The CBHSQ Report. Rockville (MD): Substance Abuse and Mental Health Services Administration (US); 2013-.

Understanding Adolescent Inhalant Use

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Published: June 12, 2017.

Summary

Background: Inhalants are legal, everyday products—including spray paints, felt-tip markers, glue, and gasoline—that are harmless when used as intended; when the vapors from these products are intentionally inhaled to get high, they become potentially toxic and sometimes lethal. **Method:** This report uses data from the 2015 National Survey on Drug Use and Health to provide up-to-date information on inhalant use among adolescents aged 12 to 17, including demographic and geographic characteristics of inhalant users. **Results:** In 2015, about 684,000 adolescents aged 12 to 17 used inhalants in the past year. Adolescents were more likely than adults aged 18 or older to have used inhalants in the past year to get high (2.7 vs. 0.4 percent). The types of inhalants adolescents used to get high varied. Felt-tip pens/markers, or magic markers were the most commonly identified types of inhalants adolescents used to get high in 2015. Female adolescents were more likely than male adolescents to have used inhalants in the past month (3.2 vs. 2.3 percent). In 2015, more than half of adolescents who used inhalants in the past year (59.0 percent) reported that they had used 1 to 11 days in the past year; about 1 in 54 (19.3 percent) had used 12 to 49 days. **Conclusion**: The results in this report underscore that adolescents of all race/ethnicities, across the country, and in rural and metropolitan settings are vulnerable to inhalant use. Therefore, continuing efforts are needed to educate adolescents, parents, teachers, physicians, service providers, and policymakers about the dangers and health risks of inhalant use.

Keywords: National Survey on Drug Use and Health, NSDUH, inhalant use, adolescent, inhalant

In Brief

- In 2015, about 684,000 adolescents aged 12 to 17 used inhalants in the past year.
- Adolescents were more likely than adults aged 18 or older to have used inhalants in the past year to get high (2.7 vs. 0.4 percent).
- Female adolescents were more likely than male adolescents to have used inhalants in the past month (3.2 vs. 2.3 percent).
- In 2015, more than half of adolescents who used inhalants in the past year (59.0 percent) had used 1 to 11 days in the past year; about 1 in 5 (19.3 percent) had used 12 to 49 days.
- The types of inhalants adolescents used to get high varied. Felt-tip pens/markers, or magic markers were the most commonly identified types of inhalants adolescents used to get high in 2015.

Introduction

Inhalants are legal, everyday products—including spray paints, felt-tip markers, glue, and gasoline—that are harmless when used as intended. However, when the vapors from these products are intentionally inhaled to get high, they become potentially toxic and sometimes lethal.[1] Inhalants, which are breathed in through the nose or mouth in a variety of ways, are absorbed quickly through the lungs into the bloodstream. The user experiences a rapid but short-lived intoxication. Understanding the characteristics of people who engage in inhalant use is vital to assessing policies intended to reduce inhalant use.

The National Survey on Drug Use and Health (NSDUH) collects information about inhalant use. NSDUH is an annual survey of the U.S. civilian, noninstitutionalized population aged 12 years or older and is the primary source for statistical information on illicit drug use, alcohol use, substance use disorders, and mental health issues. One of NSDUH's strengths is the large, nationally representative sample, which allows for the examination of low-prevalence behaviors, such as inhalant use, and specific U.S. subgroups such as adolescents. NSDUH is a face-to-face household interview survey that is fielded continuously throughout a year. NSDUH asks respondents aged 12 or older to report on their use of inhalants during the past year and past month. Inhalants are defined in NSDUH as "liquids, sprays, and gases that people sniff or inhale to get high or to make them feel good."[2] NSDUH also asks about the number of days inhalants were used in the past year and the type of inhalant used among past year users.

