



## Recent cannabis use among Veterans in the United States: Results from a national sample



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### HIGHLIGHTS

- 9% of US Veterans reported past year cannabis use.
- Heavy episodic alcohol use is related to non-medical cannabis use.
- Alcohol use disorder is also related to non-medical cannabis use.
- 41% of Veterans using cannabis reported that they used cannabis medically.

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### ABSTRACT

**Background:** Compared to civilians, little is known about cannabis use among Veterans in the general United States (US) population. This study aimed to examine the prevalence and correlates of recent medical and non-medical cannabis use among this important US sub-population.

**Method:** Data came from the 2014 National Survey on Drug Use and Health. Bivariate and multivariable analyses were conducted that were weighted to account for the complex survey design.

**Results:** Approximately 9% of Veterans in the US reported past year cannabis use. Older, and female, Veterans had lower odds of past year cannabis use. Veterans who were unmarried, out of the work force, had greater functioning disability, nicotine dependence, heavy episodic alcohol use, alcohol use disorder, and drug use had greater odds of past year cannabis use. In states where medical cannabis was legal in 2014, approximately 41% of Veterans who used cannabis in the past year used *medically*. Those who used medically were older and *less* likely to engage in recent heavy episodic drinking or to meet criteria for alcohol abuse/dependence, compared to Veterans using non-medically.

**Conclusion:** Compared to non-Veterans in the US general population, recent cannabis use was similar or slightly lower among Veterans. However, among those with past year use, the proportion of those using medically was more than double that of the general population. Because only non-medical cannabis use was associated with higher rates of heavy episodic alcohol use and alcohol use disorder, it may be important to address problematic alcohol consumption among this high-risk group.

### 1. Introduction

Over the past decade, cannabis use has increased significantly among adults residing in the United States (US) (Azofeifa et al., 2016; Han et al., 2017; Hasin et al., 2015). Estimates from the National Epidemiologic Survey of Alcohol and Related Conditions (NESARC) suggest that the proportion of adults using cannabis in the past year more than doubled from 4% in 2001–2002 to 10% in 2012–2013 (Hasin et al., 2015), and more recent data from the National Survey on Drug

Use and Health (NSDUH) indicate a past-year prevalence of 13% (Compton, Han, Hughes, Jones, & Blanco, 2017). Such documented increases in cannabis use coincide with the growing acceptability of and access to cannabis in the US (Pacula, Powell, Heaton, & Sevigny, 2015). As of this writing, 28 states and the District of Columbia (DC) have legalized use for individuals with qualifying biomedical or psychiatric conditions, and 8 US states and DC have legalized non-medical (i.e., “recreational”) use (Maii, 2013; National Conference on State Legislatures, 2016).

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Given this changing landscape, it is important to continue to study the demographic, substance use, and health correlates of both medical and non-medical cannabis use among adults (e.g., Hall & Lynskey, 2016), as well as to identify subgroups that may be particularly affected by changes in legislation. Prior research by Lin and colleagues found that, among adults residing in states permitting medical cannabis, approximately 17% of those who used cannabis in the past year reported using for medical reasons (Lin, Ilgen, Jannausch, & Bohnert, 2016). In addition, compared with those using cannabis non-medically, individuals who used medically had greater odds of only good or fair/poor health and daily cannabis use, and lower odds of alcohol use disorder and other illicit substance use in the past year (Lin et al., 2016).

Despite these important initial findings, there is limited information regarding cannabis use among important population subgroups in the US, including military Veterans (Bonn-Miller, Harris, & Trafton, 2012; Davis et al., 2016). A recent exception is a study of an online sample of cannabis using Veterans (Loflin, Earleywine, & Bonn-Miller, 2017). The study found that Veterans using cannabis for medical reasons reported greater combat exposure, greater PTSD symptoms, greater arousal, more days of cannabis use in the past month, a greater amount of cannabis consumed per month, and fewer days of alcohol use in the past month compared with those using recreationally. However, the study used a convenience sample recruited via a National Organization for the Reform of Marijuana Laws (NORML) listserv and may not generalize to all US Veterans (Loflin et al., 2017).

To the best of our knowledge, only one previous study has documented national-level information related to cannabis use among Veterans (Bonn-Miller et al., 2012), and it found that rates of cannabis use disorder diagnoses increased over 50% (i.e., from 0.66% to 1.05%) from 2002 to 2009 among patients in the Veterans Health Administration (VHA). Nonetheless, these estimates do not include those with recent cannabis use who do not have a cannabis use disorder diagnosis, nor do they include the larger population of Veterans who do not access VHA services, limiting generalizability. Furthermore, articles in the popular press have cited Veterans groups, such as Veterans for Medical Cannabis Access, as major proponents of medical cannabis legislation (Benson, 2014). With the exceptions cited above, however, the extent of medical and non-medical cannabis use among US Veterans is largely unknown.

