

# The Green Sheep: Exploring the Perceived Risks and Benefits of Cannabis Among Young Military Members and Veterans

Kelly Lynn Clary<sup>1</sup>, Megan Habbal<sup>2</sup>, Douglas C. Smith<sup>3</sup>, Iulia Fratila<sup>4</sup>

<sup>1</sup>School of Social Work, Texas State University

<sup>2</sup>Department of Psychology, University of Illinois at Urbana-Champaign

<sup>3</sup>School of Social Work, University of Illinois at Urbana-Champaign

<sup>4</sup>Community Health, University of Illinois at Urbana-Champaign

*Cannabis*

2021, Volume 4 (2)

© Author(s) 2021

researchmj.org

DOI: 10.26828/cannabis/2021.02.003



## ABSTRACT

Medical and recreational cannabis are becoming more accessible and socially accepted across the United States. Emerging adults (EAs; 18 to 29) are the largest group of cannabis users. Studies have found that veterans are more likely to report cannabis use compared to nonveterans. While research exists on the use levels of cannabis, limited knowledge is available on the perceived risks and benefits of using cannabis among EA military and veteran populations. Helping professionals encounter veterans who use cannabis and must consider military cultural factors and attitudes towards cannabis that may influence or exacerbate cannabis use. We conducted a qualitative study with 23 EA veteran and military members with high-risk substance use and asked about their thoughts on the acceptability, risks, and perceived benefits associated with cannabis. Two qualitative coders used NVivo to find themes following the six steps of thematic analysis. Results provide in-depth understanding of EA military members and veterans' perceptions of cannabis. Overall, we found participants were receptive to using cannabis for pain ailments, mental health issues, and as an alternative to benzodiazepines, opioids, and alcohol. However, they acknowledged restrictions are needed to moderate cannabis use and mitigate negative outcomes. Lastly, participants recognized the incongruence of cannabis use with military job responsibilities and expectations. These findings shed light on potential risk and protective factors related to using cannabis for recreational or medical reasons and should be considered when consulting EA military members and veterans.

**Key words:** = cannabis; veteran; qualitative methods; substance use; military; emerging adults

Across the world, cannabis is the most used drug after alcohol and tobacco (Budney et al., 2019). Today cannabis use is at the highest it has been in three decades, as one study shared the rate was approaching 36.5% prevalence for past year use (Schulenberg et al., 2017). DSM IV Cannabis Use Disorder (CUD) diagnoses significantly increased in the general population (4.1% to 9.5%) from 2003 to 2013 (Hasin et al., 2017). Further, we see continued increases within demographic subgroups (i.e., gender, age, race/ethnicity, income, education, marital status, urbanicity, region, pregnancy status, disability status; Hasin et al., 2019). Approximately 1 in 5 cannabis users may be at risk for a CUD

diagnosis, with the majority occurring within the first 4 years of first use (Leung et al., 2020; Feingold et al., 2020). The peak prevalence of substance use, mostly cannabis and alcohol use, occurs in emerging adulthood (ages 18-29; Schulenberg et al., 2017). Approximately 1.7 million EAs have a past year CUD (about 5% of 18 to 29-year old's; SAMHSA, 2016). A decade-long trend is that EAs now perceive fewer risks of physical harm associated with using cannabis. According to the National Survey on Drug Use and Health (NSDUH), the percentage of adults indicating that there was "no risk" associated with cannabis use increased from 6% to 15% during 2002 to 2014 and perceiving "great risk of harm"

Corresponding Author: Kelly Lynn Clary, Ph.D., MSW, School of Social Work, Texas State University, 601 University Drive, San Marcos, TX, 78666. Email: klc385@txstate.edu. Phone: 815-666-8091.

Note on article title: 'Green Sheep' is often used as a slang term for being open minded about discussing and using cannabis. Since stigmas and negative connotations still exist about cannabis, being vocal about cannabis can be challenging. Further, since cannabis is illegal to use within the military, discussing cannabis with active-duty members and veterans may be perceived as a *taboo* topic.

related to smoking one to two times per week dropped from 50.4% to 33.3% (Compton et al., 2016). These trends illuminate a likely inverse relationship between risk associated with cannabis use and CUD. Meaning, as perceived risks and harm associated with cannabis use decrease, cannabis use may continue to increase. This is important and highlights the possibility of significant public health risks associated with legalization of both medical and recreational use of cannabis. To date, 36 states and four territories have passed cannabis legalization policies for medical and/or recreational use since 1996 (Hasin, 2018; National Conference of State Legislatures, 2021). Further, the literature addresses the increased risk of negative effects related to physical and mental health, social and occupational functioning, and increase in substance use disorders, psychosis, mental health issues, and schizophrenia as a result of cannabis use (Svrakic et al., 2012; National Academics of Sciences, Engineering, and Medicine, 2017).

### *Background*

Among all EAs, active-duty military members and veterans often have higher rates of substance use and related consequences than their civilian counterparts (Larson et al., 2012; Mitchel et al., 2017). Veterans with a diagnosable mental health or a substance use disorder increased from 27% to 41% from 2011 to 2014 (U.S. Department of Veterans Affairs, 2016). More specifically, 18-25-year-old male veterans have higher substance use rates than their civilian counterparts (Teeters et al., 2017), substance use disorder diagnoses have increased by 81% among women veterans (Cucciare & Ghaus, 2012), and veterans have higher rates of alcohol-related consequences than civilians (Mitchell et al., 2017). One study shared veterans are more likely to report using cannabis than comparable nonveterans (Wagner et al., 2007), and the increasing rates of cannabis use and CUD are evident in the literature (Metrik et al., 2018). A recent nationwide sample of veterans showed that in 2018, approximately 9% of veterans reported past year cannabis use (Davis et al., 2018). During 2014, in states where medical cannabis was legal, 41% of veterans who used cannabis in the past year reported doing so for medical purposes (Davis et al., 2018). Moreover, the percentage of veterans with comorbid post-

traumatic stress disorder (PTSD) and CUD diagnoses at the Veterans Affairs Health Care System increased from 13% in 2002 to 22.7% in 2014 (Bonn-Miller & Rousseau, 2015). This is two times higher than the general population, but also undercounts the actual number of veterans using and misusing cannabis because not all veterans utilize the Veterans Affairs Health Care System. In addition, PTSD has been documented as the most likely co-occurring diagnosis with CUD among veterans (Metrik et al., 2020). This is important as research has cited that one of the most prevalent coping strategies to alleviate symptoms related to PTSD is the use of cannabis (Kondev et al., 2021). More so, veterans have been documented to view cannabis as a mechanism for reducing PTSD symptoms (Earleywine & Bolles, 2014), in addition to a sleeping aid (Bonn-Miller et al., 2014), pain management (Baron et al., 2018), and assisting with emotional triggers (Tull et al., 2007).

