Medical Cannabis Access and Experiences in Canada

Medical Cannabis Access Survey Summary Report

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CONFLICTS OF INTEREST

The following authors have the following conflicts of interest to declare:

- Lynda Balneaves is the Deputy Director of the Canadian Consortium for the Investigation of Cannabinoids (CCIC) and received a monthly stipend for this role until October 2022.
- Ashleigh Brown is the Founder and Chief Executive Officer of SheCann Cannabis, which is a group which advocates for individuals who take cannabis for medical purposes. She is a consultant for healthcare practitioners, researchers and license holders in Canada and has received compensation from clients who work in the cannabis industry.
- Matthew Green is Co-Chair of the Medical and Scientific Advisory Committee for Medical Cannabis Canada, which advocates for individuals who take medical cannabis, and is a research and pharmacology consultant for Verdient Science LLC, who have clients in the cannabis industry.
- Eva McMillan was employed at Santé Cannabis, a dedicated medical cannabis clinic, research and training centre until March 2022. Santé Cannabis runs sponsored clinical trials and receives grants and honoraria from industry for education and training services.
- Max Monahan-Ellison is the Board Chair of Medical Cannabis Canada, which advocates for individuals who take medical cannabis, and is a health communications consultant who has previously had clients in the cannabis industry.
- Erin Prosk is the President and co-founder of Santé Cannabis. Santé Cannabis runs sponsored clinical trials and receives grants and honoraria from industry for education and training services.
- Lucile Rapin is an employee of Santé Cannabis.
- Jonathan Zaid is the Vice-Chair of Medical Cannabis Canada, which advocates for individuals who take medical cannabis, and has previously held consulting and employment roles in the cannabis industry.
- Michael Dworkind is the Medical Director and Co-founder of Santé Cannabis. Santé Cannabis runs sponsored clinical trials and receives grants and honoraria from industry for education and training services.
- Cody Watling has no conflicts of interests to disclose.

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EXECUTIVE SUMMARY

Medical cannabis access is a complex issue in Canada and has been the subject of extensive debate as well as long-term regulatory and legislative review. Individual access has been protected by numerous constitutional rulings dating back to the late 1990s. In October 2018, the Cannabis Act and Cannabis Regulations came into effect, legalizing the use of non-medical cannabis in Canada as well as updating regulations pertinent to the access to, and use of, medical cannabis. As part of the legalization of non-medical cannabis, the federal government committed to conducting a review of the Cannabis Act within five years. This was to include a review of the medical cannabis framework in Canada.

To help inform this review, the Medical Cannabis Access Survey (MCAS) was launched to provide an opportunity for individuals with lived experience of taking medical cannabis to share their experiences, challenges, and suggestions regarding future improvements to the medical cannabis framework in Canada.

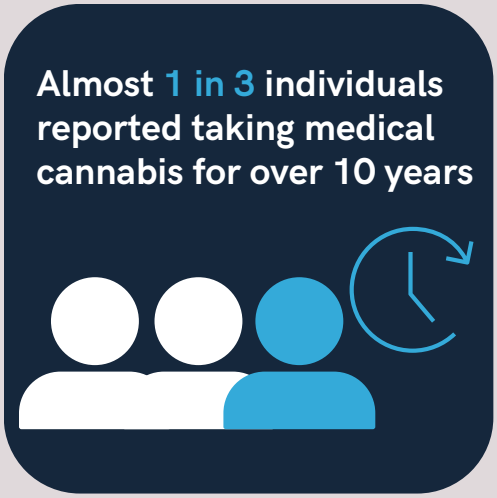
Eligible individuals included Canadian residents aged 16 years and older, who were currently, previously or considering taking cannabis for medical purposes. The online survey was available between March and July 2022. The survey asked about their current medical cannabis use, purpose and reasons for taking medical cannabis, their authorization and access experiences, insurance coverage and costs associated with medical cannabis, and changes experienced since legalization of non-medical cannabis in 2018.

In the Fall of 2022, it was announced that an independent expert panel had been appointed to review and provide recommendations on the Cannabis Act, including the impact of non-medical cannabis legalization on access to cannabis for medical purposes.

FINDINGS

The majority of individuals who took part in the survey were current medical cannabis consumers, with just over half holding medical authorization.

- A total of 5,744 individuals from across Canada completed the survey. Overall, 5,433 individuals (95%) reported currently taking medical cannabis and 54% of these individuals held current medical authorization.



Most of the individuals had a lengthy history of taking medical cannabis and reported taking it every day for such health conditions as chronic pain, anxiety, and sleep issues. They took a variety of cannabis products, with dried flower and oil being the most frequently reported. Estimating how much medical cannabis product they consumed on average each day, including the amount of tetrahydrocannabinol (THC) and cannabidiol (CBD), was difficult for most individuals to report.

Individuals perceived medical cannabis to be moderately to highly effective for many health conditions and symptoms and half of all current consumers reported taking cannabis to reduce their use of other medications. Although three quarters of individuals who took medical cannabis reported experiencing a side effect, the ones most frequently mentioned were mild, including dry mouth, a cough, or feeling tired.

- 83% of individuals reported taking medical cannabis at least once a day and 52% reported taking cannabis for more than 5 years.
- The three most common symptoms or health conditions medical cannabis was taken for were chronic pain (67%), anxiety (64%) and sleep issues (62%).
- On average, medical cannabis consumers reported taking 3 different types of cannabis products. The most reported product taken by individuals with current authorization was cannabis oil (68%). In contrast, dried flower was the most frequently reported among individuals without current medical authorization (79%).
- Individuals struggled to report the amount of cannabis they took. However, those with current medical authorization were were more likely to be able to report the amount and dose of cannabis they took each day (32%) versus individuals without authorization (18%).
- Perceived efficacy was rated very to extremely effective on average for managing appetite, nausea/vomiting, agitation, epilepsy/seizures and sleep issues.
- Individuals currently taking cannabis reported they take medical cannabis to reduce to their use of other medications (50%) of which, 45% of these individuals shared it reduces their use of opioids.
- Most individuals taking medical cannabis reported experiencing unwanted side effects (73%); however, the most common side effects reported were relatively mild and included dry mouth (45%), cough (29%), and feeling tired (21%). Those with current medical authorization were more likely to report no side effects compared to those without authorization (30% vs. 23%)

Nearly 1 in 2 individuals report taking medical cannabis to reduce the use of other medications

Individuals with medical authorization were more likely to be able to report the amount of medical cannabis they take

Individuals with medical authorization were less likely to report side effects from taking medical cannabis

Medical cannabis consumers obtained their cannabis from numerous sources. More than half of individuals with authorization indicated accessing medical cannabis at a legal recreational store, where it is prohibited to provide medical advice about cannabis. Individuals who sought medical cannabis from multiple sources shared that they experienced more difficulties in finding the products they required.

- Amongst individuals with current medical authorization, 78% purchased their medical cannabis from a federally licensed seller, however, 50% also reported obtaining medical cannabis from a recreational source (i.e., online store, in-person store).
- Compared to individuals sourcing medical cannabis products solely from licensed sellers, those that sought medical cannabis through multiple sources reported experiencing difficulties, including finding the products they required.
- Over half of individuals (52%) without medical authorization got cannabis from unregulated sources whereas this was less common among individuals with authorization (26%).
- Overall, individuals that held medical authorization were more likely to obtain medical cannabis from legal, regulated sources than individuals without medical authorization.

Individuals who held medical authorization were more likely to be older, identify as being a man, and have a higher income and education than individuals without authorization.

- Numerous demographic factors were associated with holding current medical authorization, including identifying as a man, being over the age of 30, having a higher yearly household income, and having higher than high school education.

Individuals with past authorization no longer saw the need for authorization because they could easily purchase cannabis from recreational stores and perceived licensed sellers to be too expensive.

- For those individuals without a current authorization but had one in the past (n = 760), the most common reasons for no longer seeking authorization were the perception that there was no need due to the recreational market (68%) and that it was too expensive to purchase cannabis from licensed sellers (48%).

Individuals who sought medical authorization but were unsuccessful wanted authorization in case of interaction with law enforcement, to obtain compassionate pricing through licensed sellers, and to avoid stigma. Healthcare professionals' lack of knowledge and unwillingness to talk about medical cannabis were cited as reasons for why individuals were denied obtaining medical authorization.

- For the 470 individuals who tried to get authorization but were not successful, the reasons they provided for seeking authorization were in case of interaction with law enforcement (54%), compassionate pricing from a licensed seller (51%), access to a licensed seller (37%), and avoid stigma (37%).
- The reasons individuals reported their request being denied were centered on their healthcare professionals' lack of knowledge about medical cannabis (50%), unwillingness to talk about medical cannabis (36%), and concerns about limited medical cannabis research (34%).

1 in 2 individuals who tried to get authorization but were unsuccessful said they were unsuccessful because their healthcare professional lacked knowledge about medical cannabis

Individuals with medical authorization were 20% more likely to receive or seek information from healthcare professionals than those without authorization

Individuals who took medical cannabis received information from a variety of sources, however, those without medical authorization reported being less likely to obtain or seek information from healthcare professionals and more likely to use online information sources.

Very few individuals reported having any coverage for medical cannabis-related expenses. Those with medical authorization, as well as having a lower household income, reported paying more for medical cannabis. The removal of taxes was identified by many as an important way of reducing the cost of medical cannabis, making it easier to access, and reducing the use of unregulated sources. Individuals who stopped taking medical cannabis cited cost as the most common reason.

- Despite over half of individuals with current medical authorization having some form of private health insurance, only 6% reported being successful in receiving reimbursement for medical cannabis-related expenses.
- The median out-of-pocket cost of medical cannabis was $125 per month, with 39% of participants reporting spending more than $200 per month.
- Participants with medical authorization reported spending more on medical cannabis-related costs than those without medical authorization. Individuals who made less than $35,000 per year reported spending about $50 a month more on medical cannabis than participants reporting a higher income.
- Participants who held medical authorization shared that removing taxes would reduce the cost of medical cannabis (64%), make it easier to access (57%), and reduce the use of unregulated sources (35%).
- Among individuals who had a past history of taking medical cannabis (n=204), the most reported reason for why they stopped taking medical cannabis was that it was too expensive (48%).

As described, key differences were found between individuals with medical authorization versus those without authorization that suggest authorization may lead to individuals who are better informed and knowledgeable about medical cannabis, are obtaining medical cannabis through the intended legal, regulatory sources, and are experiencing less adverse effects. However, those with authorization end up paying more for medical cannabis, with little coverage through public and private insurance.

Only 6% of individuals with medical authorization received any coverage for costs

Individuals with medical authorization reported spending 25% more on medical cannabis costs than those without authorization

Individuals with low income (<$35,000/year) reported spending more on medical cannabis per month than those with higher income

Overall, the majority of individuals in this study supported the continuation of the medical cannabis program in Canada. Individuals reported that being able to claim medical cannabis-related expenses on tax forms, receiving compassionate pricing from licensed sellers, and being allowed higher possession limits were important aspects of the medical cannabis program.

- Nearly 57% of individuals with medical authorization agreed that there was a need to retain the medical cannabis program as separate from the recreational cannabis market. Policies exclusive to the medical cannabis framework that were most relevant to these individuals included being able to claim medical cannabis on federal tax forms (47%), receiving compassionate pricing (36%), and possession limits (29%).

Individuals identified numerous improvements that can be made to the medical cannabis program in Canada, including reduction of costs by eliminating applicable taxes, introduction of access via community-based pharmacies, protections for use in public and private spaces, review of THC limits for edible products for therapeutic use, and an increased focus on medical cannabis research and education.

Participants with medical authorization shared they wanted to get their cannabis in-person such as at community pharmacies

"Why can't I go to the pharmacy to get my medical cannabis?"

Based on the findings of this study, six key recommendations are proposed for consideration as part of the federal review of the Cannabis Act and Regulations and to inform future medical cannabis policy and programming in Canada.

RECOMMENDATIONS

1. Design, implement, and maintain a formalized evaluation of the medical cannabis framework in consultation with patients and key experts

2. Maintain reasonable access to cannabis through a dedicated medical framework embedded within the Cannabis Regulations

3. Implement changes to cannabis regulations, tax policy, and insurance formularies to reduce out-of-pocket costs associated with medical cannabis and re-direct use away from the unregulated market

4. Develop, implement, and evaluate healthcare professional education training focused on medical cannabis across the multidisciplinary healthcare team

5. Expand reasonable access to medical cannabis by adding community pharmacy dispensing

6. Maintain and amplify a federal resource hub that provides updated, evidence-based information and resources about medical cannabis

INTRODUCTION

Taking cannabis for therapeutic purposes has been a growing phenomenon in Canada, with an increasing body of evidence and individuals' lived experience indicating that it may help with numerous symptoms and health conditions including, but not limited to, pain, spasticity, chemotherapy-induced nausea and vomiting, epilepsy, and sleep disorders (1–3). Beyond symptom management, the use of cannabis as a therapeutic agent has been reported to also improve quality of life and reduce the use of conventional medications (4,5).

