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## Marijuana as a Substitute for Prescription Medications: A Qualitative Study

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### ABSTRACT

**Background:** Over the past few decades in the United States, marijuana for medical purposes has become increasingly prevalent. Initial qualitative and epidemiological research suggests that marijuana may be a promising substitute for traditional pharmacotherapies. **Objectives:** This qualitative study examined perceptions relating to (1) using medical marijuana in comparison to other prescription medications and (2) user perception of policy issues that limit adoption of medical marijuana use. **Methods:** Qualitative interviews were conducted with Rhode Island medical marijuana card holders ( $N = 25$ ). The interviews followed a semi-structured agenda designed to collect information from participants about their reasons for, and perceptions of, medical marijuana use. All interviews were audio recorded, transcribed verbatim, and de-identified. Qualitative codes were developed from the agenda and emergent topics raised by the participants. **Results:** Three themes emerged related to medical marijuana use, including (1) comparison of medical marijuana to other medications (i.e., better and/or fewer side effects than prescription medications, improves quality of life), (2) substitution of marijuana for other medications (i.e., in addition to or instead of), and (3) how perception of medical marijuana policy impacts use (i.e., stigma, travel, cost, and lack of instruction regarding use). **Conclusions:** Several factors prevent pervasive medical marijuana use, including stigma, cost, and the inability for healthcare providers to relay instructions regarding dosing, strain, and method of use. Findings suggest that medical patients consider marijuana to be a viable alternative for opioids and other prescription medications, though certain policy barriers inhibit widespread implementation of marijuana as a treatment option.

### KEYWORDS

Medical marijuana; qualitative interviews; cannabis; marijuana policy; prescription substitution

### Introduction

In the United States, marijuana use for medical purposes has become increasingly prevalent over the past several decades (Hill, 2015). Since 1996, 33 states and Washington DC have passed laws permitting the use of marijuana for medical conditions, and since 2012, ten states and Washington DC have legalized the use of marijuana for recreational purposes (State Medical Marijuana Laws, 2019). Each state varies in endorsement of medical conditions for which marijuana is approved, with the most widely accepted conditions being cancer, HIV/AIDS, severe nausea, glaucoma, appetite stimulation (wasting and cachexia), chronic pain, muscle spasms, and seizures (Volkow, Baler, Compton, & Weiss, 2014). Many clinical trials testing marijuana as a medication for symptom management have indicated that marijuana is effective in the

treatment of nausea and vomiting, appetite stimulation in HIV/AIDS, spasticity due to multiple sclerosis, glaucoma, and Tourette's syndrome and, most commonly, chronic pain (Goldenberg, Reid, IsHak, & Danovitch, 2017; Whiting et al., 2015).

Chronic pain is a major health problem affecting 10–55% of adults depending on the population studied (Nahin, 2015; National Academies of Sciences, 2017). It is considered one of the most debilitating medical conditions, yet the medical field lacks consensus on the best diagnostic and treatment method (Volkow & McLellan, 2016). Currently, opioids are the most commonly prescribed drugs for both acute and chronic pain, accounting for approximately 259 million prescriptions (Dowell, Haegerich, & Chou, 2016). Prescribing opioids places patients at a risk of misuse, addiction, and overdose (Rosenblum, Marsch,

Joseph, & Portenoy, 2008). Over the past 17 years, the rate of opioid overdose has significantly increased, resulting in a serious public health crisis in the United States (Volkow & McLellan, 2016). The over-prescription, misuse, and increasing availability of opioids are major driving forces behind the opioid epidemic in the United States (Bohnert et al., 2011). Because of this epidemic, it is crucial to find alternative treatments for diseases for which opiate medications are commonly overprescribed, including chronic pain.