Recent alterations in policy and research have brought about a rapid perspective shift on the use of medical cannabis for the treatment of physical ailments, sleep disturbances, and psychological disorders among young veterans (Aggrawal, 2009). Modern research findings continue to point to medical cannabis as a potentially effective alternative to prescription medications for treating a broad range of medical conditions. For example, participants in one study described cannabis as a safer alternative to alcohol, illicit drugs, and pharmaceuticals (Lau et al., 2015). Multiple research studies have illustrated the benefits derived from using cannabis for various medical reasons (Institute of Medicine, 2011; National Academics of Sciences, Engineering, and Medicine, 2017), such as for chronic pain, nausea/vomiting, muscle spasms, and seizures/epilepsy (Ebbert et al., 2018). However a recent scoping review reports there are mixed findings about benefits and harms from cannabis, and moderate harms were commonly reported throughout the documented studies (Pratt et al., 2019). Further, research has also shown biopsychosocial impairments can be linked to CUD characteristics (Budney, 2006; Hasin et al., 2013; Sofis et al., 2020, Volkow et al., 2014). This is concerning due to the increasing rates of cannabis use across the country, decrease of risks associated with use among young veterans, limited knowledge about cannabis being an

effective treatment for PTSD (Bonn-Miller & Rousseau, 2015; Krcevski-Skvarc et al., 2018); and growing body of literature unveiling the spectrum of behavioral, mental health, and neurobiological risks associated with cannabis use (i.e. psychosis, anxiety, depression, social impairments, cognitive deficits, social impairments and drug addiction; Bassir Nia et al., 2016; Charilaou et al., 2017; Leweke & Koethe, 2008; Malone et al., 2010; Kedzior & Laeber, 2014; Feingold et al., 2017; Crean et al., 2011).

### *Summary*

A great deal of literature focuses on the relationship of PTSD, Major Depressive Disorder, sleep, and anxiety with cannabis (Grant et al., 2016; Metrik et al., 2016). However, it is evident that identifying specific motives and perspectives for cannabis use is important for empirically-based support-treatments (Metrik et al., 2016). We acknowledge EA military members and veterans are using cannabis for medical issues and recreational purposes, which continues to be a growing concern (Bonn-Miller & Rousseau, 2015). Further, the literature cites there are risks for veterans using cannabis, but we should expand our understanding with active-duty service members as well. Active-duty service members who use cannabis may be at risk for substantial consequences due to their military status. In summary, minimal qualitative research exists on the perceived risks and benefits associated with cannabis use among EA military populations. Research should focus on uncovering protective and risk factors among EA active-duty military members and veterans to tailor education and treatment programs.

### *The Current Study*

This exploratory qualitative study sought to understand the perceptions and attitudes of EA military members and veterans using cannabis. We specifically uncovered perceived benefits and risks of cannabis among EA military members and veterans using cannabis for medical and recreational purposes. This study is unique in asking EA military members and veterans their perceptions of cannabis. For this study we defined EAs as individuals ages 18-29, as recent literature has established adulthood as beginning at age 30

(Mehta et al., 2020). This also aligns with the guidelines put forth from the Society of the Study of Emerging Adulthood (SSEA), a large scholarly organization (SSEA, 2014). This developmental time is challenging and EAs are at heightened risk for substance use problems (Arnett, 2005). Because of this, we interviewed EA veterans and military members. This qualitative study adds to the literature by focusing on EA military members and veterans with risky substance use. Moving forward, this information can inform substance use programming and harm reduction approaches for EA veterans and military members.

## **METHODS**

### *Data Collection*

In a Midwestern state, we received Institutional Review Board (IRB) approval from a large university and obtained a National Institutes of Health Certificate of Confidentiality. This current study is part of a dissertation study that focused on the relationship between substance use behaviors including alcohol and cannabis and the five Emerging Adulthood Theory developmental dimensions among EA military members and veterans (Arnett, 2000; Clary, 2020). We used social media and snowball recruitment across the United States by advertising the study through social media (i.e., LinkedIn, Facebook) and on university listservs (i.e., campus veteran center), as well as through word of mouth from participants (i.e., participants shared the study with their peers). Participants were eligible if they were currently serving in the military or a veteran, between the ages of 18-29 years old, spoke English, currently living in the United States, and met threshold for high risk substance use behaviors through the Alcohol Use Disorders Identification Tool (AUDIT-C) or Drug Abuse Screening Tool (DAST-10). Forty-three participants emailed inquiring about the research study, 36 (100%) people were screened for eligibility via telephone, 30 (83%) people were eligible to participate, 26 (72%) individuals completed the study, and 23 (64%) participants discussed the questions related to perceived risks and benefits of cannabis use. Eligible participants completed an online Qualtrics survey taking approximately 20 minutes. Data for this study was collected from February 2019 to August 2019.

Participants received a \$30 Amazon gift card for completing a semi-structured interview on a wide range of topics.

### *Measures*

Two reliable and valid measures assessed for high-risk substance use behaviors. Eligible participants had to meet high risk from either instrument.

#### *Alcohol Use Disorders Identification Tool-C (AUDIT-C)*

The Alcohol Use Disorders Identification Test (AUDIT-C) Questionnaire is a modified version of the 10 questionnaire AUDIT instrument, which demonstrates good specificity and sensitivity for identifying high risk alcohol behaviors (Rumpf et al., 2002). The AUDIT-C includes the first three items of the AUDIT, which screens for hazardous alcohol consumption or those who might have an alcohol use disorder (Bush et al., 1998). A score of four or higher is considered positive for hazardous drinking for men and a three or higher for women (Range = 0-12).

#### *Drug Abuse Screening Tool-10 (DAST-10)*

The Drug Abuse Screening Test (DAST-10) is a brief administrative tool used to understand the extent of problems due to substance use, other than alcohol and tobacco use. The cut off for this test is 3 or higher (Range = 0-10). A comprehensive review validates adequate reliability and validity of this tool for use in clinical and research settings (Yudko et al., 2007; Skinner, 2001).

### *Interview Protocol & Questions*

Participants living near the university had the choice to complete the interview in-person, and those not living in close proximity to the university completed the interview virtually. Twenty-three semi-structured audio-recorded interviews were completed via Zoom (n=19) or in-person (n=4). On average, interviews lasted approximately 71 minutes and one interviewer asked questions regarding their transition into adulthood, substance use behaviors, mental health stigma, and perceptions and attitudes

related to risks and benefits of cannabis. The structured questions that were analyzed for this study are (1) “Can you talk about cannabis within the military?,” (2) “What do you believe are the perceptions of military members and veterans using cannabis?,” and (3) “What are the risks and benefits of veterans using cannabis?” Additional interview questions were analyzed in other articles (Clary & Byrne, 2021; Clary et al., 2021).

### *Qualitative Data Analysis*

Qualitative methods are beneficial when establishing an understanding about a phenomenon with limited knowledge (Taylor & Bogdan, 1998). Interviews were transcribed verbatim by a confidential transcription service for objectivity, and transcripts were uploaded to NVivo software for analysis (Hilal & Alabri, 2013). The first two authors completed reflexive thematic analysis coding (Braun & Clarke, 2006). Both coders are well-versed in qualitative methodology (i.e., completed qualitative methodology courses), have used NVivo software for previous qualitative coding projects, and have previously published qualitative studies.

### *Thematic Analysis*

The two coders utilized the six-phase process of thematic analysis (Braun & Clarke, 2006), a widely-used qualitative method (Boyatzis, 1998; Roulston, 2001; Javadi & Zarea, 2016). This recursive process includes (1) familiarization with data by reading through the transcripts and listening to audio recordings, (2) generating initial codes and creating a codebook, (3) searching for themes, (4) reviewing potential themes, (5) refining, defining, and naming themes, and (6) producing the findings report with illustrative quotes. We used a phenomenological research approach appropriate for inductively identifying common themes (Bliss, 2016). The first two authors read each transcript while listening to the audio recordings and made notes of patterns among the cannabis question (Taylor & Bogdan, 1998; Braun & Clarke, 2012; Gilgun, 2015). Next, transcripts were open coded (Strauss & Corbin, 1990; Charmaz, 2006) line by line to find meaningful patterns. Transcripts were coded independently in NVivo and weekly reflexive meetings ensued to address discrepancies among

codes. We then moved into a more concise way of understanding the initial generated codes by creating a manageable codebook using Excel. During this phase, the two coders condensed the open codes to create axial codes (Ryan & Bernard, 2000; Strauss & Corbin, 1990), and independently line by line coded the interviews. Next, peer debriefing with all authors regarding the results and illustrative quotes occurred. Lastly, the first two authors wove together the narrative with the overarching themes and selected quotes. The coders followed a rigorous qualitative coding method that included an audit trail, reflexivity, and peer debriefing to ensure the final report accurately illustrated the overarching themes and lived experiences of the participants.