The access to medical cannabis in Canada has rapidly changed over the past two decades dating back to 1999, following a court decision (R. v. Wakeford 1999) that led to permitted access to dried cannabis flower using a special exemption under the Controlled Drugs and Substances Act (6,7). Since that time, an ongoing series of court decisions have driven an evolution of federal regulations, starting with the Marihuana Medical Access Regulations (MMAR) in 2001, which allowed individuals to receive medical authorization from a physician or a nurse practitioner to possess dried cannabis for certain indications when conventional therapies were deemed unsuccessful or inappropriate. Under the MMAR, individuals could obtain cannabis for medical purposes through a Health Canada supplier, or by personally or designating someone to grow cannabis for them.

By 2013, the number of authorized medical cannabis patients in Canada had grown from approximately 100 to over 37,000 (8), with most individuals accessing via personal or designated production. This increase in medical cannabis authorizations prompted the implementation of the Marihuana for Medical Purposes Regulations (MMPR), which introduced commercially licensed sellers as the sole source of cannabis dried flower for medical purposes in Canada. In response to two important court rulings addressing the loss of personal and designated production, as well as dried flower being the only permissible form of cannabis (R. v Smith, 2015; R. v Allard, 2016), the Access to Cannabis for Medical Purposes Regulations (ACMPR) were enacted in 2016. The ACMPR permitted legal sales of cannabis oils as well as fresh flowers and leaves, which allowed authorized patients to make other cannabis products (e.g., oils, edibles). In addition, the ACMPR reinstated legal access via personal or designated production in addition to sourcing medical cannabis from a licensed seller.

IIn 2015, Canada's federal government announced its intention to make cannabis for non-medical purposes legal for adults. An independent task force was commissioned to help design the new framework based on the following objectives: 1) protect youth; 2) minimize organized crime; 3) reduce the burden on law enforcement; 4) prevent Canadians from entering the criminal justice system for cannabis possession offences; 5) protect public health, including developing penalties for driving while impaired by cannabis use or distributing cannabis to youth; 6) provide education; 7) ensure a production and sale system that meets quality and packaging standards and generates tax revenue; 8) continue to support medical patients with access to quality-controlled products; and 9) conduct ongoing data collection to monitor the impact of the framework (7). Based on these objectives and extensive consultation, the task force put forward a recommended framework that reiterated a commitment to individuals who access cannabis for medical purposes and identified concerns that could arise as a result of the proposed regulations, including interruptions in supply and the implementation of new tax schemes (7). In the same report, it was proposed that an independent review of the medical cannabis program should take place five years after legalization of non-medical cannabis, in order to evaluate the impacts on medical cannabis access.

In October 2018, the Canadian government moved forward with their plan to legalize the non-medical (or 'recreational') use of cannabis with the passage of Bill C-45, formulating the Cannabis Act and Cannabis Regulations (9). With this legislative change, Canada became the first G20 country, and only the second country worldwide, to legalize and regulate cannabis for adult use. The ACMPR were replaced by new regulations (Part 14 of the Cannabis Regulations) whereby individuals could continue to access their cannabis products directly from licensed sellers, as well as through personal and designated production, with authorization from a healthcare practitioner. Minor changes to the medical cannabis regulations with regards to storage limits, the transferability of medical documents among licensed sellers, time limits associated with purchases from a licensed seller, and date of registration were made to improve access.

Prior to the legalization of non-medical cannabis in October 2018, 342,103 individuals were registered under the ACMPR and were authorized to access medical cannabis in Canada. Following a high of 377,024 individuals with authorizations in September 2020, there has been a marked decrease in medical authorizations registered and by March 2022, only 247,548 individuals possessed authorization to take cannabis for therapeutic purposes (10).

With the Canadian Cannabis Survey (CCS) estimating that 13% of Canadians aged 16 years or older take cannabis to treat or improve symptoms associated with a disease or health condition there is likely a large proportion of individuals in Canada who are taking cannabis for therapeutic purposes but without medical authorization (5). Understanding why individuals are not obtaining medical authorization since the legalization of non-medical cannabis is urgently needed to identify the personal, social, and structural factors that may be influencing the decrease in access to medical cannabis through the formal authorization process.

For decades, Canadian patient advocacy groups have been drawing attention to the unique needs of individuals who take cannabis for medical purposes and the importance of reasonable access to medical cannabis in Canada (11,12). More recently, these advocacy groups have spoken of the necessity of retaining a medical cannabis program in this country in order to provide legal access to medical cannabis to those under 18 years of age, allow workplace exemptions, and support insurance coverage and federal tax credits for eligible individuals. However, the legalization of non-medical cannabis has led to calls by some groups to eliminate the medical access framework in Canada (13) suggesting that "there will be little need for two systems (i.e., one for medical and one for non-medical cannabis use). Cannabis will be available for those who wish to use it for medicinal purposes, either with or without medical authorization". This suggestion, however, fails to consider the medical cannabis exemptions protected by the current Cannabis Regulations, and moreover, the essential role that healthcare professionals hold in guiding individuals in making evidence-informed and safe treatment decisions related to medical cannabis.

In accordance with Section 151.1 of the Cannabis Act, in November 2022, the Minister of Health and Minister of Mental Health and Addictions announced the Cannabis Act Review, to be conducted by an independent expert panel. The review is expected to take place over 18 months and will include evaluation of the impacts of legalization and regulation of cannabis on access to cannabis for medical purposes, among other objectives (14). As part of this review, it is imperative that the experiences and voices of Canadians who take cannabis for therapeutic purposes are represented and considered in future policy and program reform.

PURPOSE AND OBJECTIVES

The purpose of this study was to characterise access experiences of Canadians' taking cannabis for medical purposes since the legalization of non-medical cannabis in October 2018.

SPECIFIC OBJECTIVES OF THIS STUDY INCLUDED:

- To describe the demographics and the reasons why individuals take medical cannabis;
- To understand the demographic differences between individuals who take medical cannabis with a current medical authorization versus those without a current medical authorization;
- To describe where individuals obtain their medical cannabis and factors associated with different sources;
- To describe the perceived barriers in accessing medical cannabis and obtaining medical authorization;
- To characterise how the legalization of recreational cannabis has impacted individuals who take medical cannabis; and
- To collect perspectives on the continuation and suggested improvements of the medical cannabis access program in Canada.

METHODS

A survey was shared with a cross-sectional sample of Canadians who were currently taking medical cannabis, had taken medical cannabis in the past, or expressed an interest in taking medical cannabis. Eligible participants were 16 years or older, able to read English or French, and were a Canadian resident. Potential participants were recruited through social media channels (i.e., Facebook, Instagram, Twitter), newsletters, website postings, targeted emails, and from partner organizations (i.e., non-profit organizations (e.g., Arthritis Society Canada), medical cannabis clinics). Convenience sampling was undertaken to allow a diverse sample of Canadians with a range of medical cannabis experiences to be included in the survey.

The questionnaire was modified from a survey previously conducted in 2020 by the non-profit, patient advocacy organization, Medical Cannabis Canada (https://patientaccess.ca/survey/). The questionnaire was modified in consultation with study partners (i.e., Medical Cannabis Canada, SheCann, and Santé Cannabis) and was initially piloted with 10 individuals with medical cannabis experience to evaluate readability and whether key themes were adequately addressed. Beta testing was then undertaken with the revised questionnaire with approximately 200 members of SheCann to identify any logistical issues with the online programming of the questionnaire as well as seek any additional feedback on the overall content and design. The promotion of the survey began in March 2022 and was online for five months concluding in July 2022.

The final questionnaire comprised of 90 items, with the following key themes represented:

- MEDICAL CANNABIS USE (i.e., frequency, type of product, route of administration, amount, THC:CBD ratio, reasons for use, perceived effectiveness, side effects);
- ACCESS HISTORY AND EXPERIENCE (i.e., where product purchased/received, factors important in access decisions, experience of accessing medical cannabis, preferred source of medical cannabis);
- MEDICAL AUTHORIZATION HISTORY AND EXPERIENCE (i.e., authorization status (current and past), authorization category (purchase, personal grow, designate grow), date of medical authorization, authorizing healthcare professional(s), cost for authorization, perceived sufficiency of amount of product authorized, experiences accessing authorization, and perceived reasons why or why not authorization was obtained);

- INFORMATION ABOUT MEDICAL CANNABIS (i.e., source of information, satisfaction with information received from each source, experience of receiving information from a healthcare professional(s));
- COST AND COVERAGE (i.e., average amount of money spent on medical cannabis each month, if they had health insurance coverage, perceived affordability of medical cannabis costs).

Several open-ended questions were included that allowed participants to share more in-depth data on the challenges they have faced accessing medical cannabis, their experience of seeking and receiving information about medical cannabis, and recommendations for future revisions to the medical cannabis program in Canada. At the end of the survey, participants could provide their contact information to be entered into a random draw to win 1 of 20 - $50 gift cards.

A key function of this report is to describe the current differences of medical cannabis intake for individuals who (1) hold current medical authorization and (2) who do not hold medical authorization and (3) identify barriers and gaps in the current medical cannabis program.

DATA ANALYSIS

Demographic characteristic such as age, gender, ethnicity, income, and province/territory of residence were summarised for individuals who reported they consumed medical cannabis as well as separately for those who reported having or not having medical authorization.

Descriptive statistics were summarised across various questions describing the number of participants or the proportion of participants who responded to certain questions. Participants had the option of selecting "I don't know" or "Prefer not to answer", therefore percentages for some questions may not equal to 100%.

To determine the amount of cannabis, THC, and CBD individuals took on average, we calculated the median and interquartile range (IQR) for the unit that was most reported amongst participants. Participants who responded "I don't know" or selected units that were not commonly reported by participants (e.g., selected mL instead of mg for THC amount in edibles), were not included in the analysis.

When questions allowed participants to select multiple options (e.g., "What products/forms of cannabis do you take?" or "Why do you take medical cannabis?"), proportions were summarised across all participants who responded to the question; however, the total proportion could exceed 100% as individuals may have selected more than one answer for these questions.

For questions that asked participants to rate their experience on a Likert scale (1 to 5), responses were averaged and individuals who did not answer the question were excluded from the analysis. To assess some differences between groups, t-tests were conducted to compare averages between groups and p-values, which describe the probability of observing the differences, are also presented. A p-value of <0.01 represents that the finding is statistically significant, meaning that in this example there is evidence to suggest the two groups are different. A threshold of $p<0.01$ was set to reduce the potential of chance findings.

In this report, we also conducted multivariable logistic regression analyses to determine characteristics that may be associated with having medical authorization or accessing cannabis through medically authorized sources. This is of importance as this can describe characteristics that are associated with holding medical authorization and identify why individuals may not hold authorization or obtain their cannabis from non-authorized sources. Specifically, we conducted two multivariable logistic regression analyses: (1) to describe the factors associated with greater odds of having medical authorization; and (2) to describe factors associated with greater odds of only obtaining cannabis from authorized sources (i.e., licensed sellers, grown at home, or designated grow) for those with medical authorization. Multivariable odds ratios were obtained from logistic regression models, which are a measure of association between a characteristic and an outcome. For example, an odds ratio of 1.50 represents a 50% greater odd of the outcome in comparison to the reference group. The reference group for each analysis was the largest group within that characteristic, except for age, where individuals <30 years of age were used as the reference group (to compare younger individuals to older), as well as education where high school was used as the reference group.

We also included representative quotes from a subsample of participants (n=43) who took part in qualitative interviews regarding the medical cannabis program and their experiences taking medical cannabis. Questions asked in interviews included how they take medical cannabis, for what purpose (i.e., condition or symptom), issues they have encountered taking medical cannabis, the cost and coverage of medical cannabis, and their perceptions around how medical cannabis should be addressed in Canada. Quotes were also identified from open-ended questions included on the survey.

RESULTS

DESCRIPTION OF SURVEY RESPONDENTS

A total of 5,744 respondents completed the survey over the 5-month data collection period, of which 5,433 were currently taking medical cannabis. Of these individuals, nearly 62% of the sample identified as a woman, 33.1% identified as a male, and 3.9% identified as non-binary (1% missing data). The reported age of respondents ranged from 16 – 89 years, with an average age of 49.5 years (SD = 14.4 years). Most of the respondents reported their ethnicity as White (81.2%), with 5.9% identifying as Indigenous and 5.8% reporting mixed ethnicity. With regards to education, 92.8% of the sample reported achieving high school education or higher. Despite this, close to 30% of the sample reported a household income of less than $35,000 per year (before tax), which is below the low-income cut-offs for most households in Canada with a minimum of four residents (15).