In this issue of *The CBHSQ Report*, 2015 NSDUH data are used to explore inhalant use in the United States among those aged 12 or older. The report then examines inhalant use among adolescents aged 12 to 17 and describes estimates by demographic and geographic characteristics. As part of the focus on adolescent inhalant use, the report provides estimates of the specific types of inhalants use by adolescents and the frequency of inhalant use. The estimates are based on a total sample size of 68,073 people aged 12 or older, including 16,911 adolescents. All differences discussed in this report are statistically significant at the .05 level.

Inhalant Use, by Age Group

To understand inhalant use among adolescents aged 12 to 17, it is useful to examine the prevalence of inhalant use among adolescents compared with other age groups. In 2015, approximately 1.8 million people aged 12 or older used inhalants in the past year to get high. This number represents 0.7 percent of the population aged 12 or older. The percentage of past year inhalant use in 2015 was higher among adolescents aged 12 to 17 than among adults aged 18 or older (2.7 vs. 0.4 percent) (data not shown).

Of the 1.8 million people aged 12 or older who used inhalants in the past year to get high, about 684,000 were adolescents aged 12 to 17. As shown in Figure 1, past year inhalant use generally decreases with age. For example, the percentage of 12- or 13-year-olds who used inhalants in the past year was higher than the percentages for 16- or 17-year-olds and all of the other older age groups. Similarly, the percentage of 16- or 17-year-olds who used inhalants in the past year was similar to the percentage of 18- to 20-year-olds, and the percentage of 18- to 20-year-olds using inhalants was similar to the percentage of 21- to 25-year-olds. Although the percentage of 14- or 15-year-olds using inhalants was similar to the percentage for 12- or 13-year-olds, the percentage of adolescents aged 14 or 15 who used inhalants in the past year was higher than the percentages for the other age groups.

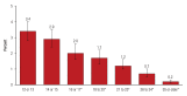

Figure 1

Past year inhalant use among people aged 12 or older, by age g

In the following sections, the characteristics of adolescents who engage in inhalant use are examined and the frequency of adolescent use of inhalants is also examined. This type of information provides a frame of reference for understanding why inhalant use is of particular concern for adolescents, which subgroups within the adolescent population are more likely to use inhalants, and what is the magnitude of adolescent inhalant use.

Demographic Characteristics

When examining substance use among adolescents aged 12 to 17, there are often subgroups within the adolescent population that appear to have a higher risk of substance use. For example, adolescent males are more likely than adolescent females to use hallucinogens.[3] Regarding inhalant use, adolescent females were more likely to be past year inhalant users than adolescent males (3.2 vs. 2.3 percent, respectively) (Figure 2). Also, substance use differs when examined by race/ethnicity or where adolescents live in the nation. The percentages of adolescents who used inhalants in the past year to get high were similar regardless of race/ethnicity or geography. Past year inhalant use among adolescents was 2.7 percent for Blacks, 2.6 percent for Whites and adolescents of two or more races, and 4.6 percent among American Indians or Alaska Natives (Table S1).[4]

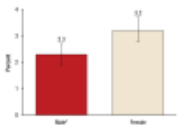

Figure 2

Past year inhalant use among adolescents aged 12 to 17, by gender: 2015.

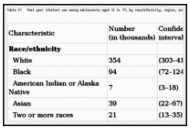

Table S1

Past year inhalant use among adolescents aged 12 to 17, by race/ethnicity, region, and urbanicity: 2015.

The percentages of adolescents using inhalants to get high were 2.7 percent in the Northeast, 2.6 percent in the Midwest, 2.6 percent in the South, and 3.1 percent in the West (Table S1).[5] There were also no statistically significant differences in the percentages of past year inhalant use (Table S1) depending on whether adolescents lived in rural or metropolitan areas.[6] For example, the percentage in the largest metropolitan areas was 2.9 percent, and 2.5 percent of adolescents in completely rural areas indicated that they had used inhalants in the past year to get high. All demographic comparisons within the adolescent population should be reevaluated with additional years of data to determine whether differences become statistically significant when estimates are based on a larger sample.

