

Offering an Alternative to Persons with Chronic Pain: How Access to Cannabis May Provide an Off-Ramp from Undesired Prescription Opioid Use

Julie Bobitt¹, Hyojung Kang², Kanika Arora³, Divya Bhagianadh⁴, Gary Milavetz⁵, Brian Kaskie³

¹University of Illinois Chicago, Department of Medicine, Center for Dissemination and Implementation Science

²University of Illinois Urbana Champaign, College of Applied Health Sciences, Department of Kinesiology and Community Health

³The University of Iowa, College of Public Health, Department of Health, Management and Policy

⁴Rutgers University, School of Social Work

⁵The University of Iowa College of Pharmacy

ABSTRACT

Background. Chronic pain (CP) is experienced by as many as 50 million Americans and can negatively impact physical and mental health. Prescribing opioids is the most common approach to address moderate to severe CP though these potent analgesics are associated with a significant number of side effects. One alternative some Americans are turning to for CP management is cannabis. In addition to serving as an alternative, many individuals with CP use cannabis in addition to using prescription opioids. This study examined individuals with CP who enrolled in the state of Illinois' opioid diversion program, the Opioid Alternative Pilot Program (OAPP), which offers individuals aged 21 and older a separate pathway to access medical cannabis if they have or could receive a prescription for opioids as certified by a licensed physician. **Methods.** Cross-sectional survey data were collected from 450 participants. We described participants and compared those who use only cannabis with those who use cannabis and opioids. **Results.** While 16% of the respondents were cannabis-only users, 84% of the respondents were co-users of opioids and cannabis. Both groups considered opioid use risky (100% cannabis-only, 89% co-users.). The majority (73%) of respondents sought to completely stop or never start using opioids for CP. Cannabis-only users reported lower levels of pain compared to co-users. Co-users (85%) were more likely to have their routine provider as a cannabis certifying physician than cannabis-only users (69%). **Conclusion.** With increasing clinical evidence, legalization and acceptance, researchers should continue to examine how cannabis may be a viable alternative to reduce the risk of prescription opioid side effects, misuse, or dependence. Our findings also inform health care providers and state policymakers who increasingly are being asked to consider how cannabis may reduce the potential for harmful outcomes among persons with CP who use prescription opioids.

Key words: = older adults; prescription opioids; cannabis; policy

Chronic pain is experienced by as many as 50 million Americans (U.S. Department of Health and Human Services, 2019). Chronic pain (CP)

can negatively impact physical and mental health, and uncontrolled CP can result in decreased mobility and premature mortality (U.S.



Department of Health and Human Services, 2019; Zhu et al., 2007). Prescribing opioids is the most common approach health care providers use to address moderate to severe levels of CP (Guerriero, 2017; National Institute on Drug Abuse, 2018; Zhu et al., 2007). Though opioids may be effective with CP reduction in some conditions, these potent analgesics are associated with a significant number of side effects including constipation, dependence, dizziness, and sedation (Ballantyne & Shin, 2008; Chou et al., 2015; Guerriero, 2017; Musich et al., 2019; Steinman et al., 2014). Researchers also have noted how problems with opioid overdoses, the need for opioid use disorder treatment, and the number of deaths attributable to opioid misuse persist at epidemic levels (Cullinan et al., 2017; National Institute on Drug Abuse, 2018; Centers for Disease Control and Prevention, 2022). As CP reduction continues to be a challenge and prescription opioid use continues to result in an undesirable number of unwanted harms, identifying viable alternatives to reduce CP and replace prescription opioids has become a public health imperative.

One alternative some Americans are turning to is cannabis. Survey data indicate that 24.4 million adults aged 18 and older in the United States reported using cannabis in 2017 and these numbers continue to increase as state legalization for medical and recreational use continues to expand (Carliner et al., 2017; Poli et al., 2018). While the U.S. Food and Drug Administration has yet to approve cannabis use for medicinal purposes, the National Academies of Sciences, Engineering, and Medicine (2017) found substantial evidence that cannabis is an effective treatment for CP, and up to 80% of individuals who take medical cannabis report doing so to manage CP (Bonn-Miller et al., 2014; Ilgen et al., 2013). Thirty-eight state governments offer legal access to cannabis for medical purposes and thirty-two of them include CP as a qualifying condition for program participation (ProCon.org, 2022). The most recent Gallup Poll revealed most Americans support cannabis legalization, especially to reduce CP (Daniller A, 2022).

