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ORIGINAL RESEARCH

# Individuals' Values and Preferences Regarding Medical Cannabis for Chronic Pain: A Descriptive Qualitative Study

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**Background:** Cannabis for medical purposes has been legal in Canada since 2001; however, physicians receive no formal training in this modality, and clinical use of cannabis remains controversial. This study aims to explore the values and preferences of people living with chronic pain (PLwCP) in using medical cannabis for chronic pain to inform guideline development and shared decision-making in clinical practice.

**Methods:** We conducted a descriptive qualitative study using in-depth interviews with PLwCP. Using a deductive/inductive approach, we developed concepts and themes related to values and preferences of PLwCP on their use (or avoidance) of medical cannabis for chronic pain.

**Results:** We interviewed 52 PLwCP, including current medical cannabis users (40), previous users (10) and non-users (2). Most PLwCP who used cannabis therapeutically reported the need for experimentation to determine what cannabis products, routes, and doses worked for them. Perceived benefits of medical cannabis among current users included relief from pain, better sleep, and improved mental health. Reasons for discontinuing use of medical cannabis included lack of improvement in pain or sleep or undesirable side effects. Cannabidiol (CBD) dominant products were reported to result in minimal adverse effects (eg, physical or mental impairment) compared to tetrahydrocannabinol (THC) dominant products. Perceived barriers or facilitators to use included social acceptability, availability or access, cost, and attitudes and knowledge among healthcare providers. Participants noted different routes of cannabis use including oral routes that provided longer-lasting pain relief with a slower onset and inhaled routes with a more rapid onset with shorter-lived effects.

**Conclusion:** Participants' decisions to use medical cannabis for chronic pain were varied, which suggests these decisions are likely to be sensitive to individuals' values and preferences. There is a call for further research and information-sharing to help PLwCP understand the complexities of cannabis use for medical purposes, including ideal dosing and timing.

**Plain Language Summary:** In Canada, cannabis for medical reasons has been legal since 2001. It has been used as one of the many strategies for chronic or ongoing pain, but doctors are not given consistent information regarding its use, and existing guidance does not include the patient point of view. We did this study to explore how people living with chronic pain feel about the use of medical cannabis. We asked 52 people living with chronic pain, including current medical cannabis users, previous users, and non-users. We found that many people who used cannabis for their pain had to experiment to determine what cannabis products, routes, and doses worked for them. Benefits of medical cannabis included relief from pain, better sleep, and improved mental health. Reasons for stopping medical cannabis included no to little improvement in pain and/or sleep or the presence of unwanted side effects. Cannabidiol (CBD) products resulted in fewer unwanted effects (eg, physical or mental impairment) compared to tetrahydrocannabinol (THC) products. People discussed different routes of cannabis use including oral routes that provided longer-lasting pain relief but with a slower onset and inhaled routes with a faster onset of relief but with shorter-lived effects. People's decisions regarding medical

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cannabis use for chronic pain were varied, suggesting these decisions are likely to be sensitive to individual's values and preferences. More research is needed to learn what doses, products, and routes work for specific chronic pain conditions.

**Keywords:** medical cannabis, chronic pain, health services, guideline, patient values and preferences, Canada

# Background

Cannabis for select medical purposes has been legal in Canada since 2001 and recreationally since 2018.[1,2] Medical cannabis has emerged as a potential chronic pain management option.[3] Chronic pain is defined as pain that continues for three months or longer.[4] Data from the 2019 Canadian Community Health Survey demonstrate that there are approximately 7.6 million people in Canada living with chronic pain.[4]

People living with chronic pain (PLwCP) are increasingly seeking guidance from healthcare practitioners (HCPs) regarding the use of medical cannabis. However, physicians report a lack of formal training regarding medical uses of cannabis and face inconsistent recommendations or insufficient guidance (ie, dose, route, approach) from guidelines, making many reluctant to authorize its use.[5–7] Also, guidelines vary in methods used and most have not considered contextual factors such as the values and preferences of PLwCP in their development process.[7] Studies examining individuals' perspectives on cannabis for chronic pain have found that many who used medical cannabis consider it useful for pain relief.[8–10] However, there is limited information on the values and preferences of PLwCP in Canada, including how they weigh benefits and drawbacks of cannabis use, barriers and facilitators faced in the use of medical cannabis, decisions made regarding routes of administration and types of products used, sources where cannabis is obtained, and sources of information regarding cannabis for chronic pain. Incorporating such values and preferences into guidelines can improve the trustworthiness of recommendations and may lead to better outcomes for people living with chronic pain by promoting productive conversations and shared decision-making between individuals and providers. Our aim was to conduct a descriptive qualitative study to explore the values and preferences of PLwCP related to medical cannabis use for chronic pain in Canada.

## Context of Cannabis Sales and Distribution in Canada

In Canada, PLwCP may obtain cannabis for their chronic pain through a variety of sources. Access to cannabis may vary based on the source of the cannabis, such as whether it is obtained through medical versus recreational vendors. Therefore, it is important to understand how cannabis is sold and distributed in Canada. Licensed HCPs, such as physicians or nurse practitioners, may authorize medical cannabis use or may refer patients to other practitioners, such as those in a medical cannabis clinic. If medical cannabis is authorized, a patient may access cannabis by buying directly from a federally licensed seller online, registering with Health Canada to produce their own medical cannabis, or designating someone to produce it for them.[11] To buy from a licensed producer, a person must register with the licensed producer of their choice, who can then sell cannabis products to the individual as needed.[11] Some individuals choose instead to purchase cannabis from approved or unlicensed recreational vendors or through the underground market. Models for recreational cannabis sales vary by province and can include private models, where private companies obtain licenses authorized by the provincial government; public models, where a crown corporation or provincial board controls retail; or a hybrid model, where some retail is privatized and some is controlled by the provincial government.[12,13] Private or government-run recreational cannabis vendors may distribute cannabis in-person or online.