As legalization of marijuana for medical purposes has expanded, noticeable changes have occurred in patterns of opiate use. A study by Bachhuber, Saloner, Cunningham, and Barry (2014) found that states that permit use of marijuana for medical purposes reported significant reductions in opioid overdose mortality. Similarly, another study by Bradford, Bradford, Abraham, and Adams (2018) found that states with permissive medical marijuana laws display a significant decrease in opioid prescriptions among individuals with Medicare. Additionally, Boehnke, Litinas, and Clauw (2016) found that medical marijuana was associated with a 64% decrease in opioid use, and marijuana patients reported that they were experiencing a better quality of life and fewer medication side effects. Still other research has found that combining marijuana with opioids decreased pain significantly without altering opioid plasma levels, suggesting the potential for opioids to be prescribed at lower doses with fewer side effects (Abrams, Couey, Shade, Kelly, & Benowitz, 2011). While these initial studies are highly promising, well-designed clinical trials are needed to examine whether marijuana may be a safer alternative treatment for chronic pain management.

Several qualitative studies suggest that many medical marijuana patients believe that marijuana may be a promising substitute for traditional pharmacotherapies (Bruce, Brady, Foster, & Shattell, 2018; Coomber, Oliver, & Morris, 2003; Lau et al., 2015; Page & Verhoef, 2006; Pedersen & Sandberg, 2013; Peters, 2013). Much qualitative research has focused on medical marijuana patients' personal beliefs and opinions regarding marijuana for therapeutic purposes (Bottorff et al., 2013; Satterlund, Lee, & Moore, 2015). While these studies varied in location, sample size, and topics discussed, a number of pervasive themes characterize this research including stigma associated with marijuana use (Bottorff et al., 2013; Pedersen & Sandberg, 2013), therapeutic benefits of marijuana, and substitution of marijuana for other prescription medications (Bottorff et al., 2013; Bruce et al., 2018;

Coomber et al., 2003; Lau et al., 2015; Page & Verhoef, 2006; Peters, 2013). Although there is much literature on marijuana as a medication for symptom management, pain relief, and as an alternative for other prescription medications, little is known about how policy may affect the ability to incorporate marijuana into a treatment regimen.

Despite initial epidemiological and qualitative findings suggesting that marijuana may be a promising substitute for other prescription medications, more research is needed to fully understand the benefits associated with marijuana as a medication, how patients are using it, and whether it may be a promising alternative to traditional pharmacotherapies for various illnesses. There is a lack of patient-oriented research on how marijuana is used and the symptom relief that patients experience. As use of marijuana for medical purposes becomes more prevalent, it is imperative to better understand patients' perspectives and motives for use. This study will enhance previous literature by recruiting patients with a current physician recommended medical marijuana card, and will collect data on several understudied topics pertaining to medical marijuana use. The current qualitative study intends to describe why patients use marijuana, how they are using it in addition to or instead of other prescription medications, and how medical marijuana policy impacts their use.

## Method

### Participants

Medical marijuana users were recruited in 2016 from Rhode Island to participate in individualized semi-structured interviews to discuss their marijuana use, purchasing behaviors, beliefs about legalization, and the impact of medical marijuana card holding on use. To obtain a medical card in Rhode Island, a physician must provide a recommendation to the patient indicating that they believe using marijuana will alleviate the patient's symptoms associated with one of the approved medical conditions in the state (medical conditions endorsed by the current sample are presented in Table 1). Once the patient has obtained a medical marijuana card from the Department of Health, they are allowed to designate one caregiver and/or are permitted to attend a compassion center to obtain medical marijuana (Rhode Island Department of Health, 2008).

The interviews were conducted as part of an ongoing larger experimental laboratory study examining marijuana demand and use patterns among

recreational and medical marijuana users (Aston, Farris, Metrik, & Rosen, 2019). Participants were required to meet the following inclusion criteria: English speaking, 18–70 years of age (to account for the broad age range among medical marijuana patients in Rhode Island), not seeking treatment or currently looking to quit marijuana use, and held medical marijuana registration cards.