The dearth of information about medical and non-medical cannabis use among Veterans limits understanding of cannabis use among a substantial sub-population in the US. This study aimed to address this gap in the literature by examining the prevalence and associated features of recent (i.e., past year) cannabis use among Veterans from a nationally-representative household survey of US adults, and compare Veterans who used cannabis medically with those who used cannabis non-medically.

## 2. Method

### 2.1. Participants and procedures

Data came from the 2014 survey of the NSDUH, an annual nationally-representative cross-sectional survey of substance use and associated health concerns in the US (United States Department of Health and Human Services, 2014). The NSDUH uses a multi-stage probability sampling design to collect data from a representative sample of non-institutionalized individuals ages 12 years and older. Survey participants were interviewed using computer-assisted technology. The present study included data from a subset of adults ages 18 years and older who answered affirmatively to the following question: “Are you currently on active duty in the United States’ armed forces, in a reserves component, or now separated or retired from either reserves or active duty?” Participants who reported “Now separated/retired from reserves/active duty” (i.e., a US Veteran;  $n = 2587$ ) at the time of

assessment were included in analyses. For further information about the methods of the NSDUH please see SAMHSA (2014). This project was deemed exempt by the Institutional Review Board (IRB) at the University of Michigan.

### 2.2. Measures

#### 2.2.1. Medical and non-medical cannabis use

Participants were asked whether they had ever used cannabis in their lifetime (yes/no) and the number of days of cannabis use in the past year. For those participants who reported using cannabis in the past year, they were also asked whether any of their cannabis use was for medical reasons, (i.e., “recommended by a doctor”).

#### 2.2.2. Other substance use and substance use disorders

Participants were asked about their lifetime and past year use of other substances (alcohol, nicotine, etc.). Using criteria based on the Diagnostic and Statistical Manual of Mental Disorder, Fourth Edition (DSM-IV; American Psychiatric Association, 2000), participants were also asked about whether they had experienced any of the symptoms (e.g., tolerance, withdrawal, negative consequences) for an alcohol use disorder. Responses to these questions were used to determine whether each participant met criteria for past year alcohol use disorder. Additionally, each participant was assessed for Nicotine Dependence using the Fagerstrom Test of Nicotine Dependence (Heatherton, Kozlowski, Frecker, Rickert, & Robinson, 1989).

#### 2.2.3. Psychiatric and health-related functioning

Past year serious psychological distress was assessed using the Kessler-6 (Kessler et al., 2003), with a score of 13 or higher indicating significant distress. The Kessler-6 measures the frequency of feeling distressed (e.g., how often did you feel hopeless) from “None of the time” to “All of the time”, with past year psychological distress as the worst total score based on ratings for the past month or the worst month in the past year. Major depressive episode (MDE) was assessed using symptom criteria from the DSM-IV (APA, 2000). Participants endorsing 5 or more symptoms in the same two-week period, with at least one symptom related to anhedonia or depressed mood, were designated as meeting criteria for MDE. Overall health was assessed using one item from the Health-Related Quality of Life Scale (DeSalvo, Blosler, Reynolds, He, & Muntner, 2006), wherein responses include “poor,” “fair,” “good,” “very good,” and “excellent.” Overall health-related functioning was evaluated using the World Health Organization Disability Assessment Schedule (WHODAS). Items on the WHODAS evaluate how much difficulty participants experience performing eight daily activities, and higher scores indicate greater disability (Ustun et al., 2010).

#### 2.2.4. Demographics

Participants were asked their age, sex, race/ethnicity, marital status, employment, and education level.

### 2.3. Statistical analyses

All study analyses were conducted via Stata version 14 (StataCorp, 2015), and used NSDUH-defined variables for stratification, clustering, and weighting. Specifically, Taylor Series methods (via the Stata “svyset” and “svy” commands) were used to take into account the complex survey design, and obtain appropriate standard error estimates for study analyses. We calculated the weighted proportion (i.e., prevalence) of past-year cannabis use among Veterans in the NSDUH, and weighted bivariate analyses (e.g., chi-square, *t*-tests) were conducted to examine differences between Veterans who used cannabis within the past year and those who did not. Next, a weighted multivariable logistic regression was performed to estimate associations between the characteristics of interest and past-year cannabis use, simultaneously

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