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Differences in behavioral health disorders and unmet treatment needs between medical marijuana users and recreational marijuana users: Results from a national adult sample



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ABSTRACT

Background: Available data suggest that medical marijuana users may have more mental health problems than recreational marijuana users. There is limited information about differences in behavioral health disorders and unmet treatment needs between medical and recreational marijuana users.

Methods: We compared past-year prevalence of behavioral health disorders and unmet treatment needs across three marijuana subgroups (recreational use only, medical use only, and both). Sex-stratified logistic regression was performed to determine their associations with marijuana use status. We analyzed data from adults (≥ 18 years) who used marijuana in the past year ($N = 15,440$) from 2013 to 2014 National Surveys on Drug Use and Health.

Results: Among 15,440 past-year marijuana users, 90.2% used recreational marijuana only, 6.2% used medical marijuana only, and 3.6% used both. Both users had the highest prevalence of behavioral health disorders and unmet treatment needs overall, with no significant sex differences. In the sex-specific logistic regression analysis, medical only users and both users showed somewhat different patterns of associations (reference group = recreational only users). Medical only users had decreased odds of alcohol or drug use disorders, and unmet need for alcohol or drug treatment among males and females. Additionally, female medical only users had decreased odds of opioid use disorder. Both users had increased odds of major depressive episode, hallucinogen use disorder, and unmet need for mental health services among males, and cocaine use disorder among females.

Conclusions: Different approaches tailored to individuals' sex and motives for marijuana use is needed for the prevention and treatment of behavioral health problems.

1. Introduction

Marijuana is the most commonly used recreational drug in the United States. According to data from the National Survey on Drug Use and Health (NSDUH), the prevalence of past-month marijuana use among people aged ≥ 12 years in the United States rose steadily from 6.2% in 2002–8.3% in 2015 (Center for Behavioral Health Statistics and Quality (CBHSQ), 2016). Over the past few years, legal status of marijuana has changed rapidly in the United States. In 2012, Colorado and Washington states have legalized recreational use of marijuana for adults (Room, 2014). Since then, six additional states (Alaska, California, Maine, Massachusetts, Nevada, and Oregon) and the District of Columbia approved the adult use of recreational marijuana (National

Conference of State Legislatures, 2017a). The medical use of marijuana is currently legal in 29 states and the District of Columbia (National Conference of State Legislatures, 2017b). Legalization of marijuana for either recreational or medical purposes may increase the availability of marijuana, marijuana-related health care utilization, and marijuana-related problems, such as marijuana-related driving accidents, burns, and a cyclic vomiting syndrome (Hall and Degenhardt, 2009; Joffe et al., 2004; Monte et al., 2015; Wang et al., 2013).

Problematic marijuana use (e.g., chronic or heavy use) is positively associated with the risk of substance use disorder (SUD) and mental illness (Blanco et al., 2016; Volkow et al., 2014). Prior findings revealed that medical marijuana users tended to have more anxiety disorder, but less alcohol use disorder than recreational marijuana users (Compton

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et al., 2017; Park and Wu, 2017). However, differences in patterns of other SUDs and treatment seeking have not been systematically examined in a large representative sample. Although it is recommended for physicians to evaluate patients' illness and substance use history when recommending medical marijuana (Chaudhry et al., 2016), specific guidelines regarding assessment and treatment planning of behavioral health problems are lacking in clinical practices. To inform intervention, this study seeks to explore the patterns of behavioral health disorders and unmet treatment needs, focusing on its correlates with marijuana use status. Such information could aid clinical decisions that will improve treatment effectiveness for behavioral health problems by developing tailored clinical interventions across marijuana subgroups.

An analysis of health care patients in Colorado found that individuals with state-authorized medical marijuana cards used marijuana more frequently, but they were less likely to be involved in risky substance use, such as alcohol, amphetamines, tobacco, any substance, and any controlled substance than individuals without cards (Richmond et al., 2015). Another study focusing on primary care patients in Washington reported similar results, suggesting that medical marijuana users experienced less severe levels of alcohol and drug problems than recreational marijuana users (Roy-Byrne et al., 2015). Likewise, a study of emergency department patients in Southern California found that medical marijuana users had more frequent marijuana use, but lower problematic drug use than recreational marijuana users (Woodruff and Shillington, 2016). These data from single-site or local samples revealed differences in substance use patterns between medical and recreational marijuana users that have clinical implications for treatment planning and research. Thus, it is important to further characterize the extent of mental disorders and SUDs, and their correlates with marijuana use status at a national level.