### Procedure and measures

Study procedures were approved by the Institutional Review Board at Brown University, and all participants provided informed consent prior to study participation. Prior to the interview, participants provided demographic information and completed the Marijuana History and Smoking Questionnaire to assess age of onset of marijuana use, typical marijuana use quantity, typical mode of self-administration, medical conditions for using marijuana, and other questions related to marijuana use patterns (Metrik et al., 2009). Interviews were moderated by the study's Principal Investigator (EA). The interviews followed a semi-structured agenda designed to collect information from participants about marijuana use, including obtaining a medical marijuana card. All interviews were audio recorded and lasted between 22 and 85 minutes (mean = 53 min). Participants were compensated for their time and participation in this study.

### Data analysis plan

The interviews were transcribed verbatim and all identifiers were removed. A qualitative coding structure was developed from the semi-structured agenda. This coding structure was refined throughout the coding process to include emergent topics. Each transcript was individually coded by two research assistants using an open coding process, where each line of the data was examined and evaluated to identify topics (Glaser & Strauss, 2017). Codes were refined as the analysis progressed, and related codes were grouped to form categories within the data. Codes were entered into NVivo qualitative data analysis software for thematic analysis. After the initial open-coding review of transcripts was complete, all codes pertaining to reasons for using marijuana and marijuana as a substitute for other medications were reviewed. In addition, data mining tools in the software package were used to ensure that all passages relative to substitution were included. Specifically, the following search terms were queried: “opioids,”

“opiates,” “substitution,” “prescription,” and “medication.” The substitution-related content was then subjected to a secondary coding and analysis process: that is, additional, substitution-specific codes were created and applied to the data. These codes were then reviewed and summarized to identify key themes reported here. Illustrative quotes were subsequently selected to reflect each theme, and the assigned participant study number is presented in parentheses following each quote.

## Results

### Preliminary analyses

Participants ( $n = 25$ ; 40% male) reported using marijuana a mean ( $SD$ ) of 6 (2) days per week. Mean ( $SD$ ) age was 47 (12; range: 24 – 67). Table 1 displays other demographic and participant characteristics.

### Qualitative themes

Three medical marijuana specific topics emerged during the interviews: (1) comparing medical marijuana to other medications, (2) substitution of marijuana for other medications, and (3) how medical marijuana policy impacts use.

**Table 1.** Participant characteristics

Variable	$n$ (%)
<b>Household income</b>	
\$0–19,999	13 (52)
\$20,000–39,999	4 (16)
\$40,000–59,999	2 (8)
\$60,000+	6 (24)
<b>Race</b>	
American Indian/Alaska Native	0 (0)
Asian	1 (4)
Black or African American	0 (0)
White	18 (72)
More than one race	5 (20)
Unknown or not reported	1 (4)
<b>Qualifying medical condition*</b>	
Cancer	2 (8%)
Glaucoma	0 (0%)
HIV/AIDS	0 (0%)
Hepatitis C	2 (8%)
Cachexia	1 (4%)
Severe, debilitating, chronic pain	18 (72%)
Nausea/vomiting	8 (32%)
Epilepsy	2 (8%)
Multiple sclerosis or Crohn's disease	10 (40%)
Alzheimer's disease	1 (4%)
Other	8 (32%)
<b>Amounts of marijuana used per week</b>	
≤ 1/16 <sup>th</sup> ounce	5 (20%)
1/8 <sup>th</sup> ounce	1 (4%)
1/4 <sup>th</sup> ounce	4 (16%)
3/8 <sup>th</sup> ounce	1 (4%)
1/2 ounce	4 (16%)
≥ 1 ounce	10 (40%)

\*Conditions reported are not mutually exclusive.