# Methods

## Study Design

We conducted a descriptive qualitative study using in-depth interviews. We followed the consolidated criteria for reporting qualitative research (COREQ) checklist.[14]

## Sampling and Recruitment

We used intensity sampling to select participants with in-depth knowledge about living with chronic pain and having considered using medical cannabis. Snowball sampling identified additional participants. Participants were recruited via Canada-wide networks from the Michael G. DeGroote Centre for Medicinal Cannabis Research and the Michael G. DeGroote National Pain Centre at McMaster University. We sent out advertisements on social media platforms including Twitter, LinkedIn, Facebook, and Instagram. We also emailed 18 medical cannabis clinics across Canada to distribute recruitment messages. Individuals reached out to the study team via email or phone if they were interested in participating. Eligibility criteria for participation included people aged 18 years or older; living in Canada; and with pain lasting at least 3 months who were using, had previously used, or had considered using medical cannabis for their pain. One research assistant (HC) determined eligibility based on these criteria and sent a letter of information to participants regarding the nature of the study, their rights as study participants, potential risks, confidentiality of their data, voluntary entry into the study, and their ability to withdraw from the study at any time. Prior to enrollment, the research assistant obtained written informed consent from all participants. The informed consent form included consent for publication of anonymized responses.

## Data Collection

Once enrolled, we asked participants to complete a demographic questionnaire (Appendix 1). The research assistant (HC) reviewed the completed demographic questionnaire, addressed any questions, and scheduled an interview. Clinical and methodological experts and 4 PLwCP, some with experience using medical cannabis, reviewed the demographic questionnaire and interview guide (Appendix 2). All documents and interviews were offered in English or French (the two national languages of Canada). One of the three trained research assistants (MU, HC, AD) conducted a semi-structured, in-depth, qualitative interview with each participant between August and October 2022. Interviews were conducted via Zoom (Zoom Video Communication) due to COVID-19 restrictions and to enable increased access to participants across Canada. Phone interviews were offered if participants preferred. Interviews were audio recorded with permission from participants to complement notes taken by the interviewer. We assigned all participants a study ID number, and all data were kept separately from the study key to ensure confidentiality.

Each interview recording was downloaded onto the research assistant's password-protected laptop and uploaded into NVivo software (QSR International) for initial transcription and data cleaning. A shared password-protected site (McMaster University's SharePoint) was used by the team to download the de-identified transcripts and interview notes. We collected data until we achieved saturation and no new substantive themes emerged from the data.

## Data Analysis

Two researchers independently coded each transcript following deductive (based on the interview guide) and inductive (guided by the data) approaches. The research team met regularly to review and discuss emerging concepts and themes and to resolve any discrepancies. We did not conduct a reliability test. We conducted member-checking with 8 participants and a medical cannabis user who had not participated in the study to increase validity and credibility of our findings.

## Researcher Reflexivity

Prior to the study, team members individually completed a reflexive exercise to understand their own biases and predetermined ideas (Appendix 3). Throughout the study, the research team discussed new learnings and how their biases and assumptions may have affected data collection and analysis.

## Ethics

This study was approved by the Hamilton Integrated Research Ethics Board (HiREB), project #14778, and complies with the Declaration of Helsinki.[15]

# Results

We interviewed 52 participants. One participant was interviewed twice as they had tried an unfamiliar product prior to the first interview and felt their interview may have lacked clarity. Interviews lasted from 13 mins to 111 mins, with an average of 39 mins.

## Participants

Because the aim of the study was to examine values and preferences around the use of medical cannabis by PLwCP, it was important to include a variety of participants in our study (including users, non-users, past users, as well as recreational users) in order to ascertain a range of perspectives that could inform shared decision-making. Half of the participants were older than 55 years of age, and half were women (Table 1). Participants identified as White/European (75%, n = 39), Black or mixed (10%, n = 5), Indigenous (8%, n = 4), and Asian (8%, n = 4). Forty-six percent lived in Central Canada (n = 24), followed by the Atlantic Provinces (31%, n = 16), Prairie provinces (15%, n = 8), and the West Coast (8%, n = 4). Most were retired (37%, n = 19) or unemployed (31%, n = 16), and the majority had completed post-secondary education (73%, n = 38). Approximately