### *Demographic Characteristics*

Average age of participants was 24.8 (Range = 20-29). The majority were male ( $n = 18$ , 78%). Of the 23 participants, 18 (78%) were White, 1 (5%) was Asian, and 4 (17%) identified as White and Hispanic. The majority were in the Marines ( $n = 11$ , 48%), with balance from the Navy ( $n = 6$ , 26%), Army ( $n = 3$ , 13%), Air Force ( $n = 1$ , 4%), Air National Guard ( $n = 1$ , 4%), and National Guard and Army ( $n = 1$ , 4%). Of the sample, 13 (56%) were currently serving, and 10 (44%) identified as veterans. Many participants had been deployed ( $n = 13$ , 56%). Participants were living across the United States in 9 states (i.e., Illinois, North Carolina, Arizona, California, Virginia, Michigan, Maryland, Oklahoma, and Colorado), with the majority ( $n = 10$ , 38%) living in Illinois. Average age of substance use onset was 16.3 (Range = 13-22, SD = 2.46). Average AUDIT-C scores were 5.3 (Range = 3-10, SD = 2.14), and the average DAST-10 score was 0.7 (Range = 0-6, SD = 1.72).

## RESULTS

Qualitative themes revolved around risks and benefits of cannabis use and included: (1) receptive to using cannabis due to perceived benefits for pain ailments, mental health issues, and as a substitute or alternative to benzodiazepines, opioids and alcohol, (2) regulations are needed, and (3) incongruence with military job responsibilities. Overarching themes and illustrative quotes follow each

theme. Please refer to Table 1 for the final themes, sub-themes, and definitions.

### *Receptive to Using for Self and Others*

Overall, participants were receptive to use cannabis for pain, mental health issues, and as an alternative or substitute to using prescription medications. They were open-minded about using cannabis for various medical issues including pain and mental health concerns, and also saw the potential benefit of using cannabis as a substitute to opioids and benzodiazepines, and a safer alternative to alcohol for recreational purposes.

Most participants acknowledged that there is an increase of cannabis use when one discharges from the military, which aligns with previous research on substance use during the transition out of the military. A study showed 31% of veterans reported increase of substance use during their first year into the civilian sector (Sayer et al., 2010). One participant explained cannabis use within the National Guard:

*“No one would like straight up be like, yeah, I smoke weed every day or whatever. But there would be occasions where people would like mention that they smoked or something in the guard... I actually smoked and I was in the military”. –Female, 26, Air National Guard, Veteran.*

Further, participants exemplified the increase in cannabis use after transitioning out of the military:

*“Yeah, especially right after they get out. There’s a honeymoon period, if you couldn’t do it [smoke cannabis] for 4 or 5 years or if you were in longer, you cannot do it, so once you get out and you’re able to do it, yeah, like everyone takes advantage of that and eventually it just tapers off” –Male, 25, Marine Corps, Veteran.*

*“So, there’s those that definitely plan on using it [cannabis] when they get out [of the military]” –Female, 25, Navy, Active Duty.*

*“A lot of people that I know that have gotten out, they’re like, oh, you know, the second I get out, I’m going to go, you know, buy, you*

*know, a bunch of weed to just smoke it, you know, um, whether this be just because they couldn't do before and now they can, you know" –Male, 26, Army, Active Duty.*

It is unclear whether cannabis use increases due to the legality of it outside of the military for recreational purposes, or if it is being used for self-medicating (Shadur et al., 2015) mental health and medical problems. However, the decrease in associated risks with cannabis use may be a factor at play. One participant mentioned:

*"I think marijuana use in general, I mean based off people I know and the ones I've met at school it's...marijuana itself is very common. I think a lot of people, I mean we have a couple of veterans that advocate for it, essentially. I know a couple of student veterans here who are really into it, really a believer of it. I think it is a little bit more common, it could be also be that the younger generation itself accepts it a lot more, so that could just be my experiences with the veteran students here who tend to be younger. –Male, 26, Navy, Veteran.*

This participant's statement aligns with the decade-long trend that young adults perceive fewer risks associated with cannabis (SAMHSA, 2018). A few more participants acknowledged the perceived benefits of cannabis:

*"I mean it [cannabis] has a lot of medical benefits to it." – Female, 26, Air National Guard, Veteran.*

*"If something works, I'm a true believer in if it works you should be able to do it. Whether it's for veterans, people who have arthritis or different things, you know, things like that. If it works, I think, absolutely. I mean it's been one of those things that's been, you know, kind of like the black sheep that no one really wanted to talk about or you know, try and pass. And I think it's awesome what's going on, you know, these days with everyone trying to pass different law, states legalizing it, everything else. –Male, 24, Marine Corps, Veteran.*

These two participants illustrate the majority's perceptions of benefits derived from cannabis for medical issues, once discharged from the military. We explain them further by including examples discussed by the participants which include pain ailments and mental health issues.

### *Pain Ailments*

Some participants expressed the use of cannabis for treating pain ailments. This is crucial as pain is one of the most frequently endorsed symptoms of veterans returning from military action and it is likely many veterans will endure clinically significant pain due to their military experience (Gironde et al., 2006). A participant explained his receptiveness to using cannabis for pain ailments:

*But I feel like if someone's in pain, and this [cannabis] can help them out, I absolutely agree that they should do it. And that and I think that's for the most part, universally agreed upon kind of thing in the military [referring to other service members]". –Male, 25, Navy, Active Duty.*

Another participant shared her own experiences with using cannabis for pain, anxiety, and a traumatic brain injury:

*"Well, from basically you know being hooked on Percocet at a young age and almost you know destroying my life, and you know, the big Opiate epidemic that you know we're in that is an extremely huge problem, but then, a natural thing like you know marijuana, I don't understand why it's not legal already, because, you know for me it helps my anxiety which is, extremely bad, and you know on and off again depression which now that I have a traumatic brain injury, one of the long term side effects is even if you're happy, your brain releases basically whatever it's called that makes you feel really sad so now I have that too, so the anxiety, the depression and the pain that is very severe, it helps all that. So how many medications is that preventing me from having to be on." –Female, 25, Marine Corps, Veteran.*

This participant mentioned how it helped her crucial pain ailment (i.e., traumatic brain injury), which impacts approximately 30,000 service members each year (Bagalman, 2011). She also endorsed it for her mental health issues including anxiety and depression. Many participants expressed their openness with utilizing cannabis for mental health problems.