Respondents reported being diagnosed with a range of health conditions. The most prevalent reported diagnoses were anxiety (55.7%), chronic pain (53.1%), depression (47.8%), arthritis (37.6%), and sleep disorder (34.2%). See Supplementary Table 1 for further details.

In terms of geographical representation of the sample, 33.9% of respondents were living in Ontario, followed by 14.2% in Quebec, 14.9% in the Maritimes, 14.5% in Alberta, and 13.7% in British Columbia. The remaining 8.8% were residing in other regions of Canada (see Figure 1 for additional details).

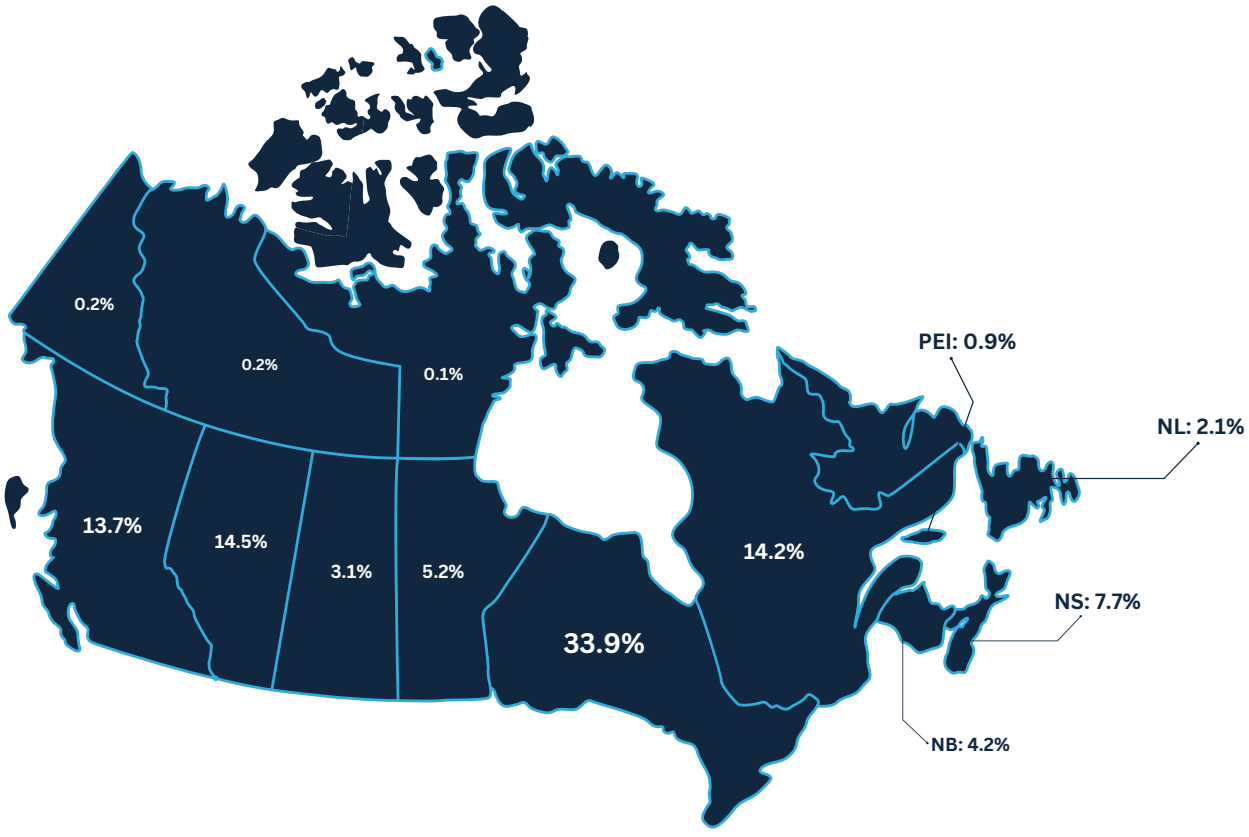


FIGURE 1. GEOGRAPHICAL LOCATION OF RESPONDENTS

As described, most of the respondents (n=5,433, 94.5%) who completed the survey were currently taking medical cannabis. Of these participants, 54.1% reported having medical authorization whereas 45.9% did not have medical authorization. Only 3.5% reported taking medical cannabis in the past and 1.5% were thinking about taking medical cannabis.

Current
94.5%

In the past
3.5%

Thinking about it
1.5%

Currently have medical authorisation

2941 (54.1%)

Do not have medical authorisation

2492 (45.9%)

TABLE 1. DEMOGRAPHICS OF CURRENT MEDICAL CANNABIS CONSUMERS, WITH AUTHORIZATION AND WITHOUT AUTHORIZATION

	Currently take Medical Cannabis		
	Hold medical authorization	Do not have medical authorization	All
Number of participants	2941	2492	5433
Age, mean (SD)	52.3 (13.6)	46.3 (14.4)	49.5 (14.4)
Gender, N (%)			
Male	1127 (39.0%)	646 (26.3%)	1773 (33.1%)
Female	1665 (57.6%)	1638 (66.6%)	3303 (61.7%)
Non-binary	70 (2.4%)	142 (5.8%)	212 (4.0%)
Province/Territory, N (%)			
British Columbia	295 (10.2%)	436 (17.7%)	731 (13.7%)
Alberta	464 (16.0%)	313 (12.7%)	777 (14.5%)
Saskatchewan	72 (2.5%)	95 (3.9%)	167 (3.1%)
Manitoba	132 (4.6%)	147 (6.0%)	279 (5.2%)
Ontario	1020 (35.3%)	792 (32.2%)	1812 (33.9%)
Quebec	551 (19.1%)	209 (8.5%)	760 (14.2%)
New Brunswick	105 (3.6%)	119 (4.8%)	224 (4.2%)
Nova Scotia	186 (6.4%)	225 (9.1%)	411 (7.7%)
Prince Edward Island	17 (0.6%)	32 (1.3%)	49 (0.9%)
Newfoundland	40 (1.4%)	72 (2.9%)	112 (2.1%)
Yukon	3 (0.1%)	7 (0.3%)	10 (0.2%)
Northwest Territories	3 (0.1%)	9 (0.4%)	12 (0.2%)
Nunavut	4 (0.1%)	4 (0.2%)	8 (0.1%)

TABLE 1. CONTINUED

	Hold medical authorization	Do not have medical authorization	All
Ethnicity, N (%)			
Arab	8 (0.3%)	3 (0.1%)	11 (0.2%)
Asian	14 (0.5%)	9 (0.4%)	23 (0.4%)
Black	32 (1.1%)	13 (0.5%)	45 (0.8%)
Indigenous	98 (3.4%)	215 (8.7%)	313 (5.9%)
Latin American	16 (0.6%)	15 (0.6%)	31 (0.6%)
South Asian (e.g., Indian, Pakistani)	15 (0.5%)	9 (0.4%)	24 (0.4%)
West Asian (e.g., Iranian)	2 (0.1%)	3 (0.1%)	5 (0.1%)
White	2404 (83.2%)	1940 (78.9%)	4344 (81.2%)
Not listed	83 (2.9%)	55 (2.2%)	138 (2.6%)
Mixed	150 (5.2%)	160 (6.5%)	310 (5.8%)
Prefer not to say	67 (2.3%)	37 (1.5%)	104 (1.9%)
Education, N (%)			
No diploma or degree	108 (3.7%)	169 (6.9%)	277 (5.2%)
High school	540 (18.7%)	657 (26.7%)	1197 (22.4%)
Trade cert or diploma	282 (9.8%)	232 (9.4%)	514 (9.6%)
College	911 (31.5%)	760 (30.9%)	1671 (31.2%)
University certificate	248 (8.6%)	159 (6.5%)	407 (7.6%)
Undergraduate degree	510 (17.6%)	307 (12.5%)	817 (15.3%)
Graduate degree	241 (8.3%)	125 (5.1%)	366 (6.8%)
Income, N (%)			
<$35,000	700 (24.2%)	791 (32.2%)	1491 (27.9%)
$35,000-$50,000	437 (15.1%)	470 (19.1%)	907 (17.0%)
$50,001-$75,000	490 (16.9%)	393 (16.0%)	883 (16.5%)
$75,001-$100,000	410 (14.2%)	272 (11.1%)	682 (12.7%)
$100,001-$150,000	389 (13.5%)	237 (9.6%)	626 (11.7%)
>$150,000	192 (6.6%)	107 (4.4%)	299 (5.6%)
Canadian Armed Forces - Yes, N (%)	201 (7.0%)	51 (2.1%)	252 (4.7%)

Values are N (%) unless otherwise indicated. Values include missing information and therefore may not add up to 100% due to these missing values.

DESCRIPTION OF CURRENT MEDICAL CANNABIS USE BY RESPONDENTS

DURATION AND FREQUENCY OF MEDICAL CANNABIS USE

For those respondents who reported currently taking medical cannabis (n = 5,433), a total of 1,617 (30.2%) had taken medical cannabis for over 10 years, with 1,177 (22.0%) and 1,134 (21.2%) reporting taking medical cannabis from 5 to <10 years and 3 to <5 years, respectively (see Figure 2).

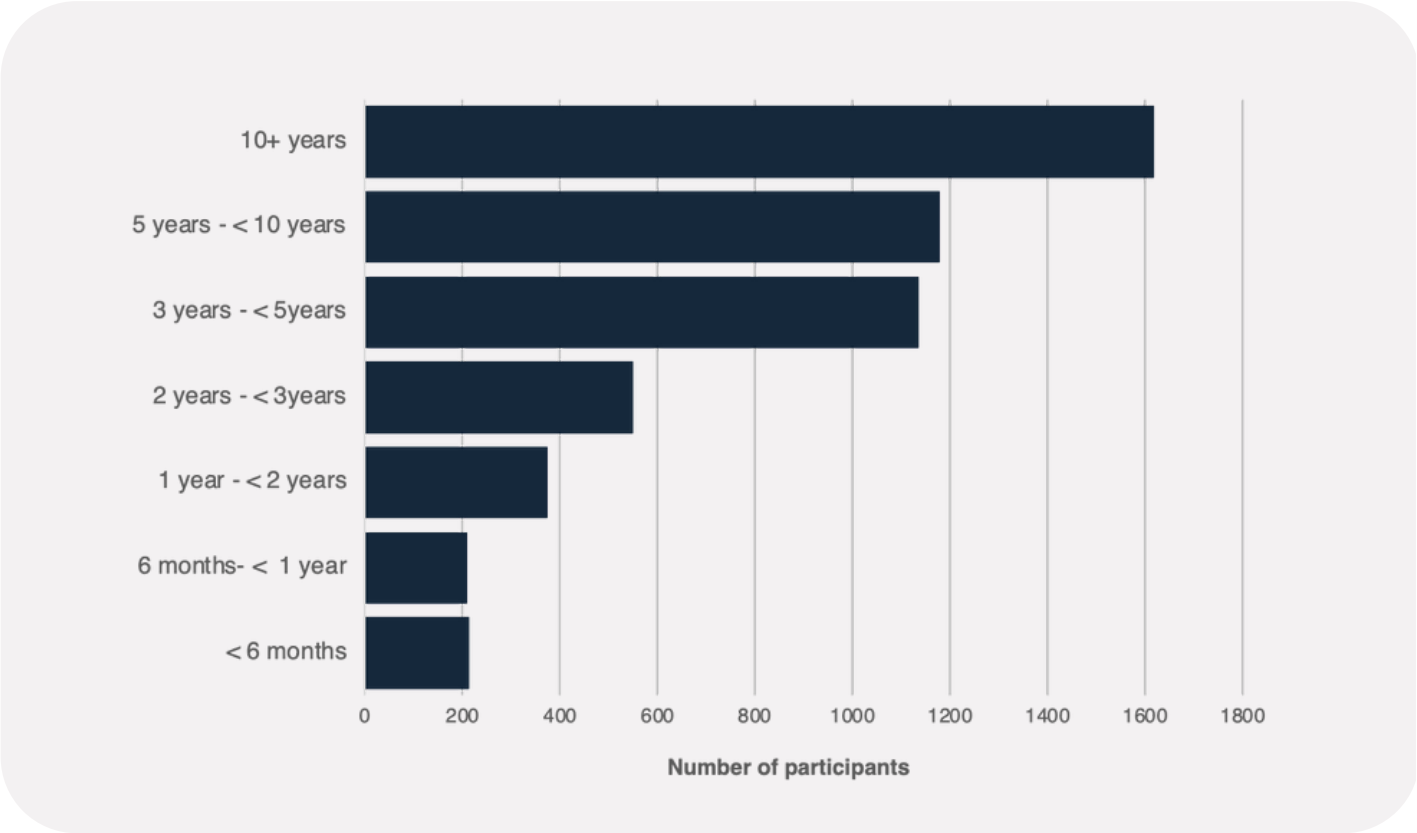


FIGURE 2. DURATION OF MEDICAL CANNABIS USE BY CURRENT MEDICAL CANNABIS CONSUMERS

With regards to the frequency with which medical cannabis was currently being taken by respondents, most reported taking medical cannabis at least once a day (83.3%) (see Figure 3 for additional details).