**Table 1** Demographic Characteristics of Participants

| Characteristic | Number (%) of Participants n = 52 | Characteristic | Number (%) of Participants n = 52 |
|---|---|---|---|
| **Age** | | **Employment status** | |
| 18–25 | 3 (6) | Retired | 19 (37) |
| 26–35 | 7 (13) | Unemployed | 16 (31) |
| 36–45 | 10 (19) | Employed, part-time | 8 (15) |
| 46–55 | 6 (12) | Employed, full-time | 7 (13) |
| 56–65 | 12 (23) | Other | 2 (4) |
| >65 | 14 (27) | | |
| **Gender** | | **Veteran of the Armed Forces** | |
| Woman | 26 (50) | No | 48 (92) |
| Man | 23 (44) | Yes | 4 (8) |
| Non-binary | 3 (6) | | |
| **Race or ethnicity**[a] | | **Highest formal education level** | |
| White/European | 39 (75) | University degree | 15 (29) |
| Black | 5 (10) | College degree | 23 (44) |
| Indigenous | 4 (8) | High school | 9 (17) |
| Asian | 4 (8) | Other | 5 (10) |
| **Region of Canada**[b] | | **Religious/Spiritual Tradition Affiliation (n=51)** | |
| Central | 24 (46) | Yes | 14 (27) |
| Atlantic | 16 (31) | No | 37 (73) |
| Prairie Provinces | 8 (15) | | |
| West Coast | 4 (8) | | |
| **Region of Residence (n=50)** | | **Current household gross income (n=51)** | |
| Urban | 24 (48) | Below $25,000 | 7 (14) |
| Suburban | 14 (28) | $25,000 to $49,999 | 18 (35) |
| Rural | 10 (20) | $50,000 to $74,999 | 8 (16) |
| Other | 2 (4) | $75,000 to $99,999 | 6 (12) |
| | | $100,000 to $150,000 | 9 (18) |
| | | More than $150,000 | 3 (6) |

**Notes**: [a]A few participants selected more than one or identified as mixed. [b]Atlantic (Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick), Central (Quebec, Ontario), Prairie (Manitoba, Saskatchewan, Alberta), West Coast (British Columbia).

**Table 2** Chronic Pain Characteristics of Participants

| Characteristic | Number (%) of Participants n = 52 |
|---|---|
| **Length of Time Living With Chronic Pain** | |
| > 10 years | 33 (63) |
| 6–10 years | 9 (17) |
| 1–5 years | 8 (15) |
| 6–12 months | 2 (4) |
| **Type of Chronic Pain (n=51)** | |
| Mixed type | 35 (69) |
| Nociceptive | 6 (12) |
| Neuropathic | 4 (8) |
| Nociplastic | 4 (8) |
| Do not know | 2 (4) |
| **Frequency of pain (n=51)** | |
| Daily | 48 (94) |
| Weekly/Other | 3 (6) |
| **Constant vs Episodic Pain** | |
| All the time | 35 (67) |
| It comes and it goes/other | 17 (33) |

half of participants reported household incomes below $50,000/year (49%, n = 25), and 8% (n = 4) were Armed Forces veterans.

Most participants had lived with chronic pain for more than ten years (63%, n = 33) and experienced pain daily (94%, n = 48) (Table 2). Seventy-seven percent of participants were currently using medical cannabis (n = 40), 19% had used in the past (n = 10), and 4% had never used medical cannabis (n = 2) (Table 3). Half of the participants also used cannabis for conditions other than chronic pain (n = 25), and 55% used cannabis for recreational purposes (n = 28). Most participants had authorization for the use of medical cannabis (n = 43, 83%), but the majority did not have insurance that covered cannabis (n = 44, 88%). A number of pain management strategies were used by participants (Appendix 4).

We identified eight themes based on our findings that include (1) reasons for use or non-use of cannabis for medical purposes, (2) the need for experimentation to determine effective cannabis products, (3) benefits and drawbacks of medical cannabis, (4) barriers and facilitators to the use of medical cannabis, (5) types of cannabis products used, (6) routes of cannabis administration for medical purposes, (7) sources of medical cannabis, and (8) information sources on the use of medical cannabis.

## Reasons for Use or Non-Use of Cannabis for Medical Purposes

The reasons why some participants chose to use medical cannabis for their pain included 1) inadequate management of their pain by the healthcare system and traditional medicines; 2) experience using cannabis recreationally; 3) recommendations from HCPs or others, and/or their own research; and 4) minimal concerns about harms associated with cannabis as it was seen as a natural product.

Concerns regarding the use of medical cannabis for chronic pain included 1) psychoactive effects; 2) self-perceived stigma around cannabis use; 3) negative experiences of family members who used cannabis recreationally; and 4) the desire to avoid all drugs for pain, including cannabis.

A portion of our sample discontinued use of authorized medical cannabis for their pain (n = 10). However, some were still using through unauthorized channels, which were elucidated through the interviews. Reasons for stopping the use of medical cannabis for chronic pain included 1) limited benefit regarding pain; 2) difficulty with availability of preferred products; 3) similar or greater pain relief from another drug covered by insurance; 4) pain managed through other strategies; 5) concerns