### *Mental Health Issues*

PTSD was mentioned numerous times throughout the interviews when discussing cannabis. Multiple participants shared their thoughts on mental health tribulations:

*“People say like marijuana is better than drinking, and if veterans who have PTSD and they can use marijuana, I think that they should do that. Like, you know, legalize it, like if medical marijuana can help those veterans become calm and like, like take care of anxiety or something like that, I think that would be good.”- Male, 29, Army, Active Duty.*

*“Yeah, so, I think in a lot of ways medical marijuana is making big strides towards helping patients with like PTSD or Tourette’s or like just different psychological disorders in stimulating different parts of your brain that your brain needs to function and sometimes over functioning and it helps kind of mediate that.”-Male, 26, Marine Corps, Active Duty.*

*“I definitely think it is a positive thing especially for PTSD”-Male, 20, Marine Corps, Active Duty.*

*“Yeah, I mean I definitely think it is a positive thing for them, especially if they have PTSD, which individuals that have been deployed probably do or at least some sort of like issue.”-Female, 26, Air National Guard, Veteran.*

### *Substitute to Opioids and Benzodiazepines*

Opioids are commonly used to treat pain, and benzodiazepines are often used to treat anxiety, depression, and PTSD among veterans (American Geriatrics Society, 2009; National

Center for PTSD, 2019). Many participants acknowledged negative consequences that often transpire from misusing prescription medications. Others recognized benefits to using cannabis as an alternative to prescription medications. One participant discusses their thoughts:

*“Yeah, I’m all for it [cannabis]. I think it’s better than, you know, some of the medications that people are getting addicted to. I think it kind of makes me lazy and doesn’t make think very logically, but in terms of like an alternative to some of the pain medications and anti-depressants that veterans are given, I’m not a pharmacist or anything, but I think it’s, you know, a better alternative to those for sure. I’m all for it.”- Male 26, Marine Corps, Active Duty.*

Many participants recognized the negative repercussions associated with using opioids and benzodiazepines. Two participants are familiar with veterans not keen on using prescription medications:

*“Yeah, because most of the guys who are like taking prescriptions and stuff like don’t want to, so I think like if you’re like, hey, this [medical cannabis] is a legal way of potentially doing the same thing, you can try this out, blah, blah blah. If it works, great. If not like we can try the other stuff, I think it’s healthier to probably smoke weed than take a bunch of prescriptions drugs, but I don’t know.”-Male, 26, Marine Corps, Active Duty.*

*“I mean, you see these people in the military have chronic pain for the rest of their life and they’re hooked on Vicodin or hydrocodone and it affects, you know, the rest of their life. And sometimes they just can’t get off it. My uncle was a pharmacist and he was telling me that, some people are so addicted to the medication that they’re not really even actually in pain, but when they stop taking it, they just feel like they’re in pain, and they’re going to live the rest of their life that way.”-Male, 26, Marine Corps, Active Duty.*

*Alternative to Alcohol*

Many participants discussed the negative consequences of using and misusing alcohol. Research proposes veterans have higher rates of alcohol-related consequences than civilians (Mitchell et al., 2007). Participants believed using cannabis may have less consequences compared to alcohol. One participant explained:

*Yeah, I have zero issues with cannabis use. I think it should be legal nationwide, personally, I'm not like, I'm not like a goodie two-shoes and like, to be honest, I love to smoke weed and get black out drunk, but that's just me. So, I think it could be a good, a good thing for veterans. I mean I've never seen someone really high try to fight somebody or like try to hurt themselves while high on weed. So, I think that it could be a good alternative to alcohol and weed could also help physical pain. –Male, 29, Navy, Veteran.*

This participant notes fighting as a potential consequence from using alcohol, whereas with cannabis the negative consequences are less common. Another participant acknowledged DUI's are consequently associated with using alcohol:

*"I also think that banning marijuana but then allowing people to drink and all that is kind of, I mean there's a lot of DUIs in the military and all that. So, I feel like that's kind of contradictory to like want your people to be safe, but allowing them to drink so much and possibly drive and promoting like alcohol use and all that. So, I think it's, um, I mean cannabis has a lot of medical benefits to it as well. So, people should choose that over alcohol. I mean, go for it. I think that cannabis should be available to them". –Female, 26, Air National Guard, Veteran.*

*Regulations are Needed*

Participants discussed how regulations for cannabis are needed to reduce potential adverse outcomes and to make it more acceptable among veteran communities. While participants acknowledged the possibility of cannabis serving

as a beneficial replacement, they also recognized the need for regulation. One participant exemplified the need for regulations like alcohol:

*"I would like it to be accepted. I think there'd be a lot, a lot of regulation would have to be put in place in order to make it accepted. I mean this might be out there, I don't know. But like me drinking, you know, if you drink you could do a blood alcohol tests, right? That's wiser. But if you smoke, like there's not a way to measure how high somebody is". –Male, 29, Navy, Veteran.*

While this is a suggestion for regulation, some participants acknowledged the dichotomy between military and civilian culture, recognizing the stark cultural and fundamental differences between the two environments (Demers, 2011; 2013). This is further explained by participants exemplifying the perceptions of cannabis potentially negatively interfering with military job responsibilities.

*Incongruence with Military Job Responsibilities*

Participants discussed how being under the influence of substances, specifically cannabis, does not prepare military members to fulfill their mission (e.g., job responsibilities). A few participants brought up the differences in perceptions of using cannabis in and outside of a military setting. Most acknowledged it would be a long while, if ever, before the military accepted cannabis for active-duty members. This could be an example of recreational use of cannabis, for instance when it is differentiated or separated from work time it potentially exists in leisure-space time. Two participants offered their opinion:

*"No, I don't think cannabis will be allowed. Well, because it goes back to the thing where like, you know, every Marine, is like a rifleman. Technically you're supposed to be able to go and fight at any time. Knowing you're going to be able to concentrate if you're high, no. I think it's like one of those things too, they tell you it gets in the book. Like if they allow it, people are just coming up to work high and stuff and shit won't get done. Because like one mistake could kill*

*somebody. You know what I mean? One mistake could kill somebody or more. Your probability and your chance of making that mistake is much higher.” - Male, 20, Marine Corps, Active Duty.*

*“So I think that medical marijuana can be beneficial to some, but not all. Um, and I think the Navy's perspective, I don't think that they have a definite standpoint, but I definitely know that it's completely prohibited, uh, when it comes to, uh, even CBD oil in the military you will pop and it's looked down upon, uh, to put forth the effort while you're in the military. Uh, it's wrong. In their sense because it's physically, um, I don't want to say it deteriorating cause weed doesn't really do that. It's more of just like a health conscious thing where you have to be consciously active thinking that under the influence. Uh, especially if you're called into work. Um, it just creates a, uh, less, it creates an environment where things happen. Like you're getting arrested less. So it's, it's a means of security and stuff.” -Male, 25, Marine Corps, Veteran.*

Others discussed the perception in the military regarding cannabis, that may influence the military's perceptions. These participants explained:

*“I think like big army or big military with what, what their perspective would be. Is it basically you know, it clouds your judgment and the different ways that impairs your thinking process. You know, I think you're more clouding, you know, clouding your thoughts, clouding your judgment, to where you may not be able to function as you would, or as maybe as efficiently as you would not being influenced by marijuana.” - Male, 26, Army, Active Duty.*

*“Yeah, it definitely goes back to like whether or not like if you smoke, can you go to war? Like, Yeah. I mean anything can happen. Right?... And it goes back to like for alcohol, you can test BAC right, easily with the breathalyzer and marijuana. They haven't come up with something that's so quick and accurate.” - Male, 29, Navy, Veteran.*

## DISCUSSION

In this study, we add to the qualitative literature of perceived benefits and attitudes of cannabis with a sample of EA military members and veterans with self-reported high-risk substance use behaviors (i.e., alcohol and/or other substances). Overall, participants were receptive to using cannabis for various conditions and did not mention identified risks associated with using cannabis, aligning with other reports indicating veterans are receptive to the utilization of cannabis for medical purposes and perceive cannabis as a safe substance (Wilkinson et al., 2016). Instead, they identified benefits for using it as a substitute to highly addictive prescription medications for pain, physical ailments, and mental health issues. Moreover, most participants believe using cannabis in place of alcohol may decrease negative repercussions that alcohol is often associated with or causes.