## **Comparing medical marijuana to other medications**

### ***Marijuana is superior to and has fewer side effects than prescription medications***

Participants reported that marijuana was more effective for certain conditions compared to some pharmaceutical prescriptions. One participant preferred to use marijuana “because it’s anti-inflammatory. It helps with muscle spasms. It’s better for acute situations” (#24). Similarly, another participant said “I smoke marijuana ‘cuz ... it enables me to live and function alone with my conditions and it helps me so ... much more than anything could ever help me” (#6). Relatedly, several participants felt that marijuana did not have as many side effects as other prescription medications. Some participants believed that certain prescriptions took a toll on their body, thus participants no longer wanted to use them. One participant noted “I was on medication for pain and I had to take pills, and my stomach was at a point where I was getting ulcers and I wanted to stop taking pills” (#7). Other participants explained “even though doctors had given me many prescription medications, I didn’t like how they made me feel. And I didn’t like the effects [they] had on my liver and kidneys and things like that” (#22) and “I have enough bad reactions with medications” (#12). Likewise, a different participant reported that “I’d rather use the marijuana, because I know it is safer” (#14). Other participants reported “the prescriptions will have horrible effects on them and they can just self-medicate with something natural, you know?” (#25) and said marijuana had “no side effects ... no withdrawal effect” (#13).

### ***Marijuana improves quality of life***

Many participants claimed that compared to traditional pharmaceutical medications, marijuana appears to improve their quality of life by helping with multiple conditions including psychiatric conditions, appetite, and sleep-related disorders. One participant reported that marijuana “helps with the nausea [and] it helps with pre-menstrual cramps and everything. It helps with stress, it helps with depression, it helps with anxiety, everything” (#24). Furthermore, another participant explained that “marijuana does give me an appetite ... prescription medications do not give me any appetite” (#25). One participant explained “I would not be here today if it wasn’t for weed. For so many reasons” (#20). Another patient discussed the fact that his life was “affected in a positive way ... I struggled with PTSD issues ... cannabis helped me get over those past experiences and helped me to focus

on the moment” (#11). Still another participant summarized these sentiments in stating that compared to other medications, marijuana “was easier and it helped so many different things that people can’t understand” (#5).

## **How marijuana is used in relation to other medications**

### ***Use in addition to other medications***

Several participants reported that when they use marijuana, it seems to alleviate negative side effects experienced with other prescriptions. One participant shared that “methylphenidate sometimes will kill your appetite. So [marijuana] does help with the appetite. Gives me an appetite to eat” (#5). Additionally, when this participant took prescription opiates for pain “they were pretty strong. I took them. I was like okay I’m here with the pain. I still need to go to sleep. So I needed to smoke” (#5). Other participants also reported using marijuana along with currently prescribed medications. One participant noted that they use marijuana in order “to use less painkillers” (#18). Still another patient stated that “I would do that [marijuana] before I took a pharmaceutical. If I smoked and I’m still feeling pain then maybe I might consider taking a pill but I would prefer not to” (#24).

### ***Use instead of prescription medications***

Of the participants interviewed, 7 participants reported that they were able to cut back on their medications, and 12 reported that they were able to completely stop taking other prescription medications once they started using marijuana for medical purposes. One participant explained “so many people ... start medical marijuana and then they go down to almost no opioid pain medication, a little bit, or none ... almost no one has said I have started taking more or kept it the same” (#3). Similarly, other participants explained “I know so many people ... like me ... I’m off my inhalers. I’m off codeine. I’m off my gabapentin” (#15) and “I’m not on anything anymore” (#20). Some participants found that marijuana actually worked better than their prescription pharmaceuticals. One participant explained “I think [edibles] work better than taking a sleeping pill. I have sleeping pills prescribed to me, but I don’t use them very often” (#1). Another participant shared that “I was using the marijuana instead of pain medication anyways because I was having some bad reactions to the medications and I spoke to my doctor and we thought it would be better” (#12). Other participants started using medical

marijuana because they did not want to use prescription pain medication. One participant stated “You know, I didn’t go get codeine or a bunch of pain medicine. I just smoked a little and I was fine” (#21). Another added to this sentiment by explaining “when I got in the accident and of course first thing they did was prescribed Vicodin and I was like I’m not taking these” (#9). Relatedly, when one participant was asked why they obtained their medical marijuana card, they responded “it was a choice that the doctor gave me when he found out how much pain I was going through...it was pain pills, or medical marijuana card. And I was like medical marijuana card” (#17).