**Table 3** Medical Cannabis Use Characteristics of Participants

| Characteristic | Number (%) of Participants n = 52 | Characteristic | Number (%) of Participants n = 52 |
|---|---|---|---|
| **Medical Cannabis Usage** | | **Use Cannabis for Other Conditions (n=50)** | |
| Currently using | 40 (77) | No | 25 (50) |
| Used in the past[a] | 10 (19) | Yes | 25 (50) |
| Never used | 2 (4) | | |
| **Length of Time Using Medical Cannabis** | | **Source of Cannabis[b] (n=50)** | |
| <12 months | 5 (10) | Registered government | 36 (72) |
| 1–5 years | 19 (37) | Vendors online or stores | |
| 6–10 years | 8 (15) | Private vendor(s) | 13 (26) |
| >10 years | 8 (15) | Underground market or other | 7 (14) |
| Did not answer | 12 (23) | Unlicensed venue | |
| | | Grow it myself with license to grow | 5 (10) |
| **Authorized/Prescribed Medical Cannabis** | | Other online vendor | 4 (8) |
| Yes | 43 (83) | Family/friends with license to grow | 4 (8) |
| No | 9 (17) | | |
| **Who Authorized/Prescribed Cannabis[b] (n=43)** | | **Recreational cannabis use (n=51)** | |
| Medical cannabis clinic | 33 (77) | Yes | 28 (55) |
| Family doctor | 19 (44) | No | 23 (45) |
| Pain management clinic | 6 (14) | **Information Sources for Medical Cannabis[b]** | |
| Psychiatrist/other specialist | 4 (9) | Medical cannabis physician or | 26 (50) |
| Online prescriber/Other non-doctor healthcare professional | 3 (7) | Other prescriber Online | 24 (46) |
| | | Family doctor | 17 (33) |
| **Cannabis Covered by Insurance (n=50)** | | Family or friends | 15 (29) |
| No | 44 (88) | Cannabis retail store | 13 (25) |
| Yes | 6 (12) | Pain management clinic | 9 (17) |
| | | Other healthcare professional | 3 (6) |
| | | Other | 13 (25) |

**Notes**: [a]Some participants indicated in the demographic questionnaire that they used medical cannabis in the past, but it was revealed during interviews that some were currently using cannabis for medical purposes, with or without authorization. [b]Total percentage is not 100% since participants could select more than one answer.

about having become addicted or potential for addiction; and/or 6) adverse physical and psychological effects (eg, panic attacks or paranoia, inability to drive, memory loss, loss of focus or coordination, or feeling high).

> Had the benefits been greater, I might have tried it longer and experimented with it to find the right strain, the right dose. But my experience was so negative and the fact that it did not help my pain and it made my brain exceptionally non-functional…. that didn't seem like a very good payoff to me. – 2909053 (Past user)

Two participants had never used medical cannabis citing: 1) it was not offered by their HCPs; 2) insufficient evidence and not wanting to experiment; 3) satisfaction with existing pain management; 4) negative experiences of family members; 5) lack of knowledge regarding how to obtain medical cannabis (and not wanting to buy it via recreational or illegal sources); and 6) cost as a barrier to access.

## Need for Experimentation to Determine Effective Cannabis Products

Most individuals reported the need to experiment to determine what products and routes worked for them (if they did). Experimentation was important as cannabis was not dosed like other medicines, and everyone reacted differently. Experimentation lasted 1–6 years for the participants and required self-education and trial and error, and the process was expensive. Several participants noted the importance of education and regulation, especially among new users who

did not know how they would respond to cannabis. They suggested starting with small doses to find what worked, finding a balance between efficacy and tolerable adverse effects, and accounting for other pain management strategies. Participants stated that effects depended on product composition, route of administration, dose, timing, body chemistry, and type of pain. In some instances, altering product types or doses was needed if tolerance developed, medical conditions changed, the effects were not as described or expected, or preferred products were not available. Several participants mentioned they found it helpful to track their product use and their experiences in real time by using journals, diaries, or computer or phone software applications, especially when pain or the cannabis made it difficult to remember.

> After a while, you kind of get used to knowing how you feel and how much you need to vape [cannabis] to still have the pain relief without taking too much or taking too little. But it takes a while, like, it's a lot of self-education, which is difficult for any new user. – 1508046 (Current user)

## Benefits and Drawbacks of Medical Cannabis

Participants noted several benefits of medical cannabis including 1) relief from pain, higher pain tolerability, or distraction from pain; 2) better sleep; 3) relaxed feeling; 4) relief from symptoms such as nausea, cramps or muscle spasms; 5) increased appetite or weight loss; 6) improved sexual functioning from decreased pelvic pain; 7) improved mental health; 8) improved physical and social functioning; 9) replacing medications with cannabis; 10) few to no side effects, lower risks, and fewer contraindications than traditional medications used to manage chronic pain; and 11) flexibility with cannabis use and associated dosing.

> So it did address the nerve pain. So let's say, for example, if my average pain is like an 8 out of 10, it was able to help reduce it to, like a 4 out of 10. So it did have a substantial impact in a positive way. – 1708047 (Current user)

> It's a coping mechanism, more than anything. It doesn't take it [the pain] away, it more relieved it and makes it more tolerable. I don't know if it's that you don't care as much or you don't think about [pain] as much...it just don't bother you and you just, kind of, go about doing whatever you're doing and you're not like sitting there focused on pain. – 0508019 (Current user)

> So the benefits I find is that because it is not an opioid narcotic, it was able to give me a functional life. So I'm on the higher CBD route rather than the THC. So I don't have the sensation of the high or the psychotropic issues that normally THC would provide or also, you know, the psychedelic prospects that narcotics or opioid would. So I was able to regain a life… I can drive, I can function in society, I can work without being impaired or the worry about is my judgment going to be impaired. – 1708047 (Current user)

Drawbacks noted by some participants included 1) lack of improvement in pain or sleep; 2) side effects including feeling drowsy or fatigued, increased appetite, anxiety, panic attacks, paranoia, cognitive effects of being high, decreased motivation, dry eyes, dry mouth, increased thirst, fast heartbeat, cough; 3) interference with daily function including driving, work or caregiving; 4) legal considerations of using cannabis (mainly tetrahydrocannabinol (THC), but also cannabidiol (CBD)); 5) safety concerns for kids and animals; and 6) "addiction" or building tolerance. Most participants that had continued cannabis use felt there were few, if any, harms associated with its use.

