61)
Hawaii	9.55*	(7.69–11.81)	7.65	(6.04–9.65)
Idaho	5.61	(4.43–7.10)	6.39	(5.05–8.05)
Illinois	6.26	(5.44–7.20)	6.75	(5.78–7.87)
Indiana	5.97	(4.76–7.47)	6.52	(5.20–8.16)
Iowa	6.25	(4.95–7.86)	5.17	(3.93–6.78)
Kansas	5.09	(3.97–6.50)	5.85	(4.62–7.38)
Kentucky	5.07	(3.97–6.47)	5.63	(4.45–7.10)
Louisiana	5.09	(3.96–6.53)	5.55	(4.32–7.11)
Maine	9.26	(7.56–11.30)	9.90	(8.01–12.17)
Maryland	7.50	(6.05–9.28)	8.05	(6.46–10.00)
Massachusetts	8.90	(7.20–10.96)	8.88	(7.23–10.87)
Michigan	9.13	(8.09–10.28)	8.09	(6.98–9.35)
Minnesota	6.69	(5.32–8.37)	6.75	(5.35–8.48)
Mississippi	5.13	(3.97–6.60)	5.60	(4.43–7.06)
Missouri	7.10	(5.70–8.82)	6.45	(5.13–8.09)
Montana	8.68	(7.12–10.55)	8.30	(6.73–10.19)
Nebraska	6.24	(4.89–7.95)	5.54	(4.34–7.05)
Nevada	8.33	(6.72–10.28)	7.97	(6.42–9.85)
New Hampshire	9.62	(7.91–11.65)	9.83	(8.10–11.88)
New Jersey	5.38	(4.16–6.92)	6.36	(5.13–7.86)
New Mexico	9.22	(7.46–11.35)	7.98	(6.41–9.90)
New York	8.12	(7.18–9.19)	7.75	(6.74–8.90)
North Carolina	6.67	(5.25–8.42)	6.51	(5.19–8.13)
North Dakota	5.19	(3.97–6.76)	5.60	(4.30–7.25)
Ohio	7.36*	(6.48–8.34)	6.04	(5.13–7.08)
Oklahoma	5.16	(4.02–6.60)	5.52	(4.33–7.03)
Oregon	9.59	(7.72–11.84)	10.19	(8.38–12.34)
Pennsylvania	6.81	(5.93–7.82)	7.00	(6.03–8.11)
Rhode Island	12.95*	(10.69–15.61)	10.69	(8.76–12.99)
South Carolina	7.11	(5.72–8.81)	6.16	(4.90–7.70)
South Dakota	5.13	(3.94–6.67)	5.32	(4.11–6.84)
Tennessee	6.04	(4.77–7.64)	5.70	(4.48–7.21)
Texas	5.83	(5.04–6.74)	6.12	(5.27–7.11)
Utah	5.35	(4.17–6.85)	5.42	(4.18–7.00)
Vermont	11.34	(9.31–13.76)	11.40	(9.35–13.84)
Virginia	6.05	(4.76–7.67)	5.89	(4.67–7.39)
Washington	9.81	(8.05–11.90)	10.06	(8.21–12.28)
West Virginia	5.23	(4.09–6.66)	5.60	(4.38–7.13)
Wisconsin	7.18	(5.72–8.99)	7.18	(5.73–8.96)
Wyoming	5.95	(4.66–7.57)	6.19	(4.85–7.86)

* Difference between 2012–2013 and 2013–2014 is 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.

Comparisons between the combined 2012–2013 and combined 2013–2014 NSDUH data indicate that there was a slight decrease at the national level in the adolescent rate of perception of great risk from smoking marijuana once a month (from 25.34 to 23.54 percent) (Table 2).