### *Increase in Substance Use*

Participants recognized an increase in substance use after transitioning out of the military, specifically with cannabis. Research also reiterates this behavior (Sayer et al., 2010). A longitudinal study found that approximately 40% of veterans received a mental health diagnosis, and that those who were younger than 25 had higher rates of PTSD and substance use problems compared to those who were 40 and older (Seal et al., 2009). Among veterans, cannabis is often used as a means of reducing PTSD symptoms (Grant et al., 2016). When thinking about the use of cannabis, research should continue to evaluate if cannabis use is increasing because of the legality of it out of the military setting, so for recreational/leisure purposes, or for self-medication (Shadur et al., 2015) purposes for pain and mental health issues, or a combination of both factors.

### *Pain Ailments and PTSD*

Studies have found cannabis to be a useful way to alleviate physical symptoms. Recent advances in cannabis research have discovered cannabinoids to be a favorable way to relieve spinal cord injury-related symptoms (Stillman et

al., 2019), stiffness/spasm and pain among those with multiple sclerosis (Clark et al., 2004), non-cancer musculoskeletal pain (Johal et al., 2020), fibromyalgia (Habib & Artul, 2018), and neuropathic pain (Wilsey et al., 2013). Musculoskeletal pain is also extremely prevalent among veterans. Between 2000 and 2011, nearly 500 million U.S. veterans were diagnosed with one or more musculoskeletal disorders (Monaghan, 2020), and some may benefit from medical cannabis.

Regarding PTSD, one recent qualitative study with seven veteran PTSD patients in the Netherlands identified cannabis as a medicine to manage their symptoms and function more adequately (Krediet et al., 2020). A recent study with 404 medical cannabis users self-reporting PTSD found that cannabis temporarily relieved PTSD-related symptoms by up to 50% after use (LaFrance et al., 2020). However, this study identified a risk of developing tolerance. Further, a recent systematic review concluded that randomized controlled trials are needed to uncover evidence between cannabis, PTSD symptoms, and sleep disturbances, as there is “insufficient evidence to support the use of cannabinoids as a psychopharmacological treatment for PTSD” (Hindocha et al., 2020, p. 133). Because of these inconsistencies, research suggests that medicinal CBD and THC should not be recommended for treating patients with affective or anxiety disorders, or PTSD (Stanciu et al., 2021). It seems as if there is a disconnect with research evidence, perceptions of veterans, and health service recommendations (i.e., PTSD serving as a qualifier for a medical cannabis card).

#### *Alternative to Alcohol*

Participants in this study and other research (Mitchel et al., 2007; CDC, 2018) recognized negative consequences often transpire from alcohol. An increasing number of veterans drove under the influence of alcohol (1.6 to 2.5%) over a recent two-year period (CDC, 2018). However, participants in this study reported that cannabis was a substitute or safer alternative to alcohol. It is important to mention that while cannabis may be perceived as a “safer” alternative to alcohol, there are still potential consequences and repercussions of driving while under the influence of cannabis (DUIC; Borodovsky et al., 2020).

Research has found that there are groups of people that believe they can still safely drive while using cannabis, that cannabis is not responsible for impairing driving abilities, and cannabis may actually improve driving abilities (Greene, 2018; Fischer et al., 2009; Swift et al., 2010; McCarthy et al., 2007). However, multiple experimental and epidemiological studies conclude cannabis does impair safe driving, as it adversely impacts cognitive and psychomotor skills (Wood & Dupont, 2020). Further, data suggests operating a motor vehicle while under the influence of cannabis is associated with significantly increased odds of a collision (Rogeberg & Elvik, 2016). Sharing this information with EA military members and veterans to promote harm reduction approaches might be needed as medical and recreational cannabis opportunities continue to grow.

#### *Substitute to Prescription Drugs*

Many participants recognized the possibility of using cannabis as an alternative to prescription opioids and benzodiazepines. Research recognizes due to the addictive nature of these medications, consistent and/or long-term use can attribute to addiction (Bruckenthal et al., 2009; National Center for PTSD, 2020). A sample of veterans reported using cannabis as an alternative to prescription medications significantly decreased their negative mood states and helped them cope better in stressful situations (Elliott et al., 2015). However, limited research exists on cannabis use in EA veterans who are using it as a substitute or complement for prescription opioids and benzodiazepines.

#### *Negative Outcomes of Cannabis*

While most participants acknowledged the benefits associated with using cannabis for pain ailments and mental health issues, they did not disclose perceived risks besides the suggestion for regulations to be made. To date, there is conflicting research about cannabis for assisting various health problems. There is a growing body of literature unveiling the spectrum of behavioral and neurobiological health risks associated with cannabis use such as risks for psychosis (Bassir Nia, 2016; Charilaou et al., 2017; Leweke & Koethe, 2008; Malone et al., 2010), anxiety

(Kedzior & Laeber, 2014), depression (Feingold et al., 2017), cognitive deficits and social impairments (Crean et al., 2011), and subsequent drug addiction. Many studies provide evidence that cannabis is not risk-free and emphasize the need for more rigorous scientific investigations to address the prospective long-term consequences of cannabis use. Moreover, research suggests that cannabis is also addictive with possible withdrawal symptoms (Volkow et al., 2014). Approximately 1 in 9 individuals who use cannabis will develop dependency, and there is now a specific cannabis withdrawal syndrome that was formally recognized by the American Psychiatric Association in 2013 (American Psychiatric Association, 2014). However, there are studies that confirm veterans are reaping benefits from cannabis use for chronic pain, sleep difficulties, anger outbursts, anxiety, and PTSD (Aston et al., 2018). While research studies have demonstrated some benefits derived from using cannabis for various medical reasons (Institute of Medicine, 2011), there is still inconsistent literature regarding the risks and benefits of cannabis use requiring further attention, specifically the utilization of experimental designs.

### *Implications*

The implementation of drug testing in the military began in 1971 with the plan to detect, rehabilitate, and return them to their jobs (Bray et al., 1992). However, this drug enforcement is now more punitive through a zero-tolerance policy. Detection of an illegal substance can result in separation of the military, exemplifying a negative connotation of substances. This policy is starkly different than many corporations or private sectors outside of the military. Many substance use programming models, especially with EAs, integrate a harm reduction approach. Harm reduction is defined as “the recognition that treatment must start from the client’s needs and personal goals and that all change that reduces the harms associated with substance use can be regarded as valuable” (Tatarsky, 2003, p.1). This paradigm-shift in treatment allows people to moderate their use to decrease consequences, without stopping all together. Due to the mixed benefits and consequences associated with cannabis use among EA veterans, and the

dichotomy of drug perceptions in and outside the military, health experts and helping professionals should work on incorporating harm reduction approaches with EA veterans to moderate the risks and benefits of cannabis.