In addition to serving as an alternative, many individuals with CP use cannabis in addition to using prescription opioids (Black & Joseph, 2014; Boehnke et al., 2019). Whether this co-occurring use decreases or increases prescription opioid use

remains unclear. Some researchers have observed that states with legalized cannabis access have experienced a simultaneous decrease in opioid prescribing rates compared to states without legalized cannabis (Bradford & Bradford, 2016; McMichael et al., 2020). Others have observed that persons who use cannabis to limit their prescription opioid use have reported decreased CP, fewer side effects related to prescription opioids, and improved quality of life (Boehnke et al., 2019; Lucas et al., 2021). One study found persons with CP who used cannabis experienced a 78% reduction in mean opioid dosage and experienced improvements in all four of the World Health Organization quality of life domains (Lucas et al., 2021). Alternatively, studies exist that have shown co-occurring use of cannabis and opioids has been associated with the use of alcohol, tobacco, illicit substances, and poor health outcomes as well (Rogers et al., 2019). Cannabis use also has been associated with prescription opioid misuse and among adults with CP (Lake et al., 2019; Nugent et al., 2018) and overall overdose mortality (Shover et al., 2019).

While there certainly is reason to be concerned that co-occurring use of cannabis and prescription opioids may contribute to increased rates of substance misuse and other undesirable outcomes (Caputi & Humphreys, 2018; Carr & Schatman, 2019; Choi & DiNitto, 2021), it is difficult to overlook the benefits many persons reportedly derive when taking cannabis to manage CP with or without prescription opioids (Boehnke et al., 2019; National Academies of Sciences, Engineering, and Medicine, 2017). Indeed, it is possible that persons with CP use cannabis as an alternative to prescription opioids; others with CP may use cannabis to reduce side-effects and other risks associated with prescription opioids; and some may use cannabis to enhance the pain-relieving effects of prescription opioids. Some state public health officials have supported providing legal cannabis access for persons with CP as a viable opioid alternative or a form of harm reduction. In Colorado, New Jersey, New York, and Pennsylvania, state cannabis programs have added opioid substitution and/or opioid use disorder as qualifying conditions for access to medical cannabis (New Jersey Department of Health, 2020; ProCon.org, 2022; The New York State Medical Marijuana Program Information for Patients, 2020).

The Opioid Alternative Pilot Program

The state of Illinois took such efforts one step further by creating the Opioid Alternative Pilot Program (OAPP) in 2019 (Illinois Department of Public Health Opioid Alternative Pilot Program, 2020). The OAPP is the only program in the country that offers individuals aged 21 and older a separate pathway to access medical cannabis if they have or could receive a prescription for opioids as certified by a licensed physician. There are several other features that make the Illinois program stand apart as a distinct and deliberate effort to offer cannabis as an alternative or harm reduction strategy. Foremost, the OAPP provided legal cannabis access to individuals with CP who otherwise would not qualify for the state medical cannabis patient program (MCCP). At the time, the Illinois MCCP program did not identify chronic pain (or related conditions such as back spasms and osteoarthritis) as a qualifying condition even though CP is among the most common conditions experienced by persons who use medical cannabis. Also, enrollment into the OAPP was designed to offer a quick and less burdensome application process compared to the MCCP, and fees were reduced to \$10 compared to the MCCP fees of \$100 per year (Illinois Department of Public Health Medical Cannabis Patient Registry Program, 2020). Moreover, by requiring qualifying physicians to meet patients who sought to renew program eligibility after 90 days and authorizing them to revoke a patient's certificate if cannabis was being misused, the OAPP was considered to be more attractive to those who may be less familiar with using cannabis and value such provider engagement.

Research Objectives

Following previous survey work conducted in collaboration with the Illinois Department of Public Health (Bobitt et al., 2020), we conducted a point in time survey of individuals who enrolled in the state OAPP. We used these survey responses to address three objectives. First, we sought to describe participants who enrolled in the program, considering their attitudes toward cannabis, motives for use, and whether they use cannabis as an alternative or in combination with prescription opioids. We then focused on individuals with CP and determined if those who

only use medical cannabis differ from those who use cannabis and opioids concomitantly in terms of age, gender, education, diagnosed conditions and presenting symptoms. Third, we considered the role of providers in facilitating enrollment into the OAPP. We believe this work is important for illuminating individuals who participated in an entirely novel medical cannabis program explicitly designed to facilitate access to cannabis as an opioid alternative or harm reduction strategy and improve our understanding of individuals who are using cannabis for CPs with or without prescription opioids.