Table 2. Perceptions of great risk of harm from smoking marijuana once a month among youths age 12 to 17, by state: percentages, annual averages, combined 2012–2013 and combined 2013–2014

State	Perceived great risk of smoking marijuana once a month: 2012–2013		Perceived great risk of smoking marijuana once a month: 2013–2014	
	Estimate	95% Confidence Interval	Estimate	95% Confidence Interval
National	25.34*	(24.78–25.90)	23.54	(22.99–24.10)
Alabama	32.10	(28.72–35.69)	31.14	(27.65–34.86)
Alaska	19.07	(16.30–22.18)	17.14	(14.47–20.17)
Arizona	21.69	(18.81–24.88)	20.32	(17.49–23.46)
Arkansas	30.76	(27.33–34.42)	28.08	(24.76–31.66)
California	20.95	(19.33–22.66)	20.06	(18.42–21.81)
Colorado	19.58	(16.86–22.63)	17.04	(14.14–20.39)
Connecticut	23.03	(19.99–26.38)	21.80	(18.67–25.30)
Delaware	21.67	(18.68–24.99)	23.02	(19.91–26.46)
District of Columbia	21.52*	(18.25–25.20)	15.72	(12.91–19.00)
Florida	26.33	(24.54–28.20)	25.43	(23.58–27.37)
Georgia	29.99*	(26.87–33.31)	26.54	(23.60–29.71)
Hawaii	21.60	(18.59–24.95)	21.38	(18.46–24.63)
Idaho	27.72	(24.64–31.01)	26.17	(22.97–29.64)
Illinois	26.21*	(24.48–28.02)	23.16	(21.21–25.23)
Indiana	28.31*	(25.06–31.79)	25.18	(22.08–28.55)
Iowa	27.43	(24.22–30.89)	26.20	(22.89–29.80)
Kansas	26.28*	(23.28–29.53)	22.47	(19.48–25.76)
Kentucky	30.72	(27.48–34.17)	28.20	(25.12–31.50)
Louisiana	29.85	(26.60–33.32)	28.40	(25.24–31.79)
Maine	22.55	(19.65–25.74)	19.76	(16.87–23.01)
Maryland	23.57	(20.68–26.74)	23.63	(20.50–27.07)
Massachusetts	19.30	(16.69–22.22)	20.10	(17.26–23.27)
Michigan	22.87	(21.23–24.61)	21.37	(19.47–23.40)
Minnesota	24.61	(21.60–27.89)	22.51	(19.67–25.63)
Mississippi	32.94*	(29.55–36.51)	28.47	(25.15–32.03)
Missouri	26.39	(23.42–29.58)	23.86	(20.83–27.18)
Montana	24.78	(21.84–27.98)	22.63	(19.76–25.78)
Nebraska	26.30	(23.14–29.71)	24.60	(21.41–28.09)
Nevada	22.37*	(19.41–25.64)	19.34	(16.51–22.52)
New Hampshire	20.00	(17.41–22.87)	19.48	(16.73–22.56)
New Jersey	24.69	(21.56–28.12)	22.93	(20.17–25.95)
New Mexico	23.39	(20.47–26.59)	21.83	(18.77–25.23)
New York	22.88	(21.17–24.68)	21.31	(19.51–23.22)
North Carolina	25.09	(22.09–28.34)	23.19	(20.22–26.45)
North Dakota	31.43*	(28.01–35.06)	27.53	(24.13–31.21)
Ohio	26.31	(24.62–28.08)	24.68	(22.76–26.70)
Oklahoma	29.17*	(25.77–32.82)	25.47	(22.09–29.17)
Oregon	20.05	(17.20–23.23)	17.97	(15.33–20.96)
Pennsylvania	26.95	(25.19–28.79)	25.68	(23.73–27.74)
Rhode Island	20.46	(17.63–23.60)	18.94	(16.15–22.08)
South Carolina	27.83	(24.75–31.14)	27.52	(24.36–30.92)
South Dakota	29.36*	(25.93–33.04)	25.39	(22.30–28.75)
Tennessee	29.01*	(25.70–32.55)	25.46	(22.33–28.85)
Texas	28.65*	(26.85–30.51)	26.53	(24.72–28.43)
Utah	35.29	(31.61–39.15)	32.75	(29.04–36.69)
Vermont	21.06	(18.18–24.25)	18.89	(16.18–21.92)
Virginia	25.24	(22.31–28.41)	24.52	(21.72–27.54)
Washington	19.06*	(16.54–21.86)	16.22	(13.76–19.03)
West Virginia	28.63	(25.54–31.92)	26.52	(23.40–29.89)
Wisconsin	27.13*	(24.01–30.48)	23.48	(20.42–26.84)
Wyoming	28.83	(25.66–32.21)	25.84	(22.60–29.36)