Number of Days Adolescents Used Inhalants

As previously noted, the vast majority of adolescents (97.3 percent) did not use inhalants in the past year to get high; however, it is also important to understand the frequency of use among the 2.7 percent of adolescents who did use inhalants to get high. As shown in Figure 3, there is considerable variation in how often adolescents used inhalants in the past year. In 2015, more than half of adolescents aged 12 to 17 who used inhalants in the past year (59.0 percent) had used

inhalants on 1 to 11 days in the past year, and about 1 in 5 adolescents who used inhalants (19.3 percent) indicated that they had used inhalants on 12 to 49 days in the past year. About 1 in 7 adolescents who were past year inhalant users had used on 50 to 99 days in the past year. About 1 in 13 adolescents who used inhalants in the past year had used inhalants on 100 or more days in the past year.

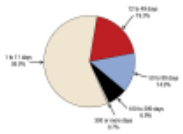

Figure 3

Number of days used inhalants in the past year among adolescents who used inhalants in the past year: 2015.

Types of Inhalants Adolescents Used

Because they are readily available, inhalants are often among the first drugs that adolescents use.[1] As previously mentioned, inhalants are often household items that adolescents would have ready access to at home or school. NSDUH asks adolescents to identify the specific inhalants they have ever (i.e., used at least once in their lifetime) to get high. When measuring inhalant use, the NSDUH questionnaire instructs respondents to exclude times when they inhaled a substance accidentally—such as when painting, cleaning an oven, or filling a car with gasoline.

Of the twelve different types of inhalants that NSDUH respondents were asked about using, felt-tip pens/markers or magic markers was the most commonly identified type of inhalant used by adolescents to get high. About 6.7 percent of adolescents have used felt-tip pens/markers to get high. In contrast, less than two percent of adolescents reported having ever used each of the other substances to get high (Figure 4).

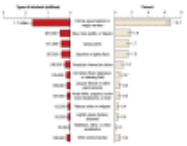

Figure 4

Lifetime use of inhalants among adolescents aged 12 to 17, by type: 2015.

Discussion

Inhalants are highly accessible, cheap, and easy to hide; they are also addictive and deadly. Inhalants are particularly appealing to adolescents for many reasons; they are legal, low cost, and easy to acquire.[7] In addition, inhalants can give users a fast but short-term high, which makes it easy for adolescents to use inhalants and conceal their use.[1,7] Using inhalants is also associated with many negative outcomes. Adolescents who engage in inhalant use are at an increased risk of delinquency, depression, suicidal thoughts, and drug and alcohol use.[7] Inhalants also have the special risk of being deadly any time they are used—even the first time.[1]

Although this report highlights that the majority (97.3 percent) of adolescents aged 12 to 17 have not used inhalants in the past year to get high, there were the 684,000 adolescents who did use inhalants in the past year to get high. The results in this report underscore that adolescents of all race/ethnicities, across the country, and in rural and metropolitan settings are vulnerable to inhalant use. Therefore, continuing efforts are needed to educate adolescents, parents, teachers, physicians, service providers, and policymakers about the dangers and health risks of inhalant use. For more information on the hazards of inhalant use, visit https://www.drugabuse.gov/publications/research-reports/inhalant-abuse. SAMHSA provides information for adolescents about the dangers associated with inhalant use: https://store.samhsa.gov/shin/content//PHD631/PHD631.pdf

Suggested Citation

Lipari, R.N. *Understanding adolescent inhalant use.* The CBHSQ Report: June 13, 2017. Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Rockville, MD.