Moreover, there is limited information about behavioral health service utilization and treatment needs directly from medical marijuana users. Mental disorders and SUDs account for approximately 7.4% of disease burden globally (Whiteford et al., 2013). Despite this substantial burden, a large number of people with mental disorder/SUD remains untreated. According to results from 2014 NSDUH, 4.9% of adults aged ≥ 18 years in the United States reported unmet need for mental health services in the past year, which refers to needing mental health care or counseling in the past year, but not receiving it (Han et al., 2015). The number of people reporting unmet need for mental health services in the United States increased steadily from 4.3 million in 1997–7.2 million in 2010 (Roll et al., 2013). Unmet need for drug use treatment was disproportionately more common among individuals with SUDs and comorbid mood/anxiety disorders (Melchior et al., 2014). To date, the information on the extent of unmet need for mental health and substance use treatment among medical marijuana users is lacking. A study of medical marijuana patients at a dispensary in California ($n = 303$) found that 8% were those who had desire to participate in substance abuse treatment but did not attend (Janicsek and Reiman, 2012). Given the differences in mental health and substance use problems by marijuana use status (Compton et al., 2017; Lin et al., 2016; Richmond et al., 2015; Roy-Byrne et al., 2015; Woodruff and Shillington, 2016), it is necessary to know unmet treatment needs across marijuana subgroups to inform appropriate clinical services.

Sex-differences in mental disorders and SUDs have been documented. Findings from U.S. national survey revealed that males have a higher prevalence of SUDs, but a lower prevalence of mental disorders than females (Grant, 1995; Grant et al., 2004a; Kessler et al., 1993; Kessler et al., 1994). Sex is also an important determinant of treatment seeking. Kessler et al. (1981) found that females have more capacity than males to translate nonspecific psychological distress into conscious awareness of mental health problems, which may explain high mental health treatment rates among females. However, females tend to feel more social stigma associated with drug use than males, which may serve as a barrier for treatment seeking for substance abuse problems (Brady and Randall, 1999). To enhance treatment effectiveness, it is

important to have a complete understanding of these sex differences. To date, no previous study has documented whether behavioral health disorders and treatment seeking patterns vary by sex across marijuana subgroups.

In this study, past-year adult marijuana users (≥ 18 years) were categorized into three marijuana subgroups according to self-reported reasons for use: (1) recreational use only, (2) medical use only, and (3) both. This study aims (1) to compare past-year prevalence of behavioral health disorders (major depressive episode [MDE], alcohol and 9 specific SUDs) and unmet treatment needs across three marijuana subgroups, and (2) to determine its associations with marijuana use status. To investigate whether sex differences exist for these associations, sex-stratified analyses were performed.

2. Methods

2.1. Data source

Data were from 2013 and 2014 NSDUH public use data files. The annual NSDUH is an independent, cross-sectional survey designed to provide ongoing, national estimates of licit and illicit substance use and mental health in the civilian, noninstitutionalized population aged ≥ 12 years in the United States (Center for Behavioral Health Statistics and Quality (CBHSQ), 2015). Active military personnel, those of no fixed address (e.g., homeless), and people living in jails, hospitals, or other institutional group quarters were excluded from the survey. The NSUDH employed a multistage area probability sampling strategy, which consists of (1) selection of census tracts, (2) selection of census block groups within census tracts, (3) area segments within census block groups, and (4) selection of dwelling units within segments (Center for Behavioral Health Statistics and Quality (CBHSQ), 2015). The NSDUH used a computer-assisted personal interviewing to assess respondents' demographic characteristics. The NSDUH also used an audio computer-assisted self-interviewing to improve reliability and accuracy of self-reports of mental health and substance use. Weighted screening and interview response rates for household were 83.9% and 71.7%, respectively, in 2013 and 81.9% and 71.2%, respectively, in 2014; refusal rate was 20.9% in 2013 and 21% in 2014 (Center for Behavioral Health Statistics and Quality (CBHSQ), 2015; Center for Behavioral Health Statistics and Quality (CBHSQ), 2014).

In this study, we focused on adults (≥ 18 years) who reported past-year marijuana use. We analyzed 2013–2014 NSDUH because questions regarding medical marijuana use status were included in the survey since 2013. Prior findings suggested that children and adolescents accounted for a very small proportion ($< 1\%$) of medical marijuana users (Fairman, 2016). As a result, a total of 15,440 past-year adult marijuana users (2013: $n = 7770$; 2014: $n = 7670$) were included for the analysis.

2.2. Study variables

2.2.1. Sociodemographic variables

Sociodemographic variables included age (18–25, 26–34, 35–49, 50 or older), sex (male, female), race/ethnicity (non-Hispanic White, non-Hispanic Black, non-Hispanic Native American or Alaska Native, Native Hawaiian or other Pacific Islander/Asian, more than one race, Hispanic), education (less than high school, high school graduate, some college, college graduate), marital status (married, widowed/divorced/separated, never been married), household income ($\leq \$49,999$, $\$50,000$ – $\$74,999$, $\geq \$75,000$), and frequency of past-year marijuana use (1–11 days, 12–49 days, 50–99 days, 100–299 days, 300–365 days). These sociodemographic variables were included as control variables in the analysis because they were found to be associated with behavioral health disorders and treatment seeking (Chen et al., 1997; Grant et al., 2009; Wang et al., 2005). Survey year (2013 and 2014) was included as a categorical covariate to control for year effects.

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