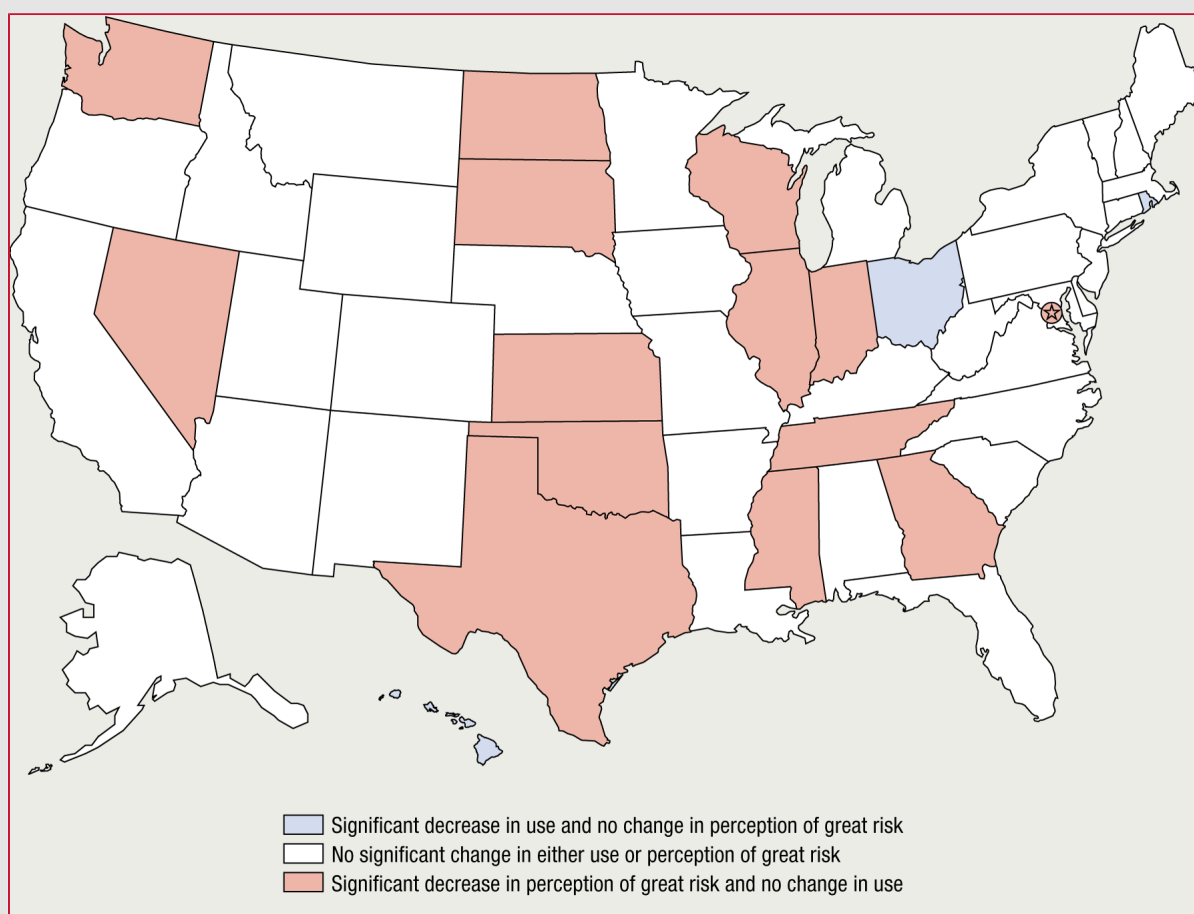
* Difference between 2012–2013 and 2013–2014 is significant at the .05 level.