METHODS

With the support of the Illinois Department of Public Health, we sent a secured electronic survey link to individuals who enrolled in the OAPP between February and August of 2019. The link was sent three times over six weeks. Of the 2,866 enrolled individuals, 651 (22.7%) responded and were found to be comparable to the sample population in terms of age, gender, and geography (urban, suburban, rural). We excluded individuals who did not use cannabis in the past year or only used cannabis for recreational purposes only ($n=103$). For complete case analysis, we excluded participant responses with missing values using a pairwise deletion approach ($n=98$). Our analytic sample consisted of 450 individuals enrolled in the Illinois OAPP who reported using cannabis in the past year for medical purposes. Institutional Review of the study was provided by the University of Illinois Urbana Champaign and all participants indicated their consent prior to starting the survey.

Survey Measures

Since 2016, we have fielded five separate surveys and validated more than one hundred questions concerning cannabis use. Our questions have been drawn from the National Study on Caregiving and National Survey of Drug Use and Health, and we also developed unique questions reflecting the Biopsychosocial Model of Aging (Engel, 1977) and the Reasoned Action Model of decision-making and behavior change (Fishbein & Ajzen, 1977). Our online survey was conducted using REDCap, an electronic data capture tool that offers a secure, web-based survey hosted at the University of Illinois Urbana Champaign.

For this study, the participant survey included 49 questions covering individual characteristics (e.g., age, gender, education) and health status (e.g., CP, and CP-related conditions such as spinal/back conditions, cancer, rheumatoid arthritis (RA), osteoarthritis, multiple sclerosis (MS), fibromyalgia and others). We also asked participants to rate their current level of CP on a sliding scale of 0 to 100 where 0 = no CP and 100 =

worst CP imaginable (Jones et al., 2007). We measured attitudes toward cannabis and opioids by asking if the participant agreed or disagreed with the following statements “Cannabis use is risky”, “Opioid use is risky”, and by asking the following questions: “Have you ever had a negative experience with opioids?” “Do you know someone who has had a negative experience with opioids?”.

Table 1. *Cannabis-Only and Cannabis + Opioids Users Enrolled in the OAPP*

	Cannabis only	Co-users	p-value
Total Sample N=450	N (%) N=73 (16.2)	N (%) N=377 (83.8)	
<i>Attitudes & experiences</i>			
Believe cannabis use is risky	9 (12.3)	52 (13.8)	0.883
Believe opioid use is risky	73 (100.0)	335 (88.9)	0.006
Had a negative opioid experience	47 (64.4)	209 (55.4)	0.199
Know someone who had a negative opioid experience	53 (72.6)	207 (54.9)	0.008
<i>Reason for using cannabis</i>			
I will use in addition to my current opioids	0 (0.0)	16 (4.2)	<0.001
To reduce my current use of opioids	0 (0.0)	108 (28.6)	
To replace and stop my use of opioids	3 (4.1)	113 (30.0)	
To avoid prescription opioid medications altogether	70 (95.9)	140 (37.1)	
<i>Medical Conditions</i>			
Osteoarthritis	18 (24.7)	92 (24.4)	1
Spinal Conditions/Back Pain	33 (45.2)	222 (58.9)	0.042
Chronic Pain	45 (61.6)	249 (66.0)	0.556
Other ^a	13 (17.8)	64 (17.0)	0.998
<i>Symptoms</i>			
Sleep problems	31 (42.5)	182 (48.3)	0.434
Emotional problems	20 (27.4)	91 (24.1)	0.658
Digestive problems	7 (9.6)	54 (14.3)	0.371
Pain Level (mean (SD))	54.9 (25.1)	60.8 (21.4)	0.04
<i>Demographics</i>			
Age: 65 years and older	21 (28.8)	121 (32.1)	0.673
Sex: Female	29 (39.7)	194 (51.5)	0.088
Education: College or higher degree	34 (46.6)	159 (42.2)	0.571
Employed	42 (57.5)	176 (46.7)	0.116
Financially secure	54 (74.0)	231 (61.3)	0.054
<i>Type of provider who provided cannabis certification</i>			
General Practitioner	28 (38.4)	151 (40.1)	<0.001
Pain Specialist	18 (24.7)	163 (43.2)	
Other specialist	27 (37.0)	63 (16.7)	
Certifying physician was a routine provider	50 (68.5)	321 (85.1)	0.001

^aCancer, rheumatoid arthritis, multiple sclerosis, fibromyalgia.