### ***How perception of medical marijuana policy impacts use***

#### ***Marijuana is perceived to be more stigmatized than prescription medication***

Participants felt that the stigma associated with marijuana is different from other medications they use; and they reported encountering both job- and provider-related stigma. At times, participants reported resorting back to their non-marijuana medical prescriptions, such as opiates, to treat their conditions because medical marijuana could jeopardize job options. One said “We should have the same oversight as anyone who takes any medication” (#7). Another participant stated “I mean someone could take a Vicodin out of their purse and take it and no one is going to say anything” (#10). One participant was unable to use medical marijuana because “I’m looking for a job right now...I won’t be able to smoke as much as I do now. I’ll just have to take my pills for the pain” (#17). State policy on medical marijuana use and pre-employment drug testing is quite variable and still unclear in many states. Thus card holders tend to retain such concerns about their medical marijuana use and job options.

Stigma associated with marijuana use for medical purposes was also cited as an issue. Multiple participants reported struggling to obtain a medical marijuana card; some found that their physicians were not supportive of medical marijuana use. One participant said “I just asked [my doctor], ‘How’s your take on medical marijuana?’ He said flat out, ‘I’m not for it.’ Then I just moved on to a different subject” (#25). Another participant explained that their doctor “didn’t want to touch it...he didn’t want to have anything to do with it” (#21). A participant shared that their doctor said “his colleagues were against the program...he thought it would be good for me but professionally he

doesn’t think it would be good for him to do it” (#19). A participant had a doctor who was supportive of medical marijuana, but unable to prescribe it: “my doctor advocated it. The only problem with him is [he’s in] a federally funded HMO, so he couldn’t just sign off...they’re kind of on the fence with how they want to deal with the program, if they want to be the ones to sign off or if they want to send you somewhere...but he was all for it” (#20).

#### ***Traveling outside one’s state with medical marijuana***

Several participants discussed the fact that while medical marijuana is legal in the state in which they reside, they are unable to travel with their medication due to policy in other states and countries. Numerous participants (#8, #16, #18, #23, #24, and #25) discussed how they had to change their use routine or take their other less desirable prescription medications when they were traveling due to legal repercussions in different states. This resulted in some participants refusing to travel due to fear of prosecution. One participant said “you can’t just use it in every place. You got to pick and choose where you can go” (#18). Another participant explained that because marijuana is not federally legal, they cannot legally bring their medications to other states. This participant explained “The only thing that affects that routine is when I am traveling in states where I can’t use...sometimes I risk it and bring edibles with me...just like the most discrete form...but sometimes I just have to go back on prescription medication which have a lot of side effects so I try to avoid that” (#23).

#### ***Cost of marijuana in comparison to prescription medications***

Throughout the interviews, the participants reported experiencing financial burden due to using marijuana because of its high cost and lack of insurance coverage. Frequently participants cited how other drugs like opiates were easier to obtain and afford because they are covered by insurance, unlike medical marijuana which must be purchased out-of-pocket. One participant discussed the fact that “you can’t go to the store [i.e., pharmacy] and buy this stuff. It’s not...covered by my insurance” (#6). Another participant commented that her insurance-covered medications are very inexpensive. She explained “I could pay 99 cents for the benzo but I have to pay this much money for something that I know isn’t going to affect my liver” (#8). Similarly, another person reported that “the opioid pain medications were like a dollar for one

prescription... It's covered...so it was essentially free...morphine, OxyContin, anything...but it just made me really depressed...my quality of life went down such a huge amount that it isn't worth it...it's free...versus like 350 dollars [for marijuana]" (#3). One participant explained "if I had to pay for all the drugs that I have out-of-pocket compared to marijuana, marijuana would be a lot cheaper" (#5).