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

On an individual state level, 14 states experienced a statistically significant decline in the percentage of adolescents who perceived great risk from smoking marijuana (District of Columbia, Georgia, Illinois, Indiana, Kansas, Mississippi, Nevada, North Dakota, Oklahoma, South Dakota, Tennessee, Texas, Washington, and Wisconsin). Rates of perceived great risk in the remaining 37 states did not change.

Taken together, the three states that had a statistically significant decrease in past month adolescent marijuana did not have any change in adolescent's rate of perception of great risk from smoking marijuana once a month (Figure 3; Table S3); these states are Hawaii, Ohio, and Rhode Island.¹³ The 14 states that had a significant decrease in adolescent's rate of perception of great risk from smoking marijuana once a month did not experience any significant change in the rate of past month adolescent marijuana use. In 34 states, there were no statistically significant changes in either adolescent past month marijuana use or in adolescent perception of great risk from smoking marijuana.

Figure 3. States with significant change in past month marijuana use and perceptions of great risk of harm from smoking marijuana once a month among youths aged 12 to 17: combined 2012-2013 versus combined 2013-2014



Note: Statistically significant changes are at the .05 level of significance.

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

DISCUSSION

Monitoring trends in adolescent marijuana use remains a concern both across the states and in the nation as a whole because of the health risks associated with youth marijuana use.² The NSDUH data in this report show that youth marijuana use remained unchanged in 48 states and declined in 3 states between 2012-2013 and 2013-2014. However, 14 states saw a decline in the percentage of adolescents' perceived great risk in smoking marijuana once a month. Declines in adolescent perceptions of risk matter because, as seen from Tables 1 and 2, there is a significant negative relationship between adolescent marijuana use and perceived great risk at the state level. That is, states with higher rates of marijuana use were more likely to have lower percentages of adolescents who think there is great risk in using marijuana, whereas states with

lower rates of use tend to have higher percentages of adolescents who think there is great risk in using marijuana.¹⁵

Changing attitudes toward substance use has historically been a way to reduce substance use among youths.⁸ However, the 2013–2014 NSDUH data indicate that youths' perceptions of risk have decreased in many states, although the rates of marijuana use among youths have remained the same in nearly every state. Although there has not been a corresponding increase in adolescent marijuana use, the decline in adolescent perceptions of the riskiness of marijuana use still remains concerning because approximately 3,300 adolescents aged 12 to 17 initiated marijuana use each day in 2014.⁸

Across the nation in 2013–2014, approximately 1.8 million adolescents were past month marijuana users, and about three-fourths of adolescents across all states did not think there was great risk of harm from using marijuana. Highlighting the prevalence of adolescent marijuana use and attitudes toward use at the state level may help state and local prevention specialists in their efforts to raise awareness about marijuana use among youths and its consequences. As states continue to examine their laws regarding marijuana use, monitoring state-level trends in adolescent marijuana use and attitudes toward use may also help state and local policymakers plan for and allocate resources to address adolescent marijuana use. For more information on addressing marijuana use among youths, see <http://www.samhsa.gov/capt/tools-learning-resources/youth-marijuana-risk-protective-factor-resources>.

