Full length article

Marijuana use by middle-aged and older adults in the United States, 2015–2016

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ABSTRACT

Background: Marijuana use is increasing among middle-aged and older adults in the US, but little is understood of its pattern of use by this population.

Methods: We performed a cross-sectional analysis of responses from 17,608 adults aged ≥50 years from the 2015 and 2016 administrations of the National Survey on Drug Use and Health. Prevalence of past-year marijuana use was estimated and compared between middle-aged adults (age 50–64) and older adults (≥65). Characteristics of past-year marijuana users including demographics, substance use, chronic disease, and emergency room use, were compared to non-marijuana users and stratified by age group. Marijuana use characteristics were also compared between middle-aged and older adults. We used multivariable logistic regression to determine correlates of past-year marijuana use.

Results: Prevalence of past-year marijuana use was 9.0% among adults aged 50–64 and 2.9% among adults aged ≥65. Prevalence of past-year alcohol use disorder (AUD), nicotine dependence, cocaine use, and misuse of prescription medications (i.e., opioids, sedatives, tranquilizers) were higher among marijuana users compared to non-users. In adjusted models, initiation of marijuana use < 19 years of age [adjusted odds ratio (AOR) = 13.43, 95% confidence interval (CI) 9.60, 18.78)], AUD (AOR = 2.11, 95% CI 1.51, 2.94), prescription opioid misuse (AOR 2.49, 95% CI 1.61, 3.85), nicotine dependence (AOR = 1.90, 95% CI 1.59, 2.26), and cocaine use (AOR 7.43, 95% CI 4.23, 13.03), were all associated with increased odds of past-year marijuana use.

Conclusion: Marijuana use is becoming more prevalent in this population and users are also at high risk for other drug use.

1. Introduction

Attitudes towards marijuana use are changing considerably in the United States (U.S.) with a growing number of states legalizing medical and/or recreational marijuana (Gallup, 2018). Although current users are more likely to be young adults, the Baby Boomer generation is unique as it has had more experience with marijuana compared to any generation preceding them (Han and Moore, 2018). Prevalence of current marijuana use decreases with age (Substance Abuse and Mental Health Services Administration [SAMHSA], 2016), but the Baby Boomer generation—which is now comprised of middle-aged and older adults often with prior experience with marijuana—is now experiencing large increases in recent use. A previous study using nationally representative data, from 2006 to 2013, found a 57.8%

relative increase in past-year marijuana use among adults aged 50–64 and a 250% relative increase for adults aged 65 and older (Han et al., 2017).

Despite increases in recent marijuana use by older adults, few studies have examined correlates of use in this population, especially among adults with multiple chronic conditions. Marijuana may have benefits for older adults for neuropathic pain, spasticity, anorexia, and nausea and vomiting (Briscoe and Casarett, 2018). In addition, medical marijuana laws have shown to be associated with significant reductions in opioid prescribing for the Medicare Part D population (Bradford et al., 2018), which could reduce the use and risks of opioids for older adults. However, there may be acute and chronic health risks associated with marijuana use by older adults as well as interactions with prescribed medications (Han and Moore, 2018).

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With more US adults supporting the legalization of marijuana (Gallup, 2018), it is imperative to understand the changing patterns of marijuana use by both middle-aged older adults who are more likely to have underlying chronic disease compared to younger adults. While data on the risks and benefits of marijuana use for middle-aged and older adults remain limited, identifying subgroups of older adults who may be at heightened risk for the adverse effects associated with marijuana use (e.g., through concomitant use of other drugs) is also important. Therefore, we used national data from the National Survey on Drug Use and Health (NSDUH) to provide updated estimates of the prevalence of marijuana use and to examine demographic and other drug use characteristics of its users among middle-aged and older adults.

2. Methods

2.1. Data source and study population

Data from adults aged ≥ 50 surveyed in the 2015 and 2016 (n = 17,608) NSDUH were analyzed. Analyses were limited to these two most recent cohorts as NSDUH revised much of its questionnaire in 2015, limiting our ability to examine trends over time (SAMHSA, 2016). NSDUH is a cross-sectional survey of non-institutionalized individuals in the 50 US states and the District of Columbia. NSDUH obtained a nationally representative probability sample of individuals through four stages. Surveys were administered via computer-assisted interviewing (conducted by an interviewer) and audio computer-assisted self-interviewing (ACASI). Sample weights were provided by NSDUH to address unit- and individual-level non-response. Additional information on sampling and survey methods can be found elsewhere (SAMHSA, 2017) The weighted interview response rates for 2015 and 2016 were 69.7% and 68.4%, respectively.