### *Future Research*

Additional research is needed to fully understand the short- and long-term effects cannabis may have on veterans before recommendations for policies and regulations should be made. A deeper understanding of using cannabis as a complement or substitute for prescription opioids and benzodiazepines will allow us to understand potential risk factors for polysubstance use. Consequences of polysubstance use and the implications cannabis has should also be considered. Related to this idea, future research should consider where EA military members and veterans are purchasing their cannabis (i.e., street dealer who they trust, medical cannabis card, or recreational dispensary). This could shed light on veterans’ differences in using cannabis for primarily recreational, medical, or a combination of both purposes. However, teasing these things out may be difficult due to legality differences across state lines (Grant et al., 2016). But greater understanding of these phenomenon could assist with harm reduction approaches and future education and programming on cannabis for EA military populations.

### *Limitations*

Because of the qualitative nature of this study, this study is limited by its small sample size. There were a mix of veterans and military members in this study which makes it difficult to tease apart perceptions based on military status. Moreover, there was a wide range of military branches that were included in the study which may influence one’s perceptions as we know each branch in the military often has their own substance use culture. Perceptions of cannabis may differ depending on one’s military status, rank, geographic location, and branch. Further, this sample met criteria for risky substance use, positioning them to potentially have nuanced experiences and perspectives regarding substance use behaviors including cannabis. Lastly, because

this study employed a purposeful sampling strategy with snowball recruitment methods, selection biases exist. Future research should follow up on these findings using more generalizable methods.

### Conclusion

EA military members and veterans perceive cannabis as an attractive alternative to alcohol, as well as to opioid and benzodiazepine medications. Further, this sample recognized cannabis as an effective treatment mechanism for physical ailments and mental health issues including PTSD. Participants recognized limited risks, aligning with research on the increasing acceptability, accessibility, and use levels of cannabis. However, these perceptions do not align with research regarding potential consequences or health risk factors, specifically the inconsistent data regarding the effectiveness of using cannabis for PTSD and potential adverse effects of driving while under the influence of cannabis. Future research should examine polysubstance use and the impacts cannabis has on consequences, pain ailments, and mental health issues, including PTSD. Lastly, understanding cannabis as an alternative or substitute to alcohol, opiates, and benzodiazepines can inform substance use treatment strategies and modalities.

### REFERENCES

- American Geriatrics Society Panel on the Pharmacological Management of Persistent Pain in Older Persons. Pharmacological management of persistent pain in older persons. *Pain Medicine*. 2009 Sep 16;10(6):1062-1083.
- American Psychiatric Association. (2014). *Desk reference to the diagnostic criteria from DSM-5®*. American Psychiatric Pub.
- Bagalman, E. (2011, May). Traumatic brain injury among veterans. Congressional Research Service, Library of Congress.
- Baron, E. P., Lucas, P., Eades, J., & Hogue, O. (2018). Patterns of medicinal cannabis use, strain analysis, and substitution effect among patients with migraine, headache, arthritis, and chronic pain in a medicinal cannabis cohort. *The Journal of Headache and Pain*, 19(1), 1-28. <https://doi.org/10.1186/s10194-018-0862-2>
- Bassir Nia, A., Medrano, B., Perkel, C., Galynker, I., & Hurd, Y. L. (2016). Psychiatric comorbidity associated with synthetic cannabinoid use compared to cannabis. *Journal of Psychopharmacology*, 30(12), 1321-1330.
- Bonn-Miller, M., & Rousseau, G. (2015). Web site of the US Department of Veteran Affairs. Retrieved June, 1, 2018.
- Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development*. Sage.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- Bray, R. M., Marsden, M. E., Herbold, J. R., & Peterson, M. R. (1992). Progress toward eliminating drug and alcohol abuse among US military personnel. *Armed Forces & Society*, 18(4), 476-496.
- Bonn-Miller, M. O., Babson, K. A., & Vandrey, R. (2014). Using cannabis to help you sleep: heightened frequency of medical cannabis use among those with PTSD. *Drug and Alcohol Dependence*, 136, 162-165.
- Borodovsky, J. T., Marsch, L. A., Scherer, E. A., Grucza, R. A., Hasin, D. S., & Budney, A. J. (2020). Perceived safety of cannabis intoxication predicts frequency of driving while intoxicated. *Preventive Medicine*, 131, 105956.
- Bruckenthal, P., Reid, M.C., & Reisner, L. (2009). Special issues in the management of chronic pain in older adults. *Pain Medicine*, 10, S67-S78.
- Budney, A. J. (2006). Are specific dependence criteria necessary for different substances: How can research on cannabis inform this issue?. *Addiction*, 101, 125-133.
- Budney, A. J., Sofis, M. J., & Borodovsky, J. T. (2019). An update on cannabis use disorder with comment on the impact of policy related to therapeutic and recreational cannabis use. *European Archives of Psychiatry and Clinical Neuroscience*, 269(1), 73-86.
- Bush, K., Kivlahan, D. R., McDonell, M. B., Fihn, S. D., & Bradley, K. A. (1998). The AUDIT alcohol consumption questions (AUDIT-C): An effective brief screening test for problem drinking. *Archives of Internal Medicine*, 158(16).
- Centers for Disease Control and Prevention (CDC) (2018). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S.