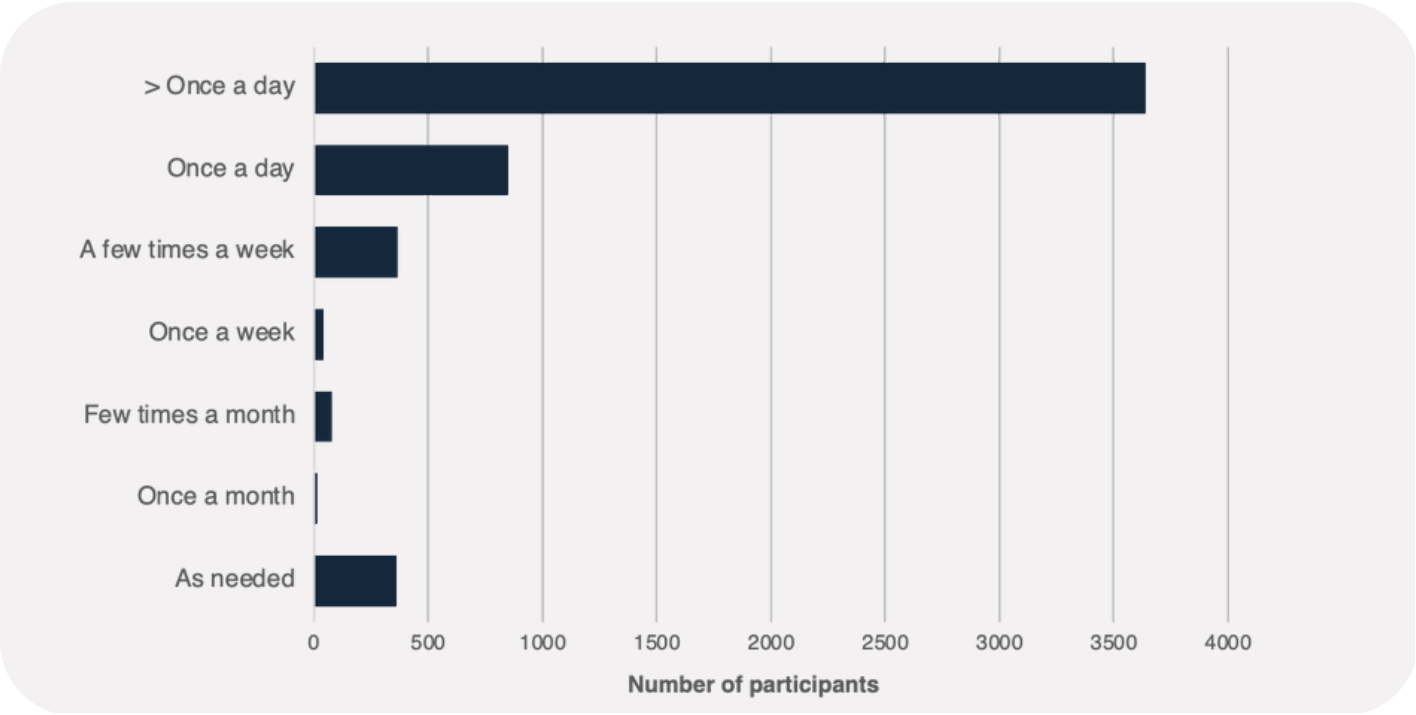
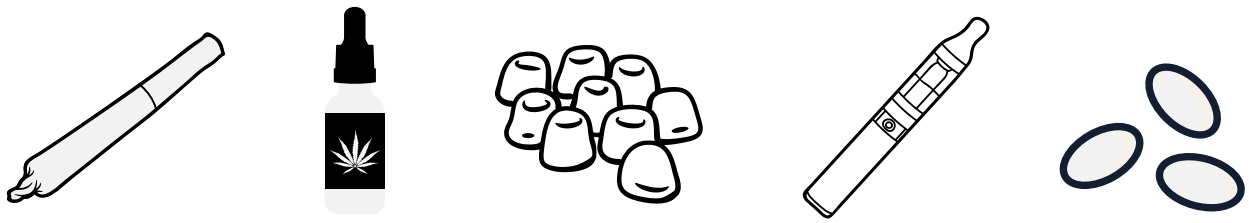


FIGURE 3. FREQUENCY OF MEDICAL CANNABIS USE BY CURRENT MEDICAL CANNABIS CONSUMERS

With the growing medical and non-medical cannabis market in Canada, respondents currently taking medical cannabis reported utilizing a variety of products for a range of health conditions and symptoms. Participants reported taking an average of three different types of medical cannabis products, with the most common forms being dried flower (72.1%), oils (57.3%), edibles (54.6%), vape cartridges (41.3%), and capsules (28.4%). See Table 2 for further details.



Dried herb	Oil	Edibles	Vaping	Capsule
72.1%	57.3%	54.6%	41.3%	28.4%

FIGURE 4. FORMS OF MEDICAL CANNABIS CONSUMED BY CURRENT CONSUMERS

Comparing participants who have a medical authorization to participants who did not have medical authorization, participants without medical authorization were more likely to report taking products such as dried flower, edibles, and concentrates and less likely to take oils and capsules (Table 2).

TABLE 2. TYPES OF MEDICAL CANNABIS PRODUCTS UTILIZED BY AUTHORIZATION STATUS

Types of products participants reported to take	Currently take medical cannabis		
	Medical authorization	Do not have medical authorization	All
Dried flower	1917 (66.3%)	1938 (78.8%)	3855 (72.1%)
Oils	1978 (68.4%)	1086 (44.2%)	3064 (57.3%)
Capsules	1006 (34.8%)	521 (21.2%)	1527 (28.5%)
Oral spray	506 (17.5%)	276 (11.2%)	782 (14.6%)
Edibles	1388 (48.0%)	1531 (62.3%)	2919 (54.6%)
Topical	802 (27.7%)	588 (23.9%)	1390 (26.0%)
Concentrates	630 (21.8%)	637 (25.9%)	1267 (23.7%)
Vape	1156 (40.0%)	1052 (42.8%)	2208 (41.3%)
Beverages	352 (12.2%)	373 (15.2%)	725 (13.6%)
Suppositories	130 (4.5%)	61 (2.5%)	191 (3.6%)
Oral strips	171 (5.9%)	46 (1.9%)	217 (4.1%)

VALUES REPRESENT NUMBER OF PARTICIPANTS WHO REPORTED TAKING THE MEDICAL CANNABIS PRODUCT.
ALL DIFFERENCES IN PRODUCTS BETWEEN THOSE WITH AUTHORIZATION AND THOSE WITHOUT AUTHORIZATION WERE STATISTICALLY SIGNIFICANT WITH $P<0.01$.

Many respondents struggled to report the amount of medical cannabis they were consuming. Of those using inhaled forms of medical cannabis, 24.6% of individuals using dried flower and 67.6% using vaped products were not able to report on the amount of medical cannabis they used. For individuals using oil and capsules, 32.7% and 45.5%, respectively, were not aware of the amount of medical cannabis being consumed.

With regards to THC:CBD ratio, approximately 50-73% of current medical cannabis consumers were unable to report on the specific amount of THC and/or CBD they consumed each day, regardless of the form of medical cannabis consumed.

For those who could estimate their daily dose of cannabis, individuals utilizing dried flower reported using a median of 2 grams/day, whereas those taking oils reported using 2 mL/day and those vaping cannabis oil reported taking 1 mL/day. With regards to inhaled forms of medical cannabis (i.e., dried flower and vaping), most respondents provided an estimate of the percent of THC and CBD consumed, which ranged from 21 to 78% and 8 to 15%, respectively. Alternatively, for oral forms of cannabis (e.g., oils, edibles, and capsules), respondents primarily provided the amount of mg/day of THC and CBD consumed, which ranged from 10 to 20 mg and 10 to 27 mg, respectively. See Table 3 for additional details.

TABLE 3. MEDIAN AMOUNT OF MEDICAL CANNABIS CURRENTLY TAKEN PER DAY

Form of Product	Amount/day (median, IQR)	THC/day (median, IQR)	CBD/day (median, IQR)
Dried flower	2 grams (1-3)	21% (20-25)	8% (1-15)
Oils	2 mL (1-4)	10 mg (2-25)	27 mg (10-60)
Edibles	N/A*	20 mg (10-50)	10 mg (5-40)
Vaping oil	1 mL (0.2-3.0)	78% (22-85)	15% (1-50)
Capsules	N/A*	10 mg (3-20)	20 mg (8-40)

* OVERALL AMOUNT/DAY CONSUMED FOR EDIBLES AND CAPSULES WERE NOT ASKED AS MORE ACCURATE AMOUNTS ARE PROVIDED FOR THC AND CBD.
ABBREVIATIONS: CBD, CANNABIDIOL; IQR, INTERQUARTILE RANGE; THC, TETRAHYDROCANNABIDIOL

For all products, participants who did not have medical authorization more commonly reported that they did not know the amount of medical cannabis, THC, or CBD they took for at least one cannabis product they utilized in comparison to individuals with medical authorization (82.3% for participants without a document vs. 67.9% for participants with a medical document).

PURPOSE AND REASONS FOR MEDICAL CANNABIS USE

An overwhelming majority of respondents reported currently taking medical cannabis to treat a health condition or symptom (81.5%), as an adjuvant to other medication (57.5%), to reduce their consumption of other medications (49.7%), and as part of a general health and wellness routine (37.7%; Table 4). The top 5 types of pharmaceutical drugs that respondents reported using less of because of taking medical cannabis were as follows:

- Non-opioid pain agent (e.g., acetaminophen) (57.0%)
- Non-steroidal anti-inflammatory drugs (NSAIDS) (e.g., ibuprofen, naproxen) (56.4%)
- Anti-anxiety drugs (e.g., ativan) (47.4%)
- Opioids (e.g., morphine, codeine, oxycontin) (44.9%)
- Anti-depressant drugs (e.g., fluoxetine, sertraline) (39.8%)

Not surprising, given the legalization of non-medical cannabis in 2018, nearly half of current medical cannabis consumers (48.5%) reported utilizing cannabis, at times, for recreational purposes. However, those with medical authorization were less likely to report taking cannabis for recreational purposes (36.7%) than individuals without medical authorization (62.2%; Table 4).

When asked specifically about their reasons for taking medical cannabis, most respondents reported that it worked well in managing their health conditions or symptom (81.2%). In addition, medical cannabis was perceived as having fewer side effects than other medications (66.4%), it was perceived to be a "natural" treatment (66.2%) and worked better than other medications (61.2%) (Figure 5 & Table 4).

FIGURE 5. REPORTED REASONS FOR MEDICAL CANNABIS USE BY CURRENT CONSUMERS

TABLE 4. REASONS FOR TAKING MEDICAL CANNABIS

Reasons for taking medical cannabis	Currently take medical cannabis		
	Medical authorization	Do not have medical authorization	All
Treatment for a symptom or condition	2465 (85.2%)	1894 (77.1%)	4359 (81.5%)
In addition to other medications	1689 (58.4%)	1386 (56.4%)	3075 (57.5%)
Reduce use of other medications	1547 (53.5%)	1113 (45.3%)	2660 (49.7%)
Reduce side effects from other medications or treatments	798 (27.6%)	597 (24.3%)	1395 (26.1%)
Other medications do not work well for me	858 (29.7%)	662 (26.9%)	1520 (28.4%)
Part of general health and wellness	988 (34.2%)	1031 (42.0%)	2019 (37.7%)
At times for recreational purposes	1064 (36.8%)	1528 (62.2%)	2592 (48.5%)
Works well managing health conditions/symptoms	2409 (83.3%)	1935 (78.8%)	4344 (81.2%)
Enhances the effect of other medications I take	584 (20.2%)	338 (13.8%)	922 (17.2%)
Works better than other medications I have taken	1858 (64.2%)	1416 (57.6%)	3274 (61.2%)
It's a natural treatment	1875 (64.8%)	1665 (67.7%)	3540 (66.2%)
Gives me control over my health	1391 (48.1%)	1117 (45.5%)	2508 (46.9%)
Less expensive than my other medications	312 (10.8%)	576 (23.4%)	888 (16.6%)
Fewer side effects than other medication I take	1922 (66.5%)	1628 (66.2%)	3550 (66.4%)
Can purchase medical cannabis at a recreational store	637 (22.0%)	1293 (52.6%)	1930 (36.1%)
People I trust suggested I take it	448 (15.5%)	382 (15.5%)	830 (15.5%)
I, or someone I trust, can grow it for me	547 (18.9%)	613 (24.9%)	1160 (21.7%)

The most prevalent health conditions or symptoms reported to be managed by medical cannabis were chronic pain (67.0%), sleep issues (61.8%), anxiety (63.6%), stress (49.0%), and depression (48.8%). The median number of health conditions and symptoms that respondents reported managing with medical cannabis was five (IQR 3-8). See Table 5 for a full list of health conditions that respondents reported managing with medical cannabis.