> Just general fatigue. Like when I was using the different mixes, it either wouldn't have any effect at all on my pain or it would have a slight effect on the pain but it would make me just like, lose all my energy and just have no motivation to do anything. So, yeah, it was, kind of, like, the slight benefit that I did get was outweighed by the downside of it. - 2909055 (Past user)

> With this, the only downfall is you're limited to when you can take it, especially when I was working. I couldn't drive to work, taking cannabis. So you had to plan around how you are going to take it. But now I'm retired. I still plan around it. If I know I'm going to go to the store tomorrow, I'll wait to take my cannabis till I come back. So I plan my driving routine in between or before and after type thing. So it's a little easier when you don't work, a lot easier. - 0308013 (Current user)

## Barriers and Facilitators to the Use of Medical Cannabis

There was wide variability in barriers and facilitators to medical cannabis use. For example, we found that some participants felt a lack of regular availability of medical cannabis was a barrier, while others found no issues around access. Some barriers were dependent on the preferred products and/or methods chosen. For example, using higher THC products interfered with work or home responsibilities as opposed to higher CBD products, given the psychoactive properties of THC. Other barriers or facilitators included 1) acceptability by themselves or others; 2) availability of information on medical cannabis types and products; 3) availability or access to medical cannabis; 4) cost; 5) international travel; 6) convenience in use of products and methods; 6) feeling alone in making decisions regarding use; 7) legal status; 8) attitudes and knowledge within the medical system and navigating the system; 9) support from family, friends, or other users; and 10) work or caregiving responsibilities. For many, the barriers were not sufficient to deter their use of medical cannabis.

> And then yeah, and some, you know, some people are up against cultural barriers, right? You know, like some cultures totally embrace and other cultures or religions [don't]. – 1308024 (Current user)

> Everybody I know uses it. At the beginning, at the very beginning, when I started using it, I was a little hesitant with my family, but they accepted it easily. And I think it was more me that was like thinking I was some kind of drug addict or something, having this cannabis license. – 1408050 (Current user)

A frequently raised issue was cost, with many highlighting how expensive medical cannabis was. For some, the cost was worth the pain relief and lack of side effects. Others found cannabis was cheaper than prescription medicines. Overall, participants felt that cost had improved since legalization, and that cost was dependent on product type, where better quality or more potent products were more expensive. There was frustration that medical cannabis was taxed despite it being approved for medical purposes. Many participants either did not have insurance, or their insurance did not cover medical cannabis or visits to medical cannabis clinics. Strategies to decrease costs entailed making use of compassionate pricing, discounts and sales, bulk ordering to get free shipping, claiming on income taxes (but only if reached a certain total cost per year), coverage by some insurances and Veterans Affairs Canada, or growing their own cannabis.

Some participants felt legal status influenced 1) individual decision-making (ie, not being worried about using an illegal substance and potential consequences); 2) the supply of medical cannabis, with improved quality and availability after legalization; and 3) access, by not requiring a prescription. Noted barriers related to the medical system included 1) not having a family doctor; 2) doctors not being educated on medical cannabis use or products, not licensed to authorize medical cannabis, or unwilling to authorize or refer; 3) medical cannabis not being integrated or accepted within the medical system; and 4) medical cannabis licenses being expensive and onerous to obtain. Facilitators within the medical system included 1) doctors, other health professionals or Veterans Affairs Canada caseworkers recommending or being willing to authorize or refer for authorization; 2) doctors supporting discontinuation/tapering of opioids with medical cannabis; and 3) having medical cannabis clinics as resources. Currently, in Canada, there are medical cannabis clinics that do not require referrals and offer services virtually or in-person.

> I was kind of blessed or I was lucky enough that I did have a family doctor that was open to providing me with access to medical cannabis. Whereas I do know, unfortunately, a lot of people don't have a family doctor that would prescribe that, or much less – I'm in [Province] – so, or much less have a family doctor. – 1708047 (Current user)

> It's more widely accepted by the medical community, at least in my experience, versus having to go and have a refill on any opioid medication versus just renewing your medical marijuana license for the year. – 1308044 (Current user)

> I never became a licensed medical user because my wife got her license and I saw how expensive and onerous the process was…you know, the fact that it's not covered by any, any benefits program or even the [Provincial program] is a bit of a disadvantage because, you know, I treat it as a medicine, as much as anything. And you know, if everybody had to get their pain meds the way medical cannabis users used to have to get theirs, there would have been riots in the streets - 2509052 (Current user)

## Types of Cannabis Products Used

Participants mentioned different types of cannabis products used, including CBD, THC, or a combination of both. One participant mentioned using CBN (Cannabinol) products. Experiences of using different products varied widely among participants.

Most participants who used CBD stated that its main benefit was minimal or lack of physical and mental impairment as compared to THC products and other pain medicines, such as some opioids. This allowed them to treat their pain without worrying about driving, working or completing other daily activities. Also, as most CBD products were found through medical cannabis channels, participants felt such products were regulated and likely of high quality. Participants who preferred THC products reported feeling more distracted from their pain or found more benefit for concurrent mental health conditions, such as post-traumatic stress disorder (PTSD). Perceived benefits of both CBD and THC included pain relief, feeling more relaxed and less stressed, improved mood, and help with sleep.