OTHER AVAILABLE NSDUH STATE MEASURES

The combined 2013–2014 NSDUH state estimates of past month marijuana use, perceived great risk from monthly marijuana use, and 23 additional behavioral health measures are available online at <http://www.samhsa.gov/data/>. The 23 additional measures are substance use and mental health outcomes, including initiation and use of illicit drugs (e.g., marijuana initiation, cocaine use, and nonmedical use of prescription pain relievers); alcohol and tobacco use; perceived great risk of harm associated with alcohol and cigarette use; substance use disorders; needing but not receiving treatment for a substance use problem; serious mental illness; any mental illness; depression; and suicidal thoughts. National maps for all outcomes and detailed tables including percentages and counts for each state, census region, and the nation, by age group, also are provided as well as the methodology that generated the state estimates.

SUGGESTED CITATION

Hughes, A., Lipari, R.N., & Williams, M. *The CBHSQ Report: State Estimates of Adolescent Marijuana Use and Perceptions of Risk of Harm From Marijuana Use: 2013 and 2014*. Rockville, MD: Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality.

1. 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). Rockville, MD: Substance Abuse and Mental Health Services Administration.
2. Volkow, N. D., Baler, R. D., Compton, W. M., & Weiss, S. R. B. (2014). Adverse health effects of marijuana use. *New England Journal of Medicine*, *370*(23), 2219-2227. doi: 10.1056/NEJMra1402309
3. Fergusson, D. M., & Boden, J. M. (2008). Cannabis use and later life outcomes. *Addiction*, *103*(6), 969-976; discussion 977-8. doi: 10.1111/j.1360-0443.2008.02221.x
4. Meier, M. H., Caspi, A., Ambler, A., Harrington, H., Houts, R., Keefe, R. S., McDonald, K., Ward, A., Poulton, R., & Moffitt, T. E. (2012). Persistent cannabis users show neuropsychological decline from childhood to midlife. *Proceedings of the National Academy of Sciences of the United States of America*, *109*(40), E2657-E2664. doi: 10.1073/pnas.1206820109
5. Gruber, S. A., Dahlgren, M. K., Sagar, K. A., Gönenç, A., & Lukas, S. E. (2014). Worth the wait: Effects of age of onset of marijuana use on white matter and impulsivity. *Psychopharmacology*, *231*(8), 1455-1465. doi: 10.1007/s00213-013-3326-z
6. Brady, J. E., & Li, G. (2014). Trends in alcohol and other drugs detected in fatally injured drivers in the United States, 1999-2010. *American Journal of Epidemiology*, *179*(6), 692-699. doi: 10.1093/aje/kwt327
7. Chen, C. Y., Storr, C. L., & Anthony, J. C. (2009). Early-onset drug use and risk for drug dependence problems. *Addictive Behaviors*, *34*(3), 319-322. doi: 10.1016/j.addbeh.2008.10.021
8. Lipari, R., Kroutil, L. A., & Pemberton, M. R. (2015, October). *NSDUH Data Review: Risk and protective factors and initiation of substance use: Results from the 2014 National Survey on Drug Use and Health*. Rockville, MD: Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality.
9. Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2015). *Monitoring the Future national survey results on drug use, 1975-2014: Volume I, secondary school students*. Ann Arbor, MI: Institute for Social Research, University of Michigan.
10. 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).
11. 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/>.
12. 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 rate does not imply that the state's rate is significantly higher or lower than the rate of the next highest or lowest state. 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.
13. Tests of significance were conducted separately on the difference in the rates of marijuana use from 2012-2013 to 2013-2014 and the difference in the percentage perceiving great risk for the same two time periods. However, no tests of significance were conducted jointly between the difference in marijuana use and the difference in the perceptions of great risk.
14. 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.
15. For 2013-2014, the correlation between the 51 state estimates of past month marijuana use and the 51 state estimates of perceived great risk in using marijuana monthly is -0.86.