We asked about past-year cannabis and opioid use, and intentions about using medical cannabis relative to the use of opioids: Moderate (i.e., I will use cannabis in addition to my current opioid use), Reduce, Stop or Avoid initiation of an opioid prescription. We also asked, “What type of provider certified your participation in the OAPP?” and “Was the physician who certified you one of your routine care providers?”

Analysis

Given sample sizes and cross-sectional nature of the data, we performed univariate analysis that compared characteristics between two groups: (a) those who use cannabis and prescription opioids, and (b) those who use only cannabis in the past year. The characteristics included in this study were coded as a categorical variable except for pain level. To identify group differences, we performed a chi-square test and an independent sample t-test for reported pain-levels.

RESULTS

Our sample ($N=450$) included 223 men and 227 women. Participant age ranged from 21 to 90 with an average of 51.1 (SD 13.6), and 31.6% were older adults (60 and older). Of the program participants, 73 (16.1%) used cannabis-only and 377 (83.8%) used both cannabis and opioids. Mean self-reported level of CP was lower in the cannabis-only group (55.0 v 60.8; $p=0.04$). More than seven of every ten participants (72.4%) in our sample reported using cannabis to either altogether stop or never start using prescription opioids, and persons who used cannabis-only were significantly more likely to enroll in the OAPP as a way to never start prescription opioid use ($p < 0.001$). Alternatively, less than 4.0% reported using cannabis to moderate (i.e., enhance) their opioid use. In terms of attitude toward cannabis, we observed no difference between cannabis-only and co-occurring users. All program participants held a negative attitude toward opioid use; all individuals in the cannabis-only group believed opioid use is risky as did 88.9% of individuals who used both cannabis and opioids in the past year. A significantly higher number of individuals used only cannabis (72.6%) indicated they knew someone who had a negative experience using opioids compared to those (54.9%) who used opioids as well ($p = 0.008$). There was no

significant difference in medical symptoms (i.e., digestion, emotional and sleep problems) between the two groups. However, persons reporting spinal conditions/back pain were more likely to be co-occurring users.

The univariate analysis of demographics showed no significant difference between cannabis only and co-occurring users. The proportion of older adults was slightly lower in the cannabis-only group (28.8% v. 32.1%) but not statistically significant (see Table 1).

Significant differences between cannabis only and co-users were observed with respect to type of provider (i.e. primary care, pain specialist, other) who provided cannabis certification ($p = < 0.001$). People who only used cannabis were more likely certified by a provider who was not their routine primary care provider (e.g., oncologists and other disease specialists were most often reported) and co-occurring users were more often certified by a pain management specialist ($p < 0.001$).

DISCUSSION

We surveyed individuals ranging in age from 21 to 90 years old who qualified for a unique program created by the state of Illinois offering safe, legal, and easy access to medical cannabis for individuals who qualified for an opioid prescription from a licensed medical provider. We know of no other state cannabis program that has made such a deliberate effort to facilitate access to individuals who consider prescription opioids to be risky and decide to use cannabis as an alternative or harm reduction strategy. Indeed, more than seven out of ten program participants indicated they desired to never initiate an opioid prescription and considered cannabis as a viable alternative or used cannabis to stop their current prescription opioid use. While this sort of self-selection into the program is to be expected, we also noted how few individuals enrolled in the program intending to use cannabis in addition to and without making changes to their opioid use.