Some participants found no beneficial effect from taking either CBD, THC or both. Perceived drawbacks of CBD products included dry mouth, gastrointestinal upset, drowsiness, and migraines. A few participants noted that CBD needed to build up in the body to feel the effects of it. A main drawback of THC, highlighted by many participants, was feeling high. They stated it could cause physical and mental impairment, which limited their daily activities. Given the psychoactive effects of THC, participants were not able to drive, and their work or caregiving duties were affected at times. Other side effects of THC encountered by participants included dry mouth, drowsiness or increased alertness, head spinning, and increased appetite. More serious side effects included anxiety, paranoia, panic attacks, and some experienced anger or feeling sick ("greening out"). A few participants described feeling dependent on THC or feeling "addicted". Participants felt that others could tell when someone was using THC products because of the effects of being high, such as altered mental state and fogginess, or by the smell of THC products.

> I find that the CBD, just because it gets the pain down, which, when it lessens the pain, then that just makes everything else go better. – 1308029 (Current user)

> I usually use high THC and very little or no CBD… It's just that happens to be what's cheapest and works for me. I've tried higher CBD things and it didn't do as much for me. – 1509048 (Current user)

> INTERVIEWER: So did you find any benefits in particular to the THC, while you were using it?
> PARTICIPANT: Not really. There were times like where I don't feel so bad today. But it was never consistent…I wasn't overly impressed with it. - 0909049 (Past user)

Two commonly discussed THC products included Indica and Sativa. Most often, participants mentioned Sativa strain being more energizing than Indica strains, which were often used at night to help with sleep due to drowsiness as a side effect. Participants mentioned that sometimes the same strains could produce different effects, especially if the products were not regulated.

In general, participants found CBD products to be more socially acceptable and to be recommended more often by HCPs, but they were generally considered more expensive than THC products and more difficult to find. Having medical authorization for cannabis facilitated access to CBD products and provided avenues for discounts through licensed government medical cannabis vendors.

Participants who used a balanced mixture or a combination of CBD and THC had similar benefits and side effects of CBD and THC products, with some of the combinations helping offset possible side effects of THC (like the feeling of being high or stoned). The cost of the combination products ranged between the cost of CBD and THC products.

As highlighted by many participants, dosages for medical cannabis were not standardized. Sometimes participants needed to switch products or needed tolerance breaks. Several participants noted their perception that terpenes were important to improve the effects of cannabis. Lastly, many participants used different products at different times of the day or for different purposes (eg, CBD-dominant products for pain relief during the day and THC-dominant products for sleep at night).

## Routes of Cannabis Administration for Medical Purposes

Participants mentioned several routes of cannabis use. Forty-two (84%) had used oral routes, which included oils, gel capsules, edibles (ie, cannabis-infused butter, baked goods, gummies, candies, lozenges), drinks, sprays, and sublingual strips. Twenty-seven (54%) had used inhaled routes, which included smoking (rolled joints, water pipes) and vaporizing or vaping (vaporizers, vape pens, and dab pens) of cannabis flower, oils or concentrates. Some benefits of concentrates described by users were that they tasted cleaner and required fewer inhales to achieve an effect. Ten (20%) had used dermal routes, which included lotions, balms, oils, patches, bath bombs, and suppositories.

A key theme was that oral routes provided longer-lasting and more constant relief from pain but took longer to have an effect, whereas inhaled methods had a more rapid onset, but the effects were shorter-lived. As such, some participants mentioned using oral routes, such as oils, for long-term pain, alongside inhaled routes, such as a vaporizer, until the oral routes took effect and/or for break-through pain. Oral routes were thought to be safer and less harmful than inhaled routes, with fewer side effects such as coughing and harm to the lungs. Also, oral methods were seen as convenient, discreet, and more socially acceptable than inhaled methods due to less odor and a move away from smoking in society.

Several participants were recommended oral methods by HCPs, and many felt there were no drawbacks to this option. However, some noted that, in their experience, oral methods had no or less effect than inhaled options. Also, due to the longer-lasting effects of oral methods, any negative effects from cannabis, such as "bad trips", lasted longer, whereas any unwanted side effects were shorter-lived with inhaled methods. Generally, inhaled forms of cannabis were considered to be cheaper and more readily available than oral options.

> The only other thing for ingesting, and I don't know if it's factual or not, but to me, I feel like it's healthier. It's - obviously there's no effect on your lungs because you're not inhaling anything. - 1508046 (Current user)

Some participants who used primarily inhaled methods stated they would be willing to switch to oral methods only if they were more affordable or provided the same effect as inhaled forms. Very few participants who primarily used oral routes were willing to switch to inhaled routes. Reasons for potentially switching included cheaper cost and lack of importance placed on route as long as it provided pain relief. Reasons for those that preferred not to switch to inhaled routes included having quit smoking in the past, dislike of smoking, potential harms to the lungs, and minimal effect on pain relief. Some participants mentioned they would switch to vaping but not smoking, and some stated they would quit cannabis entirely before choosing to smoke cannabis.

Additional identified benefits or facilitators and drawbacks or barriers of the routes (including types of inhaled, oral, and dermal routes) are presented in Appendix 5 Table 1.