- Department of Health and Human Services, Centers for Disease Control and Prevention. Charilaou, P., Agnihotri, K., Garcia, P., Badheka, A., Frenia, D., & Yegneswaran, B. (2017). Trends of cannabis use disorder in the inpatient: 2002 to 2011. *The American Journal of Medicine*, *130*(6), 678-687.
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. Sage.
- Clark, A. J., Ware, M. A., Yazer, E., Murray, T. J., & Lynch, M. E. (2004). Patterns of cannabis use among patients with multiple sclerosis. *Neurology*, *62*(11), 2098-2100.
- Clary, K. L. (2020). *Substance use, self-stigma, and help seeking among military members: Exploring the utility of the emerging adulthood theory* (Doctoral dissertation, University of Illinois at Urbana-Champaign).
- Clary, K., Pena, S., & Smith, D. (2021). Masculinity and stigma among emerging adult military members and veterans: Implications for encouraging help-seeking. *Current Psychology*, 1-17.
- Clary, K., & Byrne, L. (2021). Emerging adult military-connected students express challenges transitioning into higher education: Implications for helping professionals. *Community College Journal of Research and Practice*, 1-16.
- Compton, W. M., Han, B., Jones, C. M., Blanco, C., & Hughes, A. (2016). Marijuana use and use disorders in adults in the USA, 2002-14: analysis of annual cross-sectional surveys. *The Lancet Psychiatry*, *3*(10), 954-964.
- Crean, R. D., Crane, N. A., & Mason, B. J. (2011). An evidence based review of acute and long-term effects of cannabis use on executive cognitive functions. *Journal of Addiction Medicine*, *5*(1), 1-8.
- Cucciare, M. A., & Ghaus, S. (2012). A web-based intervention for alcohol misuse in VA primary care. *Psychiatric Services*, *63*(3), 292-292.
- Demers, A. (2011). When veterans return: The role of community in reintegration. *Journal of Loss and Trauma*, *16*(2), 160-179.
- Demers, A. L. (2013). From death to life: Female veterans, identity negotiation, and reintegration into society. *Journal of Humanistic Psychology*, *53*(4), 489-515.
- Earleywine, M., & Bolles, J. R. (2014). Marijuana, expectancies, and post-traumatic stress symptoms: A preliminary investigation. *Journal of Psychoactive Drugs*, *46*(3), 171-177.
- Ebbert, J. O., Scharf, E. L., & Hurt, R. T. (2018, December). Medical cannabis. *In Mayo Clinic Proceedings* (Vol. 93, No. 12, pp. 1842-1847). Elsevier.
- Feingold, D., Brill, S., Goor-Aryeh, I., Delayahu, Y., & Lev-Ran, S. (2017). Depression and anxiety among chronic pain patients receiving prescription opioids and medical marijuana. *Journal of Affective Disorders*, *218*, 1-7.
- Feingold, D., Livne, O., Rehm, J., & Lev-Ran, S. (2020). Probability and correlates of transition from cannabis use to DSM-5 cannabis use disorder: Results from a large-scale nationally representative study. *Drug and Alcohol Review*, *39*(2), 142-151.
- Fischer, B., Rodopoulos, J., Rehm, J., & Ivsins, A. (2006). Toking and driving: characteristics of Canadian university students who drive after cannabis use—an exploratory pilot study. *Drugs: Education, Prevention and Policy*, *13*(2), 179-187.
- Gilgun, J. F. (2015). Beyond description to interpretation and theory in qualitative social work research. *Qualitative Social Work*, *14*(6), 741-752.
- Greene, K. M. (2018). Perceptions of driving after marijuana use compared to alcohol use among rural American young adults. *Drug and Alcohol Review*, *37*(5), 637-644.
- Habib, G., & Artul, S. (2018). Medical cannabis for the treatment of fibromyalgia. *JCR: Journal of Clinical Rheumatology*, *24*(5), 255-258.
- Hasin, D. S., Kerridge, B. T., Saha, T. D., Huang, B., Pickering, R., Smith, S. M., ... & Grant, B. F. (2016). Prevalence and correlates of DSM-5 cannabis use disorder, 2012-2013: Findings from the National Epidemiologic Survey on Alcohol and Related Conditions-III. *American Journal of Psychiatry*, *173*(6), 588-599.
- Hasin, D. S., Sarvet, A. L., Cerdá, M., Keyes, K. M., Stohl, M., Galea, S., & Wall, M. M. (2017). US adult illicit cannabis use, cannabis use disorder, and medical marijuana laws: 1991-1992 to 2012-2013. *JAMA Psychiatry*, *74*(6), 579-588.
- Hasin, D. S. (2018). US epidemiology of cannabis use and associated problems. *Neuropsychopharmacology*, *43*(1), 195-212.
- Hasin, D. S., Shmulewitz, D., & Sarvet, A. L. (2019). Time trends in US cannabis use and cannabis use disorders overall and by sociodemographic

- subgroups: a narrative review and new findings. *The American Journal of Drug and Alcohol Abuse*, 45(6), 623-643.
- Hilal, A. H., & Alabri, S. S. (2013). Using NVivo for data analysis in qualitative research. *International Interdisciplinary Journal of Education*, 2(2), 181-186.
- Hindocha, C., Cousijn, J., Rall, M., & Bloomfield, M. A. P. (2020). The effectiveness of cannabinoids in the treatment of posttraumatic stress disorder (PTSD): a systematic review. *Journal of Dual Diagnosis*, 16(1), 120-139.
- Institute of Medicine (2011). *Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research*. Washington, DC: The National Academies Press.
- Javadi, M., & Zarea, K. (2016). Understanding thematic analysis and its pitfall. *Journal of Client Care*, 1(1), 33-39.
- Johal, H., Vannabouathong, C., Chang, Y., Zhu, M., & Bhandari, M. (2020). Medical cannabis for orthopaedic patients with chronic musculoskeletal pain: does evidence support its use?. *Therapeutic Advances in Musculoskeletal Disease*, 12, 1759720X20937968.
- Kedzior, K. K., & Laeber, L. T. (2014). A positive association between anxiety disorders and cannabis use or cannabis use disorders in the general population—a meta-analysis of 31 studies. *BMC Psychiatry*, 14(1), 136.
- Krcevski-Skvarc, N., Wells, C., & Häuser, W. (2018). Availability and approval of cannabis-based medicines for chronic pain management and palliative/supportive care in Europe: A survey of the status in the chapters of the European Pain Federation. *European Journal of Pain*, 22(3), 440-454.
- Krediet, E., Janssen, D. G., Heerdink, E. R., Egberts, T. C., & Vermetten, E. (2020). Experiences with medical cannabis in the treatment of veterans with PTSD: Results from a focus group discussion. *European Neuropsychopharmacology*, 36, 244-254.
- Kondey, V., Winters, N., & Patel, S. (2021). Cannabis use and posttraumatic stress disorder comorbidity: Epidemiology, biology and the potential for novel treatment approaches. *International Review of Neurobiology*, 157, 143-193.
- LaFrance, E. M., Glodosky, N. C., Bonn-Miller, M., & Cuttler, C. (2020). Short and long-term effects of cannabis on symptoms of post-traumatic stress disorder. *Journal of Affective Disorders*, 274, 298-304.
- Lau, N., Sales, P., Averill, S., Murphy, F., Sato, S. O., & Murphy, S. (2015). A safer alternative: Cannabis substitution as harm reduction. *Drug and Alcohol Review*, 34(6), 654-659.
- Leung, J., Chan, G. C., Hides, L., & Hall, W. D. (2020). What is the prevalence and risk of cannabis use disorders among people who use cannabis? A systematic review and meta-analysis. *Addictive Behaviors*, 106479.
- Leweke, F. M., & Koethe, D. (2008). Cannabis and psychiatric disorders: it is not only addiction. *Addiction Biology*, 13(2), 264-275.
- Malone, D. T., Hill, M. N., & Rubino, T. (2010). Adolescent cannabis use and psychosis: epidemiology and neurodevelopmental models. *British Journal of Pharmacology*, 160(3), 511-522.
- McCarthy, D. M., Lynch, A. M., & Pederson, S. L. (2007). Driving after use of alcohol and marijuana in college students. *Psychology of Addictive Behaviors*, 21(3), 425-430.
- Metrik, J., Jackson, K., Bassett, S. S., Zvolensky, M. J., Seal, K., & Borsari, B. (2016). The mediating roles of coping, sleep, and anxiety motives in cannabis use and problems among returning veterans with PTSD and MDD. *Psychology of Addictive Behaviors*, 30(7), 743.
- Metrik, J., Stevens, A. K., Gunn, R. L., Borsari, B., & Jackson, K. M. (2020). Cannabis use and posttraumatic stress disorder: Prospective evidence from a longitudinal study of veterans. *Psychological Medicine*, 1-11.
- Mitchell, M. A., Blosnich, J. R., Gordon, A. J., & Matukaitis Broyles, L. (2017). College students with military experience report greater alcohol-related consequences. *Military Psychology*, 29(3), 234-243.
- Metrik, J., Bassett, S. S., Aston, E. R., Jackson, K. M., & Borsari, B. (2018). Medicinal versus recreational cannabis use among returning veterans. *Translational Issues in Psychological Science*, 4(1), 6-20.
- National Academies of Sciences, Engineering, and Medicine. 2017. *The Health Effects of Cannabis and Cannabinoids: The Current State of Evidence and Recommendations for Research*. Washington, DC: The National Academies Press.