Our findings also confirm that not all cannabis users are alike (Arora et al., 2021). In this study, we distinguished persons who only used cannabis from those who used cannabis and prescription opioids as well. Those who used cannabis were more likely to know someone who had a negative experience using prescription opioids and reported lower levels of pain. Such individuals

may be more reluctant to initiate a prescription especially if their pain may not be as prominent or persistent. In contrast, concomitant users appear more likely to experience more persistent sources of pain related to spinal conditions and experience clinically meaningful differences in pain compared to persons who only used cannabis (Farrar et al., 2001). While it may not be surprising these individuals already were using prescription opioids, we find it noteworthy how many chose to legally access cannabis under medical supervision as a deliberate harm reduction strategy, intending to reduce or altogether stop prescription opioid use. For these individuals, facilitating access to medical cannabis offers a viable alternative to prolonged opioid prescribing (Krebs et al., 2010; Lau et al., 2015).

In our effort to further understand cannabis use, we were expecting to observe other individual differences related to age, education, gender, or financial status. Research has shown that older persons, especially older white women, are the most likely to have been prescribed opioids in the past year compared to other age or demographic groups and are more likely to value legal access to cannabis as supervised by a qualified medical provider (Serdarevic et al., 2017; Bobitt et al., 2019). Although older persons appear to be disproportionately represented in our sample, we found no reason to think they were using cannabis differently than other OAPP participants.

However, we did observe noteworthy results concerning the role that physicians can play in facilitating access to cannabis. Individuals who used cannabis-only were less likely to rely on their routine provider to certify program eligibility and relied on another provider instead. Although it is possible these individuals engaged in drug seeking behavior and sought providers who would more readily qualify OAPP participation, our review of open field responses suggest these individuals were more likely qualified by providers who were providing specialized treatment (or performing surgery) and not considered routine providers. In contrast, the role that pain management specialists assumed in qualifying persons who were experiencing a chronic condition and already using a prescription opioid at time of OAPP enrollment merits further investigation. It is possible that these particular providers are more likely to support cannabis use

as a safe and effective prescription opioid mitigation strategy or are less apprehensive about recommending cannabis even though it remains classified as a Schedule 1 narcotic (Congressional Research Services, 2021).

Implication for Policy and Practice

As the opioid epidemic persists (U.S. Department of Health and Human Services, 2021) and nearly \$15 billion settlements related to nation-wide opioid litigation are disbursed (National Opioid Settlement, 2021), we intend to observe if and how other states (and substance abuse treatment system and clinic administrators) follow on the innovative programmatic approach taken by the state of Illinois. Will state policy makers continue to defer to prevailing clinical practice concerning opioid prescribing or will state leadership make a more deliberate and explicit effort to facilitate cannabis access for those patients and providers who consider cannabis as a viable alternative or harm reduction strategy (Pitt et al., 2018)?

Our work also recognizes the importance of qualified medical care providers who encourage individuals to consider cannabis as a way to offer an alternative or deprescribe opioids. In our previous work, we noted how such clinicians served an important role informing persons, especially older adults, about cannabis as an alternative but how most providers appeared reluctant to do so (Bobitt et al., 2019; Zolotov et al., 2019). Why specialists support cannabis use differently than routine care providers remains unclear.

Limitations

We recognize these findings are specific to Illinois, and the unique nature of the OAPP may or may not serve as an example for other states especially those that also offer legal access to recreational cannabis. We also recognize the inherent limitations in relying on a small sample of self-selected program participants and the potential bias of self-report. The use of cannabis as an alternative or harm reduction strategy merits more rigorous evaluation afforded by randomized control trials or quasi-experimental observational research designs. Last, future work must look to sample a greater number of

individuals, collect a wider array of individual-level data that may shape cannabis use, and observe individuals over an extended period to determine if and how cannabis use impacted opioid use and individual outcomes. Our cross-sectional design does not allow us to detect if cannabis use actually stopped or mitigated prescription opioid use, especially after a sufficient period of time when individuals may experience increasing amount of pain as their conditions persist.

Conclusion

While listing CP as a qualifying condition for medical cannabis program participation or expanding recreational options may be sufficient for providing access for individuals and providers who support cannabis use as an alternative or harm reduction option, there appears to be some value in establishing a program that upholds deliberate strategies to engage, support, and protect users – Especially older adults who prefer to be engaged with their health care providers and only use cannabis for medical purposes. The procedures the state of Illinois put in place for their Opioid Alternative Pilot Program may be illustrative for other states to consider as the opioid epidemic requires an array of public health responses. If anything, our findings affirm that some individuals and their providers are willing to do so.

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