## Sources of Medical Cannabis

Participants had experience purchasing or obtaining cannabis for their chronic pain from registered government medical cannabis suppliers, recreational cannabis stores, homegrown, friends or family with licenses to grow, and the underground market or unlicensed vendors. One preferred option mentioned by several participants would be to purchase medical cannabis in pharmacies, like other medications; however, that is currently unavailable in Canada. Some participants felt the process of obtaining medical cannabis was straightforward and supported by their HCPs and/or medical cannabis clinic, while other participants felt the process was onerous and expensive. Appendix 5 Table 2 provides more details about advantages and drawbacks mentioned by participants for obtaining cannabis from different vendors.

## Information Sources on the Use of Medical Cannabis

Participants mentioned they used various sources of information regarding the use of medical cannabis. For some participants, family doctors were an initial source of expertise, especially on what medical conditions could be treated with medical cannabis. Since family doctors knew a patient's complete health history, they were able to put medical cannabis use in context of other health-related factors. They also provided referrals to cannabis clinics when needed. While not all family doctors supported the use of medical cannabis, more doctors were becoming open to its use since

legalization. Some participants also noted that family doctors also needed more education about the use of medical cannabis.

Participants highlighted that medical cannabis clinics were easily accessible, experienced, knowledgeable, reliable, credible and trustworthy. They provided advice, guidance and reassurance, which was beneficial for beginners. One participant mentioned that because the medical cannabis clinic provided the assessments but did not sell the products, they did not feel pressured to purchase. One participant mentioned they would like for their medical cannabis clinic to have seminars or in-services about the use of medical cannabis.

Other sources of information on medical cannabis included government-licensed medical cannabis vendors, recreational cannabis stores, family and friends, other medical cannabis users or growers either online or in person, research studies, and books. However, these sources were unable to provide medical advice.

Online sources were preferred by many participants as they provided easy access, up-to-date information, functionalities to search for products, nuanced information especially with regard to specific conditions, and privacy. They often chose credible sites, which they described as governmental, professional, academic or medical websites. Other participants used Google to find information on resources and products. YouTube, online forums and social media also provided lived experience and knowledge for using or growing cannabis while allowing users to ask questions. Some participants emphasized the need to judge the reliability of online sources and the need for balanced sources of information. Several participants mentioned they would conduct research online and then review the information with health professionals.

Applications, or "apps", provided information about products and where to purchase them (eg, Wikileaf, Leafly), growing and identifying plants, and lived experiences. One participant mentioned that individuals could see reviews about the apps to help decide which ones were reliable. A few participants described using apps to remind them to take their medicines or to track pain and mood to help in decision-making. Some participants did not like apps because they required too much information or were not user-friendly.

The various sources of information helped participants decide 1) whether to try using cannabis; 2) what product types, routes, and doses to use, especially for certain conditions; 3) where to obtain cannabis; 4) how to grow cannabis; and 5) also provided reassurance. Lacking a credible one-stop-shop source for medical cannabis information, participants often used multiple sources of information and relied on consistent information across these sources to make decisions. Participants wanted information sources that were credible, trustworthy, reliable, up to date, easy to understand, easy to access, convenient, and reassuring. The information provided should be relevant, tailored to their level of experience, and based on lived experience and/or professional knowledge. Many participants stated that even though they did their own research, they still relied on a trial-and-error process because everyone responded differently to cannabis and doses were not standardized. They also felt that this spoke to a lack of research evidence on cannabis, and many participants called for more research on the use of medical cannabis for a variety of pain syndromes and other conditions.

# Discussion

## Summary of Main Findings

Our study highlighted variability around reasons PLwCP chose to use medical cannabis, including ineffective pain management or perception of cannabis as a safer option to pain medications, such as opioids. Some stopped using cannabis due to lack of pain relief or not liking the physical or psychological side effects, such as feeling high or concerns about addiction. Reasons for not trying medical cannabis included not having enough information, pain already managed appropriately, concerns about negative side effects, and cost.

Experimentation with products and routes was important but could take years. Participants suggested to start low and titrate up with any new product. We noted wide variability in what constituted a benefit, drawback, barrier or facilitator for participants. For example, in terms of access, some found it to be a limiting factor while others did not. What constituted a benefit or drawback could vary based on participants' desired or expected effects, and effects could vary based on routes, product types, and dosages.

Also, there was variability in preferred routes of use depending on preferences for certain effects such as rapid onset with inhaled forms versus more constant effects with oral forms. Preferred product types also varied. It is important to

note that while the terms Indica and Sativa are widely used in cannabis marketing, recent research has shown that these labels are misleading and unreliable, and terpenes may contribute more to the differences in experiences of users.[16]

If authorized medically, cannabis could be accessed through a medical cannabis registered government vendor; otherwise, it could be obtained through recreational vendors, homegrown, or through the underground market or unregistered vendors. There was also variability in where information on cannabis was found. Participants valued professional expertise and lived experiences to support their choices.

## Alignment with Existing Literature

Our study builds on what has been found in Canadian literature on the values and preferences of medical cannabis use for chronic pain. Our findings align with two qualitative studies on pain physicians' attitudes and beliefs regarding medical cannabis for chronic noncancer pain and attitudes of family physicians towards medical cannabis.[5,17] Both studies found that a main concern for physicians was the lack of evidence in favor of medical cannabis and the need for additional research. Several participants in our study stated the same and emphasized the importance of research around effects of medical cannabis, what methods and products to use, and dosing considerations. Also, one of the qualitative studies found, as we did, that there is a need for "trial-and-error" to establish if cannabis use is helpful or not for each individual.[17]

A systematic review on experiences, values and preferences for medical cannabis use in pain found that cost and stigma were considerations when deciding on medical cannabis use.[7] Legal status, accessibility, and recommendations from friends or family were also important factors. A further qualitative study described prevailing social and personal stigmas around using cannabis for medical purposes.[18] Our study identified stigma and other similar barriers and facilitators and added considerations of travel or mobility, work or caregiving responsibilities, feeling alone in decision-making, availability of information, attitudes and knowledge within the medical system, and navigating the medical system.