#### **Healthcare provider inability to relay instructions regarding dosing, strain, and method of use**

Some participants reported struggling with initiation of marijuana use for medical purposes because they lacked knowledge and did not receive instructions from their healthcare provider. One participant explained "I don't believe that people know enough, when they're handed a card, it's like handing someone a bottle of Vicodin and not telling them what to do with it" (#10). Another participant reported that because the doctor did not give them instructions, they sought instruction from employees at their dispensary, but didn't find the privacy they needed in that environment. They said "I expected the first time you go to a compassion center they would have you go, one-on-one with someone, to figure out of what they have there and what you've already been using...which of their things would be the best. You're supposed to stand at a counter and discuss this stuff... I don't think so. What happened to HIPAA? I don't do that at a doctor's office... Stand there in front of other people and discuss my concerns" (#4). Furthermore, one participant stated that they learned to use marijuana online. The participant explained that they "[watched] people get stoned on YouTube to find out how to use a water pipe" (#22).

## **Discussion**

The current study collected narrative information about use of marijuana for medical purposes from medical marijuana card holders in Rhode Island. Three themes emerged during individual interviews: (1) comparison of medical marijuana to other medications, (2) substitution of marijuana for other medications, and 3) how perception of medical marijuana policy impacts patients' use. These data emerged within the context of a larger study examining marijuana demand. Consequently, the resultant themes were not *a priori* research questions.

Qualitative results from this study suggest that medical marijuana users may prefer marijuana to other prescription medications because they perceive

it to alleviate disease-related symptoms without the side effects or adverse reactions that often accompany many prescription medications. This finding is well-aligned with research conducted by Reiman, Welty, and Solomon (2017) where 2897 medical marijuana patients were surveyed. Of those who used opioids, 97% reported that they were able to decrease their opiate use when also using marijuana, and 89% agreed that opioid medications produce unwanted side effects (Reiman et al., 2017). In this regard, many studies have reported that medical marijuana patients are concerned about dependence, toxicity, and side effects associated with traditional prescription medications (Bruce et al., 2018; Coomber et al., 2003; Lau et al., 2015; Page & Verhoef, 2006; Pedersen & Sandberg, 2013; Satterlund et al., 2015). While participants reported preferring marijuana to other prescription medications, the current study cannot speak to an actual comparison of side effect profiles. Still, it is important to reiterate that patients perceive and subjectively report reduced side effects from marijuana compared to other prescription medications.

All participants in the current investigation reported that marijuana is effective in treating various symptoms related to a wide range of medical conditions. Of the 25 participants in this investigation, 60% reported using marijuana to treat chronic pain, and 48% reported successful substitution of marijuana for various pain medications, including opiates. These results align with and enhance previous findings suggesting patients are able to reduce or completely eliminate opiates and other prescription medications when using marijuana (Bruce et al., 2018; Coomber et al., 2003; Lau et al., 2015; Page & Verhoef, 2006; Pedersen & Sandberg, 2013; Peters, 2013). One study by Peters II (2013) suggests that marijuana can be used to reduce narcotic dependency, a prevalent concern with the prescription of opiates and other habit-forming medications.

Many participants in this study found marijuana to be a useful adjunct or alternative to conventional prescriptions, including opiates. They also suggested several policy-level factors that were perceived to limit their use of marijuana for medical purposes. First, while several healthcare practitioners were in support of the adoption of medical marijuana use for certain conditions, some participants reported experiencing stigma associated with the use of medical marijuana. Participants reported that some treatment providers may be unable or unwilling to recommend marijuana for alleviation of negative medical symptoms. This may indicate that marijuana is not often

recommended to patients as a treatment option, necessitating that patients advocate for themselves in order to receive a medical marijuana card. Furthermore, patients conveyed that they believe marijuana is not always viewed as a prescription medication. Multiple participants explained that in contrast to other commonly prescribed medications that may have a high risk of misuse and dependence, they feel regulations on marijuana extend above and beyond those placed on traditional pharmacotherapies. For example, participants reported an inability to legally travel with marijuana, resulting in a necessity to switch back to their prescription medication when traveling is unavoidable.

Participants in this study indicated that cost could be a deterrent from wide-spread use because insurance companies do not provide coverage for marijuana. Patients explain that although the cost of marijuana out of pocket is less expensive than traditional prescriptions, because prescriptions are typically covered by health insurance, opioids and other prescriptions are available for a substantially lower cost. However, it could be difficult for insurance companies to contribute to the cost of marijuana when healthcare providers are unable to provide specific recommendations regarding how to best use marijuana medically.