TABLE 5. HEALTH CONDITIONS AND SYMPTOMS MANAGED BY CURRENT MEDICAL CANNABIS CONSUMPTION

Health Condition or Symptom	Currently take medical cannabis		All
	Hold medical authorization	Do not have medical authorization	
ADHD	335 (11.6%)	489 (19.9%)	824 (15.4%)
Agitation	377 (13.0%)	478 (19.4%)	855 (16.0%)
Anxiety	1666 (57.6%)	1738 (70.7%)	3404 (63.6%)
Appetite	590 (20.4%)	770 (31.3%)	1360 (25.4%)
Autism spectrum disorder	85 (2.9%)	92 (3.7%)	177 (3.3%)
Bipolar disorder	116 (4.0%)	134 (5.4%)	250 (4.7%)
Cancer	99 (3.4%)	81 (3.3%)	180 (3.4%)
Cancer related pain	79 (2.7%)	69 (2.8%)	148 (2.8%)
Colitis	55 (1.9%)	60 (2.4%)	115 (2.1%)
Crohn's	82 (2.8%)	58 (2.4%)	140 (2.6%)
Concentration	351 (12.1%)	391 (15.9%)	742 (13.9%)
Diabetes	126 (4.4%)	106 (4.3%)	232 (4.3%)
Depression	1204 (41.6%)	1406 (57.2%)	2610 (48.8%)
Epilepsy	51 (1.8%)	32 (1.3%)	83 (1.6%)
Irritable bowel syndrome	497 (17.2%)	418 (17.0%)	915 (17.1%)
Pain - Acute	509 (17.6%)	516 (21.0%)	1025 (19.1%)
Pain - Chronic	2115 (73.1%)	1470 (59.8%)	3585 (67.0%)
Migraine	862 (29.8%)	801 (32.6%)	1663 (31.1%)
Muscle spasms	1020 (35.3%)	771 (31.3%)	1791 (33.5%)
Nausea and vomiting	612 (21.2%)	750 (30.5%)	1362 (25.4%)
Obesity	103 (3.6%)	106 (4.3%)	209 (3.9%)
PCOS	68 (2.4%)	90 (3.7%)	158 (3.0%)
PTSD	644 (22.3%)	618 (25.1%)	1262 (23.6%)
Seizures	71 (2.5%)	39 (1.6%)	110 (2.1%)
Sleep issues	1771 (61.2%)	1536 (62.4%)	3307 (61.8%)
Stress	1316 (45.5%)	1305 (53.0%)	2621 (49.0%)
Traumatic brain injury	138 (4.8%)	66 (2.7%)	204 (3.8%)

Abbreviations: ADHD, attention-deficit/hyperactivity disorder; PCOS, polycystic ovary syndrome; PTSD, post-traumatic stress disorder

Respondents were asked to comment on the perceived effectiveness of medical cannabis consumption by health condition. Table 6 provides the mean perceived effectiveness score (using a 1-5 scale, with 1 = Not all Effective and 5 = Extremely Effective) across the health conditions and symptoms for which medical cannabis was currently utilized. Overall, medical cannabis was rated as moderate to highly effective across all health conditions and symptoms.

TABLE 6. PERCEIVED EFFECTIVENESS OF CURRENT MEDICAL CANNABIS CONSUMPTION

Symptom/Condition**	Perceived Effectiveness - Mean (SD)
Appetite (n=1,355)	4.25 (0.83)
Nausea/vomiting (n=1,352)	4.22 (0.83)
Agitation (n=849)	4.15 (0.82)
Epilepsy (n=76)	4.14 (1.02)
Seizures (n=105)	4.12 (0.94)
Sleep issues (n=3,294)	4.11 (0.87)
Stress (n=2,606)	4.00 (0.84)
Anxiety (n=3,381)	3.99 (0.87)
Depression (n=2,595)	3.93 (0.88)
PTSD (n=1,242)	3.93 (0.90)
Bipolar disorder (n=262)	3.88 (0.92)
Pain - chronic (n=3,566)	3.86 (0.90)
Pain – acute (n=1,017)	3.86 (0.89)
Muscle spasms (n=1,775)	3.84 (0.92)
Cancer-related pain (n=146)	3.83 (0.97)
Crohn's disease (n=135)	3.82 (0.91)
Cancer (n=156)	3.80 (0.95)
ADHD (n=808)	3.75 (0.97)
Concentration (n=736)	3.70 (0.94)
Traumatic brain injury (n=184)	3.68 (1.04)
Migraine (n=1,649)	3.67 (0.93)
Autism (n=162)	3.66 (0.99)
Colitis (n=111)	3.61 (1.06)
Irritable bowel syndrome (n=887)	3.48 (1.02)
Diabetes (n=209)	3.14 (1.17)
Obesity (n=190)	2.95 (1.29)
PCOS (n=154)	2.61 (1.25)

**Participants were asked to rate the effectiveness of medical cannabis for the symptom or condition they take medical cannabis for, with 1 being "not at all effective" and 5 being "extremely effective".Participants who responded "I don't know" or did not answer the question for the symptom(s) or condition(s) are excluded from these analyses.
Abbreviations: ADHD, attention-deficit/hyperactivity disorder; PCOS, polycystic ovary syndrome; PTSD, post-traumatic stress disorder

RESPONDENTS' REFLECTIONS ON EFFECTIVENESS OF MEDICAL CANNABIS:

"For me, I live with a lot of pain, and it just makes it so that I don't even realize that I have that pain anymore. And my doctor when I was first authorised, he didn't understand it either really. I guess he had to take all kinds of courses so that he could actually authorise it to me. I was his first authorization that he wrote out because he threw his hands up, he didn't know what else to do. I can't take pills like everybody else."

"Psychologically and physically both, quality of life has improved. I'm not as plagued by this arm nerve thing. It's not going anywhere; it's going to be there for the rest of my life, and it helps with that. It doesn't get rid of it, but it helps it."

"My nausea, it [medical cannabis] pretty much takes it away and gives me an appetite. Without it, most of the time I probably wouldn't have an appetite. Otherwise, just relieves the pain. Just takes the edge off the pain. Doesn't make the pain go away. It goes mostly a sharp pain to just a dull pain, you know it's there, but it's livable."

"I say that it's complimentary. I will never say that it will substitute the main treatment for my rheumatoid arthritis, but I think it has been a great compliment. I see cannabis as a supplement because I know in my system there are receptors that are open to accept cannabis therapeutically."

SIDE EFFECTS OF MEDICAL CANNABIS USE

Most respondents currently reported some unwanted side effects associated with the consumption of medical cannabis (73.4%). These included dry mouth (45.0%), cough (28.9%), and feeling tired (20.7%). Table 7 provides additional details about the side effects experienced by survey respondents for all products and methods of taking medical cannabis.

Side effects were more commonly reported by participants without a medical authorization versus those with one, with cough, dependency, and dry mouth having the largest difference between these two groups.

TABLE 7. REPORTED SIDE EFFECTS ASSOCIATED WITH CURRENT MEDICAL CANNABIS CONSUMPTION

Side effects experienced	Hold medical authorization	Do not have medical authorization	All	P-value for difference
Anxiety	251 (8.7%)	230 (9.4%)	481 (9.0%)	0.006
Confusion	126 (4.4%)	119 (4.9%)	245 (4.6%)	0.027
Cough	684 (23.7%)	861 (35.1%)	1545 (28.9%)	<0.001
Dependency or addiction to cannabis	105 (3.6%)	264 (10.8%)	369 (6.9%)	<0.001
Dry mouth	1235 (42.8%)	1168 (47.6%)	2403 (45.0%)	<0.001
Feeling faint	113 (3.9%)	89 (3.6%)	202 (3.8%)	0.58
Feeling intoxicated	401 (13.9%)	361 (14.7%)	762 (14.3%)	0.012
Feeling paranoid	170 (5.9%)	208 (8.5%)	378 (7.1%)	<0.001
Feeling tired	563 (19.5%)	544 (22.2%)	1107 (20.7%)	0.058
Rapid health rate	201 (7.0%)	213 (8.7%)	414 (7.8%)	0.066
Trouble remembering things	434 (15.0%)	443 (18.1%)	877 (16.4%)	0.011
Nausea	68 (2.4%)	62 (2.5%)	130 (2.4%)	0.81
Unable to concentrate	216 (7.5%)	189 (7.7%)	405 (7.6%)	0.037
Vomiting	12 (0.4%)	31 (1.3%)	43 (0.8%)	<0.001
I have not experienced any side effects	861 (29.9%)	573 (23.4%)	1474 (26.6%)	<0.001

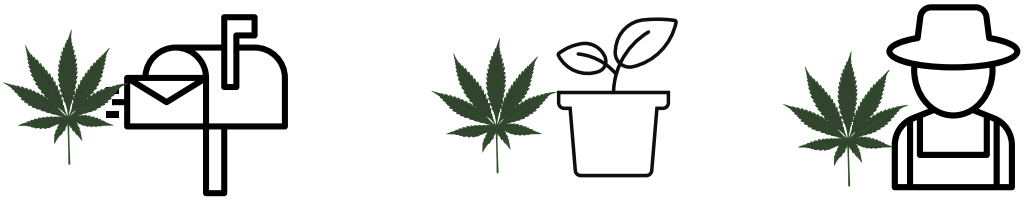
Values are N (%), representing the number of participants who reported experiencing the specific side effect.

REASONS FOR NO LONGER TAKING MEDICAL CANNABIS

Among individuals who reported taking medical cannabis in the past, but no longer took medical cannabis (n=204, 3.5% of the total sample), the commonly reported reasons for why they stopped taking medical cannabis was that it was too expensive (48.2%), medical cannabis did not work for them (17.1%), they experienced unwanted side effects from medical cannabis (16.1%), medical cannabis stopped working for them (11.6%), or their healthcare professional told them to stop (8.5%).

MEDICAL CANNABIS AUTHORIZATION

With regards to the type of authorization currently held by respondents, Figure 6 illustrates that most respondents reporting having authorization that permitted them to obtain medical cannabis from a licensed seller (90.2%). In addition, 25.5% and 9.0% held authorization to personally produce (i.e., grow) or designate someone to produce medical cannabis for them, respectively. Notably, most individuals with either a personal or designated grow authorization also held authorization to access medical cannabis through an licensed seller.



Licensed Seller (90.2%)

Grow their own (25.5%)

Designated grower (9.0%)

FIGURE 6. TYPE OF AUTHORIZATION FOR CURRENT AUTHORIZATION HOLDERS

Most respondents with current authorization reported receiving their document from a clinician at a medical cannabis clinic (50.8%), followed by an online-only medical cannabis provider (18.3%). The remaining respondents received their authorization from their family doctor or nurse practitioner (17.8%) or a specialist doctor (7.2%).

Respondents who held current authorization and were using medical cannabis were asked about their experiences of seeking and obtaining authorization. Close to 30% (N = 844) reported requiring a referral to another clinician and/or medical cannabis clinic. For most of these individuals (79.4%), the time from referral to being seen by a clinician was less than 3 months.

With regards to follow-up care, 71.1% of the respondents currently taking medical cannabis with authorization were asked to see their clinician at least once following receipt of their authorization. However, 56.1% of individuals currently taking medical cannabis with authorization reported never contacting their clinician about their medical cannabis use after receiving authorization.

INDIVIDUALS WITHOUT CURRENT MEDICAL AUTHORIZATION

Overall, of all individuals who were currently taking medical cannabis, 14.1% did not have current authorization to take medical cannabis but had in the past, 8.7% did not have authorization but reported seeking it in the past, and 20.7% had never sought authorization **(see Figure 7)**.