Table S1. Marijuana use in the past month among youths aged 12 to 17, by quintile group and state: percentages, annual averages, 2013-2014

	Census Region	Percentage of Youths	Quintile Group
Colorado	West	12.56%	5
Vermont	Northeast	11.40%	5
Rhode Island	Northeast	10.69%	5
District of Columbia	South	10.56%	5
Oregon	West	10.19%	5
Washington	West	10.06%	5
Maine	Northeast	9.90%	5
New Hampshire	Northeast	9.83%	5
Alaska	West	9.19%	5
Massachusetts	Northeast	8.88%	5
California	West	8.74%	4
Arizona	West	8.30%	4
Montana	West	8.30%	4
Delaware	South	8.22%	4
Michigan	Midwest	8.09%	4
Maryland	South	8.05%	4
New Mexico	West	7.98%	4
Nevada	West	7.97%	4
Connecticut	Northeast	7.91%	4
New York	Northeast	7.75%	4
Hawaii	West	7.65%	3
Florida	South	7.51%	3
Wisconsin	Midwest	7.18%	3
Pennsylvania	Northeast	7.00%	3
Illinois	Midwest	6.75%	3
Minnesota	Midwest	6.75%	3
Indiana	Midwest	6.52%	3
North Carolina	South	6.51%	3
Missouri	Midwest	6.45%	3
Idaho	West	6.39%	3
New Jersey	Northeast	6.36%	3
Arkansas	South	6.22%	2
Wyoming	West	6.19%	2
South Carolina	South	6.16%	2
Texas	South	6.12%	2
Georgia	South	6.06%	2
Ohio	Midwest	6.04%	2
Virginia	South	5.89%	2
Kansas	Midwest	5.85%	2
Tennessee	South	5.70%	2
Kentucky	South	5.63%	2
Mississippi	South	5.60%	1
West Virginia	South	5.60%	1
North Dakota	Midwest	5.60%	1
Louisiana	South	5.55%	1
Nebraska	Midwest	5.54%	1
Oklahoma	South	5.52%	1
Utah	West	5.42%	1
South Dakota	Midwest	5.32%	1
Iowa	Midwest	5.17%	1
Alabama	South	4.98%	1

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

Table S2. Perceptions of great risk of harm from smoking marijuana once a month among youths aged 12 to 17, by quintile group and state: percentages, annual averages, 2013-2014

	Census Region	Percentage of Youths	Quintile Group
District of Columbia	South	15.72%	5
Washington	West	16.22%	5
Colorado	West	17.04%	5
Alaska	West	17.14%	5
Oregon	West	17.97%	5
Vermont	Northeast	18.89%	5
Rhode Island	Northeast	18.94%	5
Nevada	West	19.34%	5
New Hampshire	Northeast	19.48%	5
Maine	Northeast	19.76%	5
California	West	20.06%	4
Massachusetts	Northeast	20.10%	4
Arizona	West	20.32%	4
New York	Northeast	21.31%	4
Michigan	Midwest	21.37%	4
Hawaii	West	21.38%	4
Connecticut	Northeast	21.80%	4
New Mexico	West	21.83%	4
Kansas	Midwest	22.47%	4
Minnesota	Midwest	22.51%	4
Montana	West	22.63%	3
New Jersey	Northeast	22.93%	3
Delaware	South	23.02%	3
Illinois	Midwest	23.16%	3
North Carolina	South	23.19%	3
Wisconsin	Midwest	23.48%	3
Maryland	South	23.63%	3
Missouri	Midwest	23.86%	3
Virginia	South	24.52%	3
Nebraska	Midwest	24.60%	3
Ohio	Midwest	24.68%	3
Indiana	Midwest	25.18%	2
South Dakota	Midwest	25.39%	2
Florida	South	25.43%	2
Tennessee	South	25.46%	2
Oklahoma	South	25.47%	2
Pennsylvania	Northeast	25.68%	2
Wyoming	West	25.84%	2
Idaho	West	26.17%	2
Iowa	Midwest	26.20%	2
West Virginia	South	26.52%	2
Texas	South	26.53%	1
Georgia	South	26.54%	1
South Carolina	South	27.52%	1
North Dakota	Midwest	27.53%	1
Arkansas	South	28.08%	1
Kentucky	South	28.20%	1
Louisiana	South	28.40%	1
Mississippi	South	28.47%	1
Alabama	South	31.14%	1
Utah	West	32.75%	1