Supporting Tables

Endnotes

1. National Institute on Drug Abuse. (2012). Drug facts: Inhalants. Retrieved from https://www.drugabuse.gov/sites/default/files/dfinhalants_1.pdf
2. The categories of inhalants asked about in NSDUH are (1) amyl nitrite, "poppers," locker room odorizers, or "rush"; (2) correction fluid, degreaser, or cleaning fluid; (3) gasoline or lighter fluid; (4) glue, shoe polish, or toluene; (5) halothane, ether, or other anesthetics; (6) lacquer thinner or other paint solvents; (7) lighter gases, such as butane or propane; (8) nitrous oxide or "whippits"; (9) felt-tip pens/markers, or magic markers; (10) spray paints; (11) computer keyboard cleaner, also known as air duster; (12) some other aerosol spray; and (13) any other inhalant besides the ones that have been listed. In 2015, the NSDUH estimate of inhalant use was expanded to include the use of felt-tip pens or computer keyboard cleaner to get high. Because of this change, estimates of inhalant use in 2015 are not compared with estimates in prior years.
3. These estimates are not included in figures or tables in this report but may be found in Table 1.52B in the 2015 NSDUH detailed tables: Center for Behavioral Health Statistics and Quality. (2016). *Results from the 2015 National Survey on Drug Use and Health: Detailed tables*. Rockville, MD: Substance Abuse and Mental Health Services Administration. Retrieved from https://www.samhsa.gov/data/
4. NSDUH asks a series of questions about race/ethnicity. First, respondents are asked about their Hispanic origin, then they are asked to identify which racial group best describes them: White, Black or African American, American Indian or Alaska Native, Native Hawaiian, other Pacific Islander, Asian, or other. Respondents may select more than one race. Because respondents could choose more than one racial group, a "two or more races" category is included for people who reported more than one category (i.e., White and Black or African American). Except for the Hispanic or Latino group, the racial/ethnic groups include only non-Hispanics. The Hispanic or Latino group includes Hispanics of any race.
5. Findings are discussed for four U.S. geographic regions. 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.
6. Counties were grouped based on the 2013 Rural-Urban Continuum Codes developed by the U.S. Department of Agriculture. Nonmetropolitan counties in the three urban-sized categories were further subdivided by whether the county was adjacent to one or more metropolitan areas. A nonmetropolitan county was defined as adjacent if it physically adjoined one or more metropolitan areas and had at least 2 percent of its employed labor force commuting to central metropolitan counties. Nonmetropolitan counties that did not meet these criteria were classed as nonadjacent. Metropolitan and nonmetropolitan categories were subdivided into three metropolitan and six nonmetropolitan categories, resulting in a nine-part county codification. Large metropolitan statistical areas (MSAs) (large

metropolitan) have a total population of 1 million or more. Small MSAs (small metropolitan) have a total population of fewer than 1 million. Nonmetropolitan counties were classified according to the aggregate size of their urban population. Nonmetropolitan areas include counties in micropolitan statistical areas and counties outside of metropolitan and micropolitan statistical areas. The Office of Management and Budget defined nonmetropolitan counties according to (1) the size of the population in urbanized areas within the county (i.e., a population of 20,000 or more in urbanized areas, a population of at least 2,500 but fewer than 20,000 in urbanized areas, or a population of fewer than 2,500 in urbanized areas); and (2) whether these counties were adjacent or not adjacent to a metropolitan area. For NSDUH, these nonmetropolitan categories were categorized as "urbanized," "less urbanized," and "completely rural." The terms "urbanized," "less urbanized," and "completely rural" for counties are not based on the relative proportion of the county population in urbanized areas, but they are instead based on the absolute size of the population in urbanized areas. For example, some counties classified as "less urbanized" had more than 50 percent of the county population residing in urbanized areas, but this percentage represented fewer than 20,000 people in the county.

7. Kurtzman, T. L., Otsuka, K. N., & Wahl, R. A. (2001). Inhalant abuse by adolescents. The Journal of Adolescent Health, 28(3), 170–180. 10.1016/S1054-139X(00)00159-2 [PubMed: 11226839] [CrossRef]

Bookshelf ID: NBK441821 PMID: 28722849