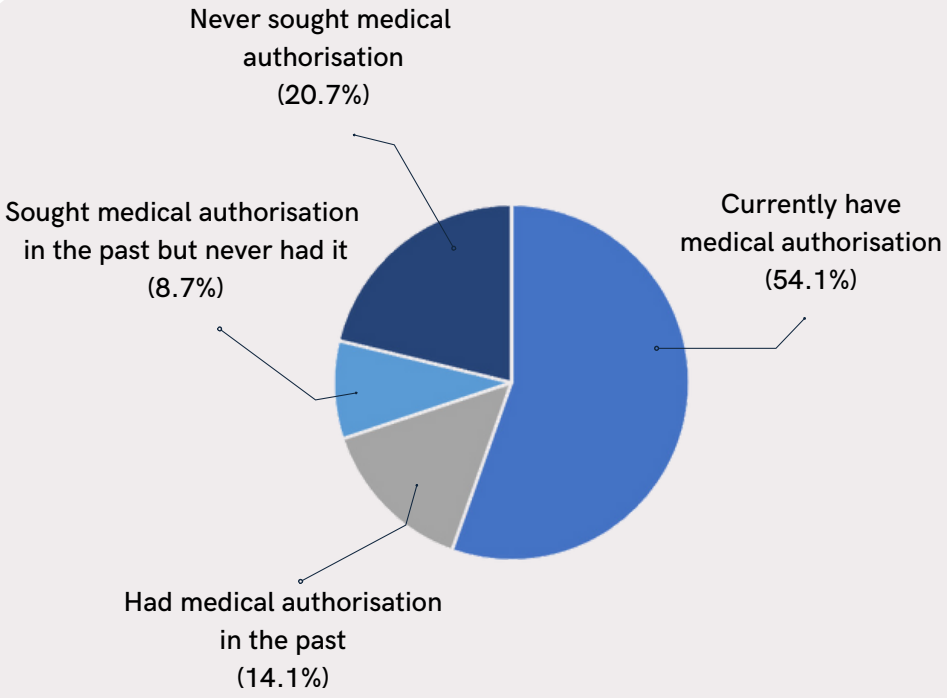


FIGURE 7. AUTHORIZATION STATUS FOR RESPONDENTS CURRENTLY TAKING MEDICAL CANNABIS (N=5,433)

REASONS FOR NOT HOLDING AUTHORIZATION

For those individuals who reported never seeking authorization to use medical cannabis (N=1,142), they perceived authorization to be unnecessary with the existence of the legal recreational cannabis market (48.0%). In addition, they were unsure how the medical cannabis program in Canada worked (37.0%), and they did not perceive having authorization as important to have (33.0%). Other reasons are highlighted in Figure 8.

For those individuals using medical cannabis who did not have a current authorization but had held it in the past (N = 760), the most prevalent reason for no longer seeking authorization was the perception that there was no need due to the ability to access cannabis through the recreational market (66.9%). This was followed by the perception that it was too expensive to purchase medical cannabis products from licensed sellers (48.4%). The third most common reason for these individuals was that it was too time consuming to get an authorization from a doctor or nurse practitioner (see Figure 8).

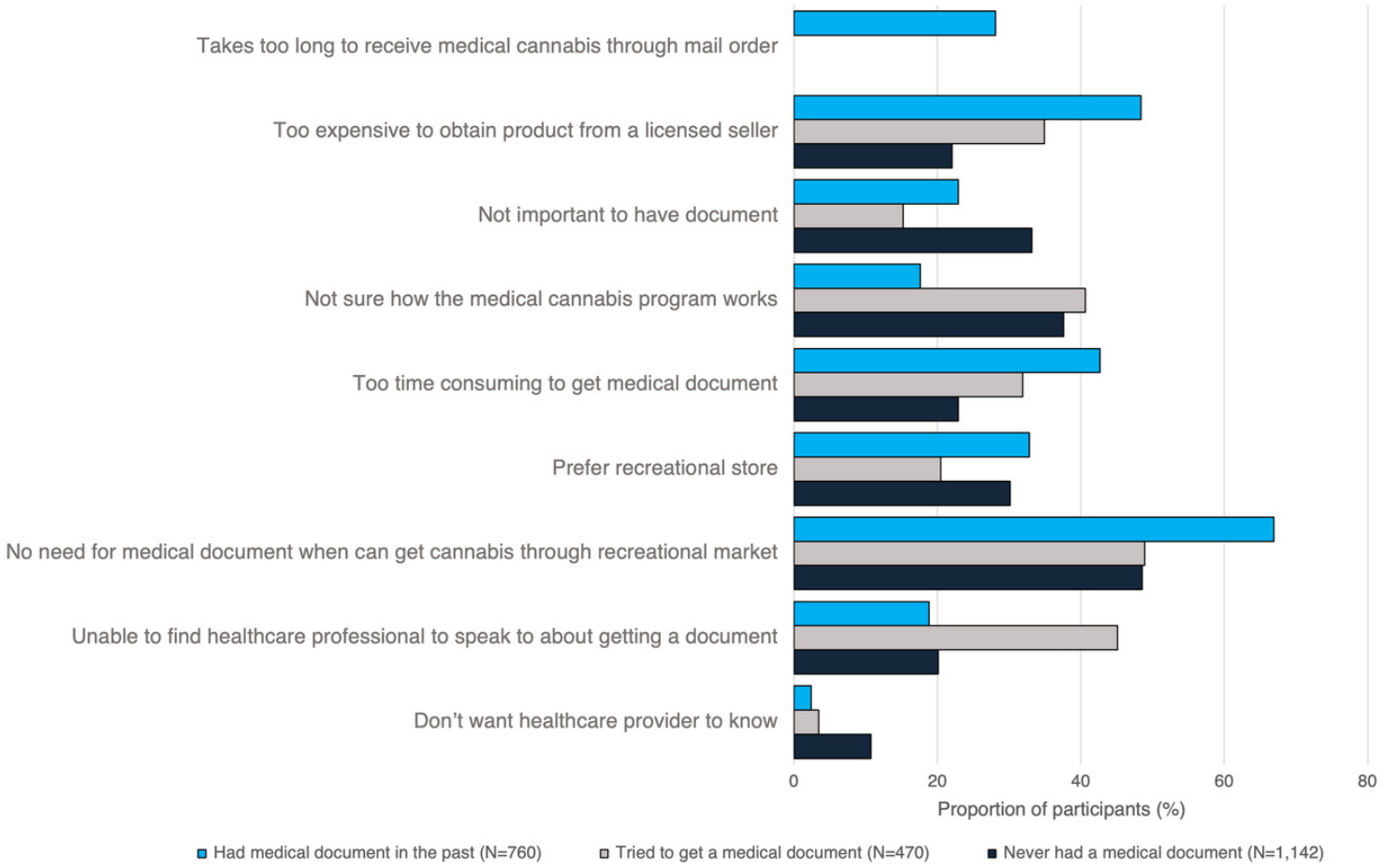


FIGURE 8. REASONS FOR NOT HAVING AUTHORIZATION FOR RESPONDENTS CURRENTLY TAKING MEDICAL CANNABIS (PAST AUTHORIZATION, TRIED TO GET AUTHORIZATION AND NEVER HAD AUTHORIZATION)

For the 470 individuals who tried to get authorization in the past but were not successful, the reasons they reported for their request being denied included their healthcare professionals' lack knowledge about medical cannabis (50.1%), their refusal to talk to them about medical cannabis (35.8%), their concerns about the lack of research related to medical cannabis (33.7%), and their suggestion to try different treatments (25.5%). Other reasons these respondents did not seek medical authorization included the perception that there was no need due to the existence of the recreational cannabis market (48.9%), the fact that they couldn't find a healthcare professional to speak to about medical cannabis (45.1%) and being unsure how the medical cannabis program worked (40.6%) (see Figure 8).

Amongst participants who currently take medical cannabis and tried to get a medical document but were unsuccessful (N=470), the top reasons reported for wanting a medical document were in case of interaction with law enforcement (53.9%), to get compassionate pricing from a licensed seller (50.7%), to be able to get medical cannabis products from a licensed seller (36.5%) as well as to avoid stigma (36.5%).

RESPONDENTS' REFLECTIONS ON NOT SEEKING MEDICAL CANNABIS AUTHORIZATION:

"I just felt like authorization wasn't necessary or useful anymore. And if I wasn't getting coverage, I wasn't getting the products I needed. It didn't seem like authorization really mattered."

"I don't need it anymore because I can go to the local store and buy it. My doctor doesn't care whether I'm on cannabis or not. He doesn't have to keep renewing my prescription because he knows and I know that I know what I'm doing. There's no benefit for me to have a medical authorization because the government doesn't cover, the insurance doesn't cover. It's just more paperwork really and we don't need the paperwork anymore."

"Just because it [medical authorization] expired and I wasn't obtaining it through the medical avenues, so it wasn't an immediate necessity to renew it. I don't need it to access the products that I need right now. It's out of convenience and it's also just me being busy, not renewing it"

"Insurance doesn't cover medical marijuana, but I do know the federal government will allow me to write that off on my taxes, which sounds like a good idea, but you're paying more for it."

"There are too many options right now out there that you could still scoot the legal route, and you get the same product cheaper more of it, and you're under the radar. You're not in the database somewhere kind of thing."

"Well, if you have to go to somebody you don't know, pay them a couple $100, present all your medical paperwork, to just send that off with another fee to an arm of the government, to then sit there and wait for a card to come back that maybe for a year or maybe for X number of years, and then have to renew... I'm not sure many people that are actually in need of medical [cannabis] have the disposable income, especially right now, for these ridiculous fees. Especially when a family doctor won't do it..."

DEMOGRAPHIC FACTORS ASSOCIATED WITH HOLDING AUTHORIZATION TO TAKE MEDICAL CANNABIS

An analysis was undertaken to explore which individuals were most likely to have current authorization to take medical cannabis (Table 8). Foremost, individuals who identified as Black were almost 2.5 times more likely to report holding authorization in comparison to individuals who identified as White. In comparison to participants from Ontario, individuals living in Quebec were more likely to report holding medical authorization whereas participants from Manitoba, Nova Scotia, P.E.I., and Newfoundland and Labrador were less likely (Table 8). Participants who were older were also more likely to report holding medical authorization (70 years old vs. <30 years old: OR: 4.16, 95% CI: 2.98-5.81, p for trend <0.001) as were male participants and those with greater education than a high school diploma.

TABLE 8. LOGISTIC REGRESSION OF CHARACTERISTICS ASSOCIATED WITH CURRENT AUTHORIZATION STATUS

DEMOGRAPHIC FACTORS	Odds Ratio (95% Confidence interval)
ETHNICITY	
White	1 (ref)
Black	**2.40 (1.19 - 4.85)**
Asian	1.24 (0.67 - 2.29)
Indigenous	**0.49 (0.37 - 0.64)**
Latin American	0.88 (0.40 - 1.89)
Mixed	1.06 (0.83 - 1.36)
PROVINCE/TERRITORY	
British Columbia	0.52 (0.43- 0.62)
Alberta	1.12 (0.93 - 1.35)
Saskatchewan	0.72 (0.51 - 1.02)
Manitoba	**0.72 (0.55 - 0.96)**
Ontario	1 (ref)
Quebec	**1.89 (1.55 - 2.31)**
New Brunswick	0.80 (0.59 - 1.09)
Nova Scotia	**0.73 (0.58 - 0.92)**
Prince Edward Island	**0.45 (0.24 - 0.84)**
Newfoundland & Labrador	**0.49 (0.32 - 0.75)**
Territories	0.63 (0.27 - 1.45)
AGE	
<30 years	1 (ref)
30-39.9 years	**1.85 (1.42 - 2.39)**
40-49.9 years	**2.07 (1.59 - 2.68)**
50-59.9 years	**2.32 (1.78 - 3.01)**
60-69.9 years	**3.40 (2.61 - 4.43)**
≥70 years	**4.16 (2.98 - 5.81)**

DEMOGRAPHIC FACTORS	Odds Ratio (95% Confidence interval)
CITY / TOWN	
Large city	1 (ref)
Medium city	**0.79 (0.65 - 0.96)**
Small city	**0.78 (0.66 - 0.92)**
Small town/ rural	**0.66 (0.56 - 0.78)**
GENDER	
Woman	1 (ref)
Man	**1.72 (1.51 - 1.96)**
Non-binary	0.77 (0.55 - 1.07)
EDUCATION	
No diploma or degree	0.74 (0.55 - 0.99)
High school	1 (ref)
College, trade certificate, or diploma	**1.26 (1.09 - 1.47)**
Undergraduate degree	**1.67 (1.37 - 2.05)**
Graduate degree	**1.58 (1.21 - 2.08)**
Household Income	
<$50,000 per year	1 (ref)
$50,001-75,000 per year	**1.32 (1.12 - 1.57)**
$75,001-100,000 per year	**1.45 (1.20 - 1.76)**
$100,001+ per year	**1.63 (1.37 - 1.94)**
USED CANNABIS FOR CHRONIC PAIN	
No	1 (ref)
Yes	**1.94 (1.70 - 2.20)**

ALL FACTORS ARE ADJUSTED FOR ONE ANOTHER
VALUES IN BOLD REPRESENT STATISTICALLY SIGNIFICANT FINDINGS WHERE P<0.01

RESPONDENTS' REFLECTIONS ON SEEKING MEDICAL CANNABIS AUTHORIZATION:

"Why authorization is important, is because you don't want people out there saying, 'Oh yeah, I got problems, I need to just buy some weed and I'll be good to go.' No, you want people to be out there using this responsibly, right? I mean, it is cannabis, it is not the most harmless of all the so-called narcotics out there, but at the end of the day, there still needs to be some type of control. There needs to be some type of regulation there."