2.2. Measures

Participants were asked if they had ever used marijuana in their lifetime, and those reporting lifetime use were also asked about recency of use (i.e., past-year, past-month) and age of first use, which we coded into quartiles (i.e., age < 16, 17–18, 19–21, > 21) for descriptive purposes. Given the literature on prior use influencing future use of marijuana among older adults (Han and Moore, 2018), we also coded a separate variable indicating whether marijuana was initiated at an early age. Specifically, we created a trichotomous variable indicating whether participants reported ever initiating marijuana at age 18 or younger or at 19–21 years of age. These cutoffs were the 50th and 75th percentile cutoffs, respectively. The comparison group consisted of never-users and those whose first marijuana use was after the age of 21. Past-year users were asked if a doctor has recommended marijuana in the past year, and they were also asked about frequency of past-year use. Participants were also asked how much people risk harming themselves physically and in other ways when they smoke marijuana 1) once a month, and 2) once or twice a week. Answer options were no risk, slight risk, moderate risk, and great risk; however, we combined moderate and great risk due to the low prevalence of self-reported great risk.

Regarding other drug use, NSDUH asked about past-year use of a variety of drugs; we focused on past-year use of cocaine, and past-year misuse of prescription opioids, tranquilizers (benzodiazepines and muscle relaxants), and sedatives (which includes zolpidem, eszopiclone, and zaleplon products; the benzodiazepines: flurazepam, temazepam, and triazolam; and barbiturates). As of 2015, NSDUH defines misuse as using a drug in any way not directed by a doctor, including use without a prescription, more often, in greater amounts, or longer than the participant was directed to take them, or use in any other way a doctor did not direct the participant to use them. Nicotine dependence was assessed and defined based on dependence criteria of the Nicotine

Dependence Syndrome Scale (NDSS) (Shiffman et al., 2004) and alcohol use disorder (AUD) was determined by responses to a series of questions determining if criteria were met for abuse or dependence as per Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) criteria (American Psychiatric Association, 1994).

NSDUH categorized older adults into age 50–64 and age ≥ 65. Participants were also asked their gender, race/ethnicity, annual family income, and marital status. They were also asked questions to determine if they met DSM-IV criteria for a major depressive episode in the past year and whether they have been admitted to an emergency department (ED) for any reason in the past year. Finally, they were asked if they had ever been informed by a doctor or other medical professional that they have ever had the following 10 medical diseases: heart disease, diabetes, chronic obstructive pulmonary disease (COPD), cirrhosis of the liver, hepatitis B or C, kidney disease, asthma, HIV/AIDS, hypertension, and cancer. To examine medical multimorbidity, we further coded these indicators into ≥ 2 chronic conditions and ≥ 3 chronic conditions as has been performed in other studies (Swartz and Jantz, 2014).

2.3. Statistical analysis

We first compared demographic, health, and drug use characteristics between participants age 50–64 and age ≥ 65. We then compared each characteristic according to whether past-year marijuana use was reported, stratified by age, and then within past-year marijuana users we compared marijuana-specific characteristics by age. All comparisons were conducted using chi-square. Finally, we computed bivariable and multivariable logistic regression models to examine how each characteristic is associated with past-year marijuana use as an outcome variable. Specifically, we computed unadjusted odds ratios (ORs) for each separate covariate, and then we fit all covariates (survey year, demographic characteristics, substance use, multimorbidity, depression, and all-cause ED use) simultaneously into a multivariable model which produced adjusted ORs (aORs) for all covariates.

For bivariable and multivariable analyses, we aggregated data for all adults over the age of 50 and adjusted for age. Analyses were conducted using Stata SE 13 (StataCorp, College Station, TX, 2013) weighted to account for the complex survey design, and used imputation-revised variables to limit missing data. Taylor series estimation methods were utilized to provide accurate standard errors (Heeringa et al., 2010). This secondary data analysis was exempt for review by New York University's Institutional Review Board.

3. Results

Weighed sample characteristics are shown in Table 1. Prevalence of past-year marijuana use was 9.0% for adults aged 50–64 and 2.9% for adults aged ≥ 65, and prevalence of past-month use was estimated to be 5.7% for adults aged 50–64 and 1.7% for adults aged ≥ 65. More than half (54.5%) of adults aged 50–64 are estimated to have ever used marijuana with over a fifth (22.4%) of adults aged ≥ 65 estimated to have ever used.

Table 2 presents comparisons between marijuana users and non-users stratified by age group, and between age groups. For adults aged 50–64, past-year marijuana users were more likely to be male (60.0% vs. 47.2%, p < 0.001), non-Hispanic white (73.4% vs. 69.6%, p = 0.003), and have a family income < \$20,000 (21.1% vs. 14.6%, p < 0.001). They were also less likely to be married (47.5% vs. 65.1, p < 0.001), more likely to use the ED (27.5% vs. 23.3%, p = 0.01), and more likely to have AUD, nicotine dependence, use cocaine, and misuse prescription opioids, sedatives, and tranquilizers compared to non-users. Regarding chronic diseases, past-year marijuana users aged 50–64 were less likely to have diabetes, but more likely to have COPD, cirrhosis, hepatitis B or C, HIV/AIDS, and depression (ps < .05). Among adults age ≥ 65, past-year marijuana users were more likely to be male