- National Center for PTSD. (2019). United States Department of Veterans Affairs. *Use of Benzodiazepines for PTSD in Veterans*. Retrieved on March 9, 2020 from [https://www.ptsd.va.gov/professional/treat/txessentials/benzos\\_va.asp](https://www.ptsd.va.gov/professional/treat/txessentials/benzos_va.asp).
- National Conference of State Legislatures. (2021). *State Medical Marijuana Laws*. Retrieved from: <https://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx>
- Pratt, M., Stevens, A., Thuku, M., Butler, C., Skidmore, B., Wieland, L. S., ... & Hutton, B. (2019). Benefits and harms of medical cannabis: a scoping review of systematic reviews. *Systematic Reviews, 8*(1), 1-35.
- Rogeberg, O., & Elvik, R. (2016). The effects of cannabis intoxication on motor vehicle collision revisited and revised. *Addiction, 111*(8), 1348-1359.
- Roulston, K. (2001). Data analysis and 'theorizing as ideology'. *Qualitative Research, 1*(3), 279-302.
- Rumpf, H. J., Hapke, U., Meyer, C., & John, U. (2002). Screening for alcohol use disorders and at-risk drinking in the general population: psychometric performance of three questionnaires. *Alcohol and Alcoholism, 37*(3), 261-268.
- Ryan, G. W., & Bernard, H. R. (2000). Techniques to identify themes. *Field Methods, 15*(1), 85-109.
- Sayer, N. A., Noorbaloochi, S., Frazier, P., Carlson, K., Gravely, A., & Murdoch, M. (2010). Reintegration problems and treatment interests among Iraq and Afghanistan combat veterans receiving VA medical care. *Psychiatric Services, 61*(6), 589-597.
- Schulenberg, J. E., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Miech, R. A., & Patrick, M. E. (2017). *Monitoring the Future national survey results on drug use, 1975-2016: Volume II, College students and adults ages 19-55*.
- Seal, K. H., Metzler, T. J., Gima, K. S., Bertenthal, D., Maguen, S., & Marmar, C. R. (2009). Trends and risk factors for mental health diagnoses among Iraq and Afghanistan veterans using Department of Veterans Affairs health care, 2002-2008. *American Journal of Public Health, 99*(9), 1651-1658.
- Shadur, J. M., Hussong, A. M., & Haroon, M. (2015). Negative affect variability and adolescent self-medication: The role of the peer context. *Drug and Alcohol Review, 34*(6), 571-580.
- Skinner, D. (2001). Assessment of substance abuse: Drug abuse screening test (DAST). *Encyclopedia of Drugs, Alcohol, and Addictive Behaviors, 2*.
- Sofis, M. J., Budney, A. J., Stanger, C., Knapp, A. A., & Borodovsky, J. T. (2020). Greater delay discounting and cannabis coping motives are associated with more frequent cannabis use in a large sample of adult cannabis users. *Drug and Alcohol Dependence, 207*, 107820.
- Stanciu, C. N., Brunette, M. F., Teja, N., & Budney, A. J. (2021). Evidence for use of cannabinoids in mood disorders, anxiety disorders, and PTSD: A systematic review. *Psychiatric Services, 72*(4), 429-436.
- Strauss, A., & Corbin, J. (1990). *Basics of Qualitative Research*. Sage Publications.
- Stillman, M., Capron, M., Mallow, M., Ransom, T., Gustafson, K., Bell, A., & Graves, D. (2019). Utilization of medicinal cannabis for pain by individuals with spinal cord injury. *Spinal Cord Series and Cases, 5*(1), 1-8.
- Svrakic, D. M., Lustman, P. J., Mallya, A., Lynn, T. A., Finney, R., & Svrakic, N. M. (2012). Legalization, decriminalization & medicinal use of cannabis: a scientific and public health perspective. *Missouri Medicine, 109*(2), 90-98.
- Substance Abuse and Mental Health Services Administration (SAMHSA). (2018). 2015 National Survey on Drug Use and Health (NSDUH). *Table 5.6 B—Substance Use Disorder in Past Year among Persons Aged 18 or Older, by Demographic Characteristics: Percentages, 2014 and 2015*.
- Substance Abuse and Mental Health Services Administration (SAMHSA). (2017). *Key substance use and mental health indicators in the United States: Results from the 2016 National Survey on Drug Use and Health (HHS Publication No. SMA 17-5044, NSDUH Series H-52)*. Rockville, MD: Center for Behavioral Health Statistics and Quality. Substance Abuse and Mental Health Services Administration. Retrieved from <https://www.samhsa.gov/data>.
- Substance Abuse and Mental Health Services Administration. (2018). *Key substance use and mental health indicators in the United States: Results from the 2017 National Survey on Drug Use and Health (HHS Publication No. SMA 18-5068, NSDUH Series H-53)*. Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health

- Services Administration. Retrieved from <https://www.samhsa.gov/data/>
- Swift, W., Jones, C., & Donnelly, N. (2010). Cannabis use while driving: A descriptive study of Australian cannabis users. *Drugs: Education, Prevention and Policy, 17*(5), 573-586.
- Tatarsky, A. (2003). Harm reduction psychotherapy: Extending the reach of traditional substance use treatment. *Journal of Substance Abuse Treatment, 25*(4), 249-256.
- Taylor, S. J., & Bogdan, R. (1998). In-depth interviewing. *Introduction to Qualitative Research Methods, 3*(1), 87-116. ISBN: 9781473991958 , 1473991951.
- Teeters, J. B., Lancaster, C. L., Brown, D. G., & Back, S. E. (2017). Substance use disorders in military veterans: prevalence and treatment challenges. *Substance Abuse and Rehabilitation, 8*, 69-77.
- Tull, M. T., Jakupcak, M., Paulson, A., & Gratz, K. L. (2007). The role of emotional inexpressivity and experiential avoidance in the relationship between posttraumatic stress disorder symptom severity and aggressive behavior among men exposed to interpersonal violence. *Anxiety, Stress, and Coping, 20*(4), 337-351.
- U.S. Department of Veterans Affairs (2016). Statistics. Retrieved from: <https://www.va.gov/>
- 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.
- Wagner, T. H., Harris, K. M., Federman, B., Dai, L., Luna, Y., & Humphreys, K. (2007). Prevalence of substance use disorders among veterans and comparable nonveterans from the National Survey on Drug Use and Health. *Psychological Services, 4*(3), 149-157.
- Wilkinson, S. T., van Schalkwyk, G. I., Davidson, L., & D'Souza, D. C. (2016). The formation of marijuana risk perception in a population of substance abusing patients. *Psychiatric Quarterly, 87*(1), 177-187.
- Wilsey, B., Marcotte, T., Deutsch, R., Gouaux, B., Sakai, S., & Donaghe, H. (2013). Low-dose vaporized cannabis significantly improves neuropathic pain. *The Journal of Pain, 14*(2), 136-148.
- Wood, E. C., & Dupont, R. L. (2020). Cannabis-impaired driving: Evidence and the role of toxicology testing. In *Cannabis in Medicine* (pp. 493-513). Springer, Cham.
- Yudko, E., Lozhkina, O., & Fouts, A. (2007). A comprehensive review of the psychometric properties of the Drug Abuse Screening Test. *Journal of Substance Abuse Treatment, 32*(2), 189-198.

**Funding and Acknowledgements:** The development of this article was supported by the University of Illinois at Urbana-Champaign's Career Center's Robert P. Larsen Career Development Grant. The views, however, are those of the authors and do not reflect official positions of the UIUC Career Center.

Copyright: © 2021 Authors et al. This is an open access article distributed under the terms of the [Creative Commons Attribution License](https://creativecommons.org/licenses/by-nc-nd/4.0/), which permits unrestricted use, distribution, and reproduction, provided the original author and source are credited, the original sources is not modified, and the source is not used for commercial purposes.