Only a few states require physicians to complete additional medical education (e.g., New York) to provide recommendations for patient marijuana use. In most states, including Rhode Island, those actually dispensing marijuana to consumers (i.e., budtenders) do not require medical education to make recommendations (Haug et al., 2016). These problematic policies may lead to potentially dangerous and unsubstantiated recommendations unsupported by research. For example, a recent study by Dickson and colleagues (2018) found that the majority of dispensaries in Colorado recommended marijuana products for morning sickness associated with pregnancy even though the American College of Obstetricians and Gynecologists suggest against any marijuana use in women who are pregnant. Findings from this investigation also suggested that these recommendations for marijuana use were based largely on personal opinion and there are currently no regulations for dispensaries providing recommendations or advice to patients in Colorado (Dickson et al., 2018). The National Academies Press released key recommendations in 2017 in an effort to inform research agendas for medical marijuana. One such recommendation included expanding marijuana-related knowledge among both

health care and public health professionals, thus addressing the need for continuing education programs pertaining to medical marijuana (National Academies of Sciences, 2017). However, this is exceedingly complicated due to the fact that there are hundreds of strains and doses that may be administered in a variety of ways. Furthermore, many participants in the current study indicated that they had to learn how to use marijuana on their own due to the absence of instructions from healthcare providers. Vandrey (2018) states that there is a need to incorporate medical marijuana information in training and continuing education programs for physicians. In order to do so, there must be more data about the health outcomes among marijuana patients in order to evaluate, design, and implement marijuana policy and clinical decision-making (Vandrey, 2018). Therefore, although our results suggest that patients believe marijuana may be used as an alternative for opioids and other prescriptions, policies regarding use of marijuana for medical purposes must be further investigated and adjusted in order to potentially implement this practice.

There are several limitations that shape the interpretation of these data. First, this is a small qualitative study that does not attempt to reflect the beliefs of the >18,000 medical marijuana users in Rhode Island. The study is also limited to the geographic region of Rhode Island and the sample is primarily Caucasian (68%) and female (60%). A study by Zaller, Topletz, Frater, Yates, and Lally (2015) ( $n=200$ ) found that within Rhode Island, the median age of medical marijuana patients in 2015 was 41 years of age and patients were primarily male (73%), Caucasian (80%), college educated (68%), and had health insurance (89%). Moreover, due to our inclusion criteria, all participants in this study were current medical marijuana card holders. As a result, we did not collect information from individuals who may be using marijuana for medical purposes without a medical marijuana card, a practice commonly reported in other studies (Metrik, Bassett, Aston, Jackson, & Borsari, 2018). Thus, additional research inclusive of participants who use marijuana medically but do not have a registration card is needed. In addition, the themes presented herein were emergent and thus not necessarily queried in every interview. Finally, as these data were collected from a sample who already use marijuana for medical purposes and have a medical marijuana registration card, they are likely to hold positive biases regarding marijuana use and the effectiveness of substituting this drug for other medications. Therefore, additional

qualitative research is needed among a variety of subgroups, including health-care providers, policy-makers, individuals who are considering use of marijuana for medical purposes, and individuals who attempted to substitute marijuana for other medications but discontinued use, to further probe this practice.

The current findings are informative and suggest that additional research is needed on the effectiveness of substituting marijuana for other medications, and what policy-level factors should be modified to encourage this transition. Larger population-based studies and well-designed clinical trials are needed to examine marijuana as a potential substitution for prescription medications. Lastly, before marijuana can be considered as an alternative for prescription medication, policies that regulate medical marijuana and the associated cost may need to be reevaluated. Nevertheless, this analysis identified important qualitative information regarding use of marijuana as a medication, and contributes a user perspective to the developing literature about marijuana use as an alternative pharmacotherapy.

## Disclosure statement

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