The same systematic review highlighted that most patients used medical cannabis for improvement of pain, mental health symptoms, or other medical conditions and to reduce use of other prescription medications.[7] Concerns around "addiction", losing control, and acting strangely were associated with unwillingness to use medical cannabis.[7] Our study had similar findings: additional advantages included aiding with sleep, having fewer side effects compared to other medications, and flexible dosing. Some participants in our study mentioned replacing other medications with cannabis, and many perceived cannabis as a safer option to pain medications, which aligns with existing literature that examines cannabis as a substitute for opioids and other prescription medications.[19–21] An additional drawback we found was that cannabis, mainly THC, was perceived to interfere with functioning. Reasons for discontinuing medical cannabis use also included physical side effects, cannabis not relieving pain, lack of availability, or resolved pain.

There was surprise by some participants when they realized they had or could become addicted to cannabis or could build tolerance and need increasing doses to get the same effects over time. Some participants did not want to start using cannabis due to concerns around addiction. According to the Government of Canada, it is estimated that 1 in 11 or 9% of people who use cannabis will develop an addiction to it and that 1 in 3 will develop a problem with its use. For people who smoke cannabis daily, the risk of addiction can be as high as 50%.[22] However, cannabis dependence and use disorder in the context of medicinal cannabis use are still controversial and not well described.[23]

## Strengths/Limitations

One strength of our study was the number of participants (n = 52) which allowed for a variety of viewpoints and experiences from people of different genders; ages; ethnicities; geography; and current, past and non-users of medical cannabis. Virtual and phone interviews allowed for Canada-wide data collection.

Another strength was that the demographic questionnaire and interview guide were vetted by PLwCP who used medical cannabis, and neutral language was used for inclusivity. Member checking added to the trustworthiness and credibility of the results, and reflexivity among team members helped reduce biases when analyzing the data.

One limitation of our study was the use of English and French recruitment materials only and the lack of French-speaking participants. Also, our participants were recruited through medical cannabis clinics and social media, which may have excluded people without internet access. Seventy-three percent of participants had a college or university degree, representing more educated individuals, which could also limit representativeness of findings.

## Implications for Research and Practice

Further research is required to understand the complexities of cannabis use for medical purposes (eg, dosing, timing, etc.), especially when using multiple products and methods and for specific pain conditions.

Although 10 participants stated that they used medical cannabis in the past, during the interviews, some revealed that they were still using cannabis for their pain but were not acquiring it through authorization from HCPs. Therefore, given the current legal context of cannabis in Canada, it is important to recognize the use of cannabis for medical or therapeutic purposes obtained via non-medical routes, such as recreational vendors, which may not be accompanied by official diagnoses. These distinctions are important for researchers when developing their studies.

Our study offers some important considerations for clinical practice and policy making. This study highlights factors that PLwCP consider when making decisions regarding medical cannabis use. In addition, our findings demonstrate that most people who use medical cannabis go through a process of experimentation to determine the methods, products, and dosages best suited for them. The use of a diary, journal or app may help participants keep track of their use, mood, and other factors during this process. Furthermore, a one-stop shop from a credible source could support learning and education during the experimentation phase and beyond. Practitioners could provide support during the experimentation phase by presenting information through a layered approach, providing information in a digestible manner given the different product types, methods, and dosages to consider. This emphasizes the importance of shared decision-making between PLwCP, their carers and healthcare professionals to ensure productive conversations and appropriate education and consideration of benefits and harms, barriers and facilitators, and patient values and preferences. Clinical practice guidelines may consider these factors.

While the risk of dependence may be different for PLwCP than for the general population, it is important to inform patients about the risk of dependence and/or cannabis use disorder within the framework of shared decision-making, especially if they have already dealt with or are currently dealing with other substance use disorders.

# Conclusion

This study explored values and preferences of PLwCP regarding the use of medical cannabis for their chronic pain within the Canadian context (ie, legalization of medical and recreational cannabis). We explored reasons for using or not using medical cannabis, the need for experimentation, benefits and drawbacks of use, barriers and facilitators to accessing medical cannabis, types of products and routes of use, sources of information on medical cannabis use, and locations where cannabis can be purchased. Participants' perceptions regarding these factors were varied. Further research and information-sharing is needed to help PLwCP understand the complexities of cannabis use for medical purposes, including ideal dosing and timing, especially when using multiple products and methods. In addition, our findings demonstrate that most people who use medical cannabis go through a process of experimentation to determine the methods, products, and dosages best suited for them. Practitioners could provide support during the experimentation phase by presenting information through a layered approach and by providing information in a digestible manner given the different product types, methods, and dosages to consider. This emphasizes the importance of shared decision-making between PLwCP, their carers, and healthcare professionals to ensure productive conversations and appropriate education and consideration of benefits and drawbacks, barriers and facilitators, and patient values and preferences.

# Abbreviations

PLwCP, people living with chronic pain; HCP, healthcare provider; CBD, cannabidiol; THC, tetrahydrocannabinol.

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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