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

Table S3. States with significant change in past month marijuana use and perceptions of great risk of harm from smoking marijuana once a month among youths aged 12 to 17: 2012-2013 versus 2013-2014

Significant Decrease in Use and No Change in Perception of Great Risk	Significant Decrease in Perception of Great Risk and No Change in Use	No Significant Change in Either Use or Perception of Great Risk
(3 States)	(14 States)	(34 States)
Hawaii Ohio Rhode Island	District of Columbia Georgia Illinois Indiana Kansas Mississippi Nevada North Dakota Oklahoma South Dakota Tennessee Texas Washington Wisconsin	Alabama Alaska Arizona Arkansas California Colorado Connecticut Delaware Florida Idaho Iowa Kentucky Louisiana Maine Maryland Massachusetts Michigan Minnesota Missouri Montana Nebraska New Hampshire New Jersey New Mexico New York North Carolina Oregon Pennsylvania South Carolina Utah Vermont Virginia West Virginia Wyoming

Note: Statistically significant changes are at the .05 level of significance.

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

SUMMARY

Background: Adolescents' attitudes about the risks associated with substance use are often closely related to their use. As states have been at the center of efforts to reduce adolescent marijuana use, examining adolescents' attitudes about the risks associated with using marijuana provides needed prevention information. **Method:** Combined 2013-2014 National Surveys on Drug Use and Health (NSDUHs) state (including the District of Columbia) estimates of past month marijuana use and perceptions of great risk of harm from smoking marijuana once a month among persons aged 12 to 17 were analyzed. Additionally, the combined 2013-2014 data are compared with combined 2012-2013 data to examine changes in these measures over time. **Results:** Findings in this report suggest that marijuana use remains widespread among adolescents with few changes across states in the rate of marijuana use among youth between 2012-2013 and 2013-2014. About three-fourths of adolescents across all states did not think there was great risk in using marijuana in 2013-2014, and 14 states experienced a decrease in the percentage of youth who perceived great risk of harm from marijuana use. While youths' perceptions of risk are either remaining stable or declining across the states, the rate of marijuana use among youths has remained stable in nearly every state. **Conclusion:** Highlighting the prevalence of adolescent marijuana use and attitudes toward use in each state, as well as monitoring changes, may help policymakers continue to combat adolescent marijuana use, including efforts to raise awareness about the consequences of youth marijuana use and to improve prevention efforts.

Keywords: marijuana, National Survey on Drug Use and Health, NSDUH, risk

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KEYWORDS

2012, 2013, 2014, Adolescents as Population Group, Alabama, Alaska, All US States Only, Arizona, Arkansas, Awareness, California, Children as Audience, Colorado, Connecticut, Delaware, District of Columbia, Drug Use Trends, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Marijuana, Maryland, Massachusetts, Michigan, Midwest, Minnesota, Mississippi, Missouri, Montana, Multi-Year Trend, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Northeast, Ohio, Oklahoma, Oregon, Parents and Caregivers, Pennsylvania, Policymakers, Population Data, Prevention, Prevention Professionals, Public Health Professionals, Public Officials, Research and Methodology, Researchers, Rhode Island, Risk & Protective Factors, Short Report, South, South Carolina, South Dakota, Substance Abuse, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West, West Virginia, Wisconsin, Wyoming

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). The Survey 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 trade name of Research Triangle Institute.)

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

Center for Behavior 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). Rockville, MD: Substance Abuse and Mental Health Services Administration.

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



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