"I think it's important for your doctor to know that you're taking it [medical cannabis], whether you're using it recreational or medicinal because it can, for some people, affect a lot of things that are already wrong with them."

"Yes, so I think the authorization, it does a few different things. It guarantees that you've had some touchpoint with a medical professional. Even though it could be better… I think the fact that authorization exists proves that you've talked to at least a medical professional who's been able to assess whether or not you qualify for this course of treatment, which is important. Then I think that it's a safety check-in for the government to ensure that the doctor that you're working with is capable of providing cannabis to you because you hate to see it, but there's all kinds of examples of doctors prescribing medicines they should not be prescribing, or that perhaps don't even have a valid license at the moment. They're out there doing nefarious things, so I think the registration document does serve its purpose that Health Canada set out for it to achieve. Which again is to validate that the patient is capable or appropriate for that course of treatment, and that the individual providing that course of treatment is qualified to do so."

SOURCES OF MEDICAL CANNABIS PRODUCTS AND INFORMATION, AND ACCESS EXPERIENCE

SOURCES OF MEDICAL CANNABIS

Current medical cannabis consumers reported purchasing/receiving medical cannabis in the past 12 months from an array of sources. Over half of respondents (57.3%) reported obtaining medical cannabis from more than one source. The most prevalent were in-person at a legal recreational cannabis store (59.4%), from a legal licenced seller of medical cannabis (via mail order) (42.9%), online from a legal recreational cannabis store (31.0%), grown at home (25.2%), and family and/or friends (22.5%).

For those with medical cannabis authorization, 78.0% reported they were sourcing their medical cannabis from an licensed seller, 23.5% were growing their own, and only 3.3% were designating someone else to grow for them. In addition, 50% of these individuals also reported obtaining medical cannabis from a recreational source (i.e., online store, in-person store). For further details see Figure 9.

Of those who held medical authorization, only 35.4% (N = 1,040) reported only accessing medical cannabis from the source designated on their medical authorization form. For those individuals who sought medical cannabis outside their designated source (N=1,904), the most popular sources were any legal recreational source (i.e., online and in-person) (78.8%), growing at home (33.2%), and family and friends (20.3%).

Comparing sources of cannabis between those with medical authorization and those without, those with authorization were significantly more likely to access legal, regulated sources, including medical and non-medical sources ($p<0.001$), whereas those without authorization were significantly more likely to access illicit or unregulated sources, such as dealers, online unregulated sellers, and family and friends (see Figure 9). Over half of individuals (52.1%) without medical authorization reported getting cannabis from unregulated sources (i.e., dealer, family or friend, online unregulated seller, or community-based dispensary) whereas only a quarter of individuals with authorization obtained cannabis from these sources (25.5%).

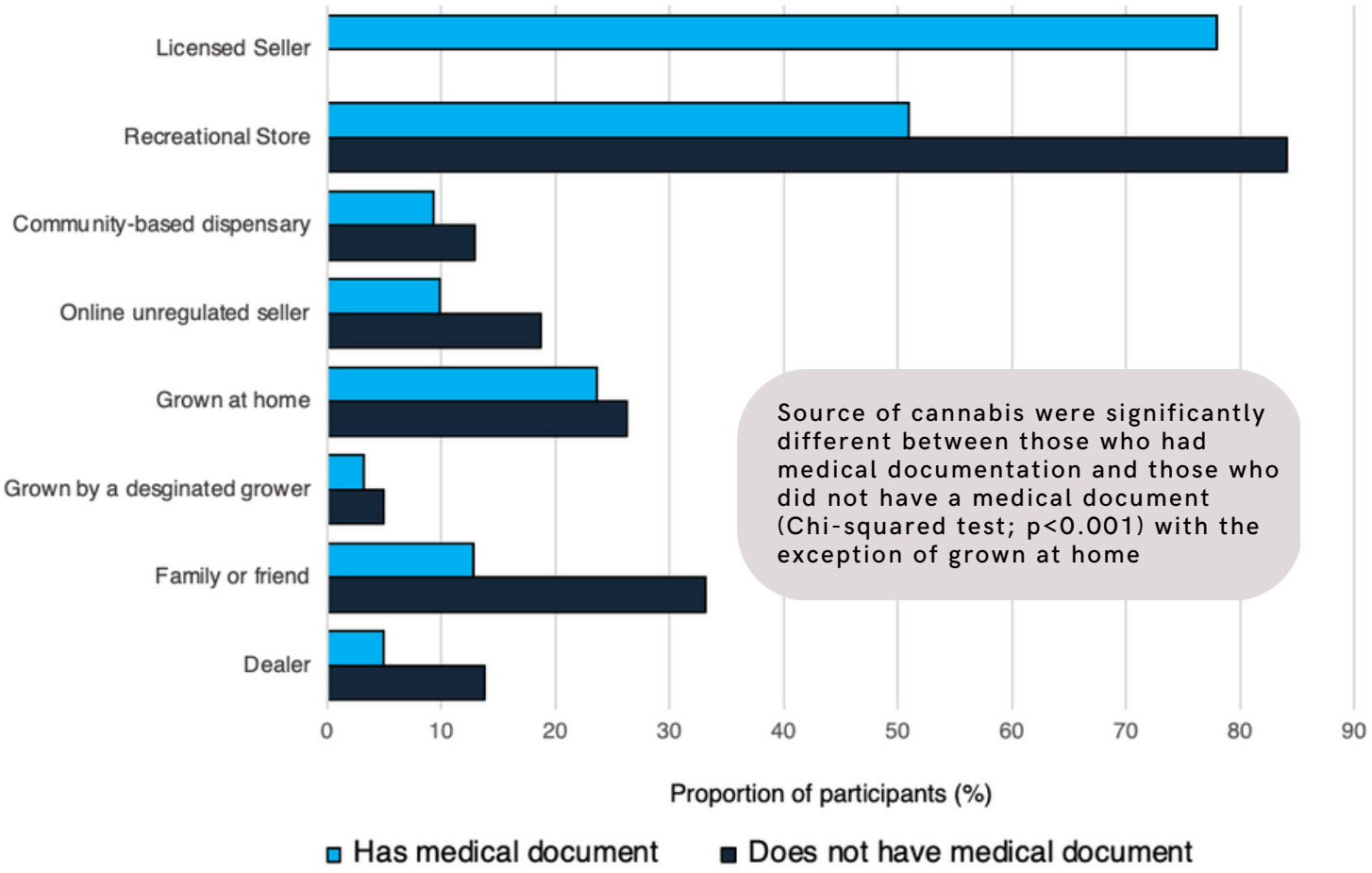


FIGURE 9. SOURCE OF MEDICAL CANNABIS IN PAST 12 MONTHS AMONG CURRENT CONSUMERS

PREFERRED SOURCE

With regards to the preferred sources of medical cannabis, respondents were asked to rank seven medical cannabis sources from 1 (most preferred) to 7 (least preferred). The top ranked preferred source was licensed sellers, with an average rank of 3.07, followed closely by legal recreational store fronts and online legal recreational stores, with an average rank of 3.14 and 3.62, respectively. Pharmacy as a preferred source of medical cannabis was ranked 4.05, followed by growing my own medical cannabis (4.31) and designating someone to grow medical cannabis (4.32). Unregulated sources within the community (e.g., community-based dispensaries) was the lowest ranked preferred source of medical cannabis (5.0). When comparing individuals with authorization to those without authorization, individuals with current medical authorization ranked licensed sellers as their top choice, followed by recreational stores and then pharmacies whereas those without medical authorization rated in-person recreational stores as their top choice to obtain medical cannabis (Table 9).

TABLE 9. PREFERRED RANKED SOURCES OF MEDICAL CANNABIS BY INDIVIDUALS WITH AND WITHOUT CURRENT MEDICAL AUTHORIZATION.

Source of medical cannabis	Currently hold medical authorization	Do not hold medical authorization
Licensed seller	1	2
Online legal retail store	3	3
In-person legal store	2	1
Pharmacy	4	6
Unregulated community-based dispensary	7	7
Grow my own	6	5
Designated grower	5	6

FACTORS ASSOCIATED WITH SOURCE OF PRODUCTS

When assessing different sociodemographic factors in relation to only obtaining medical cannabis through authorized sources (e.g., only licensed seller, growing at home, or designated grower) individuals who have a medical authorization and were older (>70 years of age vs. <30 years of age; Odds ratio: 8.1 (95% CI: 4.5-14.7)) or had greater annual income ($100,000+ vs. <$35,000; Odds ratio: 1.5 (95% CI: 1.2-1.9)) were more likely to only obtain medical cannabis from authorized sources. In contrast, individuals who took medical cannabis for over 10 years (vs. <6 months) were substantially less likely to only access cannabis from their authorized source (Odds ratio: 0.2 (95% CI: 0.1-0.3)).

Respondents were asked to comment on what factors (e.g., cost, convenience, quality) were important on where they sourced medical cannabis, using a 1-5 scale (1 = not at all important and 5 = very important). Overall, the most important factors according to current consumers of medical cannabis were:

- Quality of products (mean = 4.8)
- Availability of products (mean = 4.5)
- Convenience (mean = 4.4)
- Cost (mean = 4.4)

The only substantial difference in factors influencing the choice of where medical cannabis was obtained between those with authorization and those without was with regards to the legality of cannabis product, with a mean difference of 0.8 ($p<0.001$). Participants without authorization rated the legality factor less important compared to those with an authorization.

Respondents who held current authorization were also asked about their experiences (on 5-point Likert scale) in accessing medical cannabis in the past 12 months. Those who sought medical cannabis through multiple sources (e.g., recreational store and licensed sellers) reported significantly greater difficulties than those who reported only accessing through licensed sellers, including having to try several sources before finding the product they preferred, receiving poor quality cannabis products, and having to use their personal network to source medical cannabis products. However, even for these participants that experienced more difficulties, these experiences were rated as "rarely" or "sometimes" occurring. See Table 10 for additional information.

TABLE 10. ACCESS EXPERIENCE ONLY FROM LICENSED SELLER VS. LICENSED SELLER AND OTHER SOURCES IN PAST 12 MONTHS AMONG PARTICIPANTS WITH CURRENT AUTHORIZATION

Scale Items	Individuals who hold medical authorization		Difference	P-value for difference
	Licensed Seller and Other Sources	Licensed Seller only		
I spend many hours a month looking for the medical cannabis products I take	2.27 (2.21 - 2.32)	1.67 (1.61 - 1.74)	0.59 (0.51 - 0.68)	<0.0001
I must try several medical cannabis sources (e.g., licensed seller, recreational store) before finding the products I take	2.64 (2.58 - 2.70)	1.74 (1.68 - 1.81)	0.90 (0.80 - 0.99)	<0.0001
I use my personal network (like an online support group, or patient group) to source where to find the medical cannabis products I take	2.31 (2.24 - 2.37)	1.60 (1.52 - 1.67)	0.71 (0.60 - 0.82)	<0.0001
The medical cannabis products I take have been sold out	2.90 (2.85 - 2.95)	2.33 (2.26 - 2.40)	0.57 (0.48 - 0.66)	<0.0001
The quality of the medical cannabis products that I received was poor	2.40 (2.35 - 2.45)	1.55 (1.50 - 1.61)	0.85 (0.77 - 0.92)	<0.0001
It is difficult to find the medical cannabis with the THC/CBD ratios that I take.	2.71 (2.65 - 2.76)	2.02 (1.95 - 2.09)	0.69 (0.60 - 0.78)	<0.0001
It is difficult to find the medical cannabis product types (e.g., dried, oil) that I take	2.46 (2.41 - 2.52)	1.85 (1.78 - 1.91)	0.62 (0.53 - 0.70)	<0.0001
I cannot get the medical cannabis products that were recommended by my doctor or nurse practitioner	2.05 (1.99 - 2.10)	1.52 (1.47 - 1.58)	0.52 (0.43 - 0.61)	<0.0001

Participants were asked how often in the past 12 months how often they experienced the following when purchasing medical cannabis on a 5-point Likert scale (1 = Never, 2 = Rarely, 3 = Sometimes, 4= Often, 5 = Always).

RESPONDENTS' REFLECTIONS ON THEIR SOURCE OF MEDICAL CANNABIS:

"For purchasing, I would say a lot depends on price for me. I find it insane that I can go to [recreational cannabis store] and buy my product for half the price I pay through the authorization with compassionate pricing. I do not understand how the government can justify that. We pay taxes on it. Nobody else pays taxes on their prescription but we have to pay taxes on it [medical cannabis], right."

"…my prescription is registered with [name of licensed seller], an licensed seller out in Montreal. However, they ship because they are far away, and they are more expensive, even with the compassionate care discount. I can't get everything from there. So, for example, one of my main go-to's is one of the cartridge pens that is chamomile, lavender and it's a 3:1 CBD/THC ratio. I, if I run out of it today, today being Wednesday and I placed my order it's not going to get here till next week Monday. In situations like that I may have to go to OCS [Ontario Cannabis Store], they have a same day service, there is normally dispensaries in the area, where I could just walk to one and check them out or I can even look it up on my phone, that's the cool part too… it just depends on who has it on sale and who can get it to me quicker, but it goes in between OCS and my licensed seller, where my authorization is registered."

"I find growing your own is the best. But it's also probably the biggest pain. Because you've got to constantly water and you're looking out for this, and you're looking out for that. And it's just, having stores close makes things a whole lot easier."

"Yes, I do get it [medical cannabis] from different sources because I get different things from different places. There are online places that are not legal. I get good stuff from them, too. They've been around for years and years, some of them. Then there's the licensed sellers, like the one that my authorization is with. They just shoved me off to Shoppers Drug Mart just recently. I was with [licensed seller name], I really liked them. They were the first ones I was with. Then I tried a couple of other ones. Then I ended up going back to them. They just recently, just before this last prescription expired, they're not filling prescriptions anymore directly. I can buy their products through Shoppers Drug Mart. Shoppers Drug Mart now has my authorization instead of [licensed seller name]. I could have gone with another licensed seller, but Shoppers Drug Mart has access to more than one licensed seller."

"I've gotten it recreationally quite a bit. I have a health spending account that lets me put the receipt down and get paid back but it has to be through one of the medical ones. I do that a couple of times a year until that's maxed out. Then, get it from one of the recreational, non-medical stores the rest of the time."

"There are also times, too, when I'm talking about experimenting or exploring new products, that's where I'll rely more on a recreational storefront because chances are they've got the newest product there. I find that sometimes medical companies or the medical side of the company-- they will take longer to get new products into their medical roster. They'll put it out into the adult-use market first for business and scalability and whatever other reasons, I'm sure. It's frustrating as a medical user that I'm like, "Well, now I can't have that covered on my authorization." If I want to try that, I got to either wait until they come out with it on the med side, or I got to go to [licensed seller name] or wherever, and I got to pay for it there out of pocket. Again, it recreates or conjures up that stigma in your mind too, right, "Well, I'm buying this from the weed store, so this isn't really a medicine now, is it?" Those thoughts are floating around in your head."

"I think that comes down to the accessibility piece. There might be a time where I budgeted improperly, for example, and I don't feel that I have enough cannabis for the week. I know that if I order it online, it might not come until next week because that's just how slow things are sometimes in that regard. In that instance, my first thought is, "Okay, well, I'll go to a recreational store and I'll see if they've got [the product], or something similar that I need to redress some kind of ailment."

SOURCE OF MEDICAL CANNABIS INFORMATION IN PAST 12 MONTHS

Respondents who were currently taking medical cannabis were asked where they sought and/or received information about medical cannabis in the past 12 months, including from individuals (i.e., healthcare professionals, family and friends) and from other sources (i.e., Google, recreational cannabis stores, and media). In total 3,012 individuals currently taking medical cannabis reported seeking or obtaining information about medical cannabis in the past 12 months. In terms of individuals, information about medical cannabis was most sought from:

- Family and friends (41.4%)
- Family doctor (24.6%)
- Specialist doctor (25.2%).

However, individuals with current medical authorization were more likely to receive or seek information from a healthcare professional (67.8%) in the past 12 months than individuals who did not have medical authorization (48.2%).

Comparing individual-based sources of medical cannabis information between those with and without authorization, those with medical authorization were significantly more likely to get or seek information from a specialist doctor or a nurse practitioner. In contrast, those without medical authorization were more likely to receive or seek information about medical cannabis from family or friends (see Figure 10).

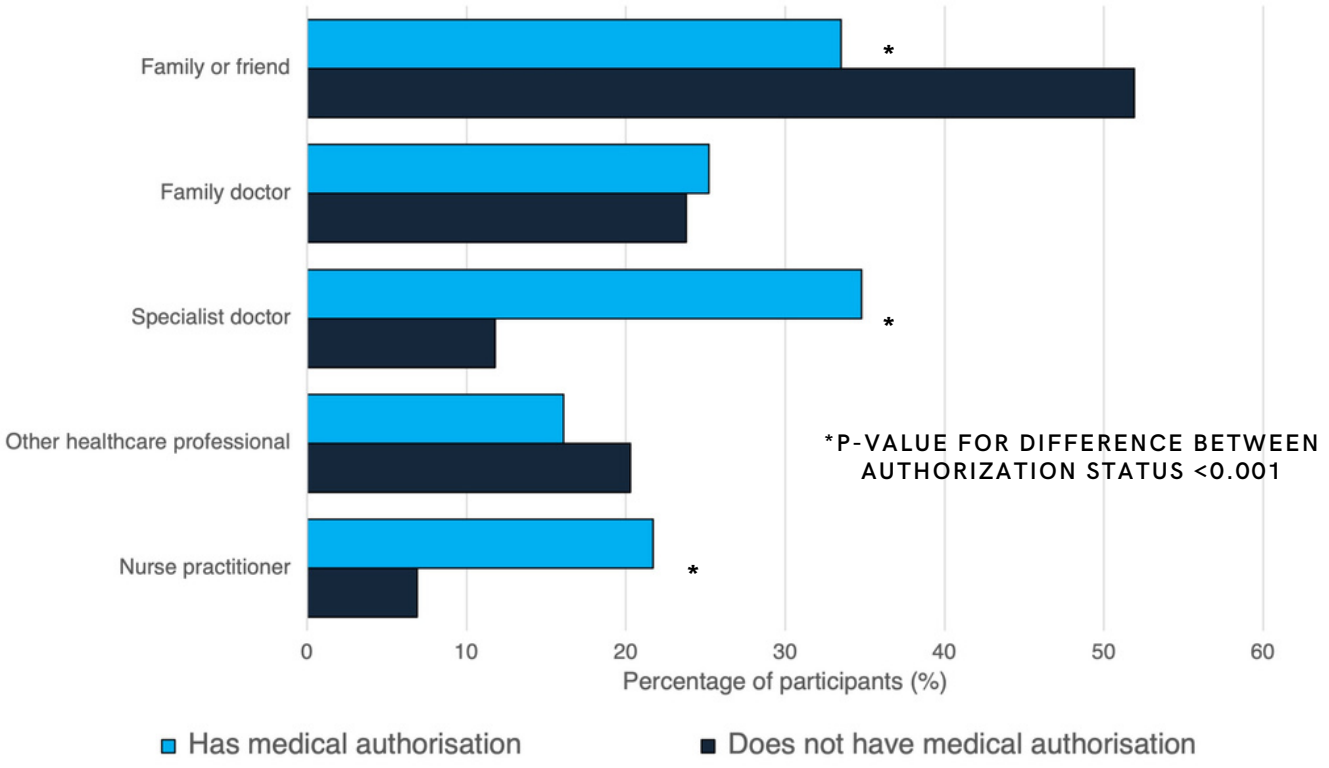


FIGURE 10. INDIVIDUAL-BASED SOURCES OF MEDICAL CANNABIS INFORMATION IN PAST 12 MONTHS BY AUTHORIZATION STATUS

With regards to other sources of medical cannabis information, the most common sources of information were:

- Google (51.0%)
- Online-only medical cannabis clinic (29.6%)
- In person legal recreational cannabis store (27.9%)
- Research journals (24.4%)
- Online support group (20.5%)

Comparing other sources of medical cannabis information between those with authorization and those without, those with medical authorization were significantly more likely to use online medical cannabis clinics and online support groups for information about medical cannabis. In contrast, those without medical authorization were more likely to utilize less reliable sources of information about medical cannabis, such as Google, recreational cannabis stores, and social and other forms of media (see Figure 11).

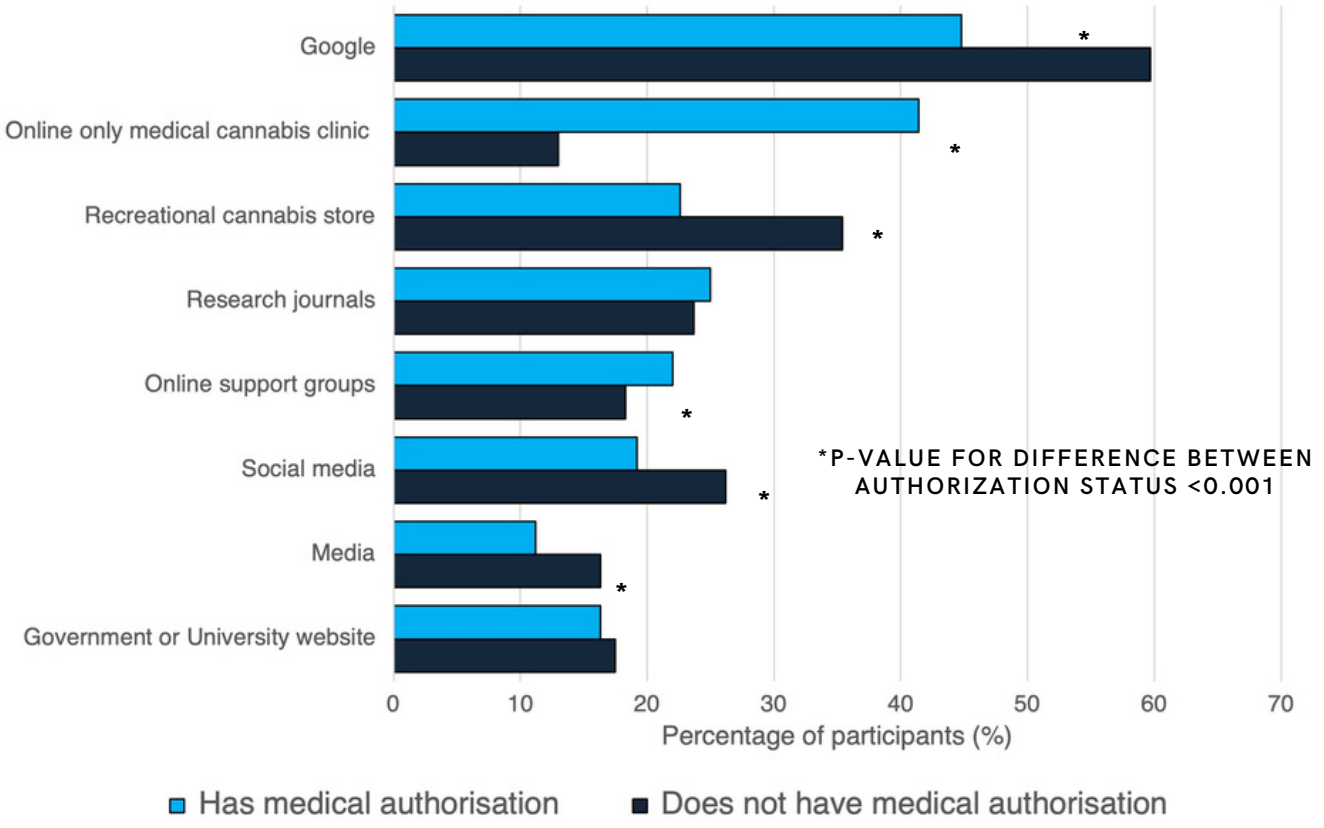


FIGURE 11. OTHER SOURCES OF MEDICAL CANNABIS INFORMATION IN PAST 12 MONTHS BY AUTHORIZATION STATUS

EXPERIENCE AND SATISFACTION WITH SOURCES OF MEDICAL CANNABIS INFORMATION

Respondents who sought medical cannabis information were asked about their experience of speaking with a healthcare professional. Using a rating scale of 1 to 5, with 1 = strongly disagree and 5 = strongly agree, respondents somewhat agreed that the healthcare professionals they sought information from were open to talking about medical cannabis and made them feel comfortable talking about cannabis. They disagreed that healthcare professionals suggested they purchase medical cannabis from a legal recreational cannabis store. See Table 11 for additional information.

TABLE 11. EXPERIENCE OF SEEKING MEDICAL CANNABIS INFORMATION FROM HEALTHCARE PROFESSIONALS

Scale Items	Average Rating (SD)
Was open to talking about taking medical cannabis	3.9 (1.3)
Was knowledgeable about medical cannabis	3.4 (1.3)
Encouraged me to ask questions about medical cannabis	3.5 (1.3)
Was willing to give me a referral to talk to someone else about medical cannabis	3.3 (1.4)
Answered my questions about medical cannabis	3.4 (1.3)
Made me feel comfortable talking about medical cannabis	3.7 (1.3)
Discouraged me from taking medical cannabis	2.3 (1.3)
Was willing to complete the medical document	3.5 (1.5)
Suggested I purchase medical cannabis from a legal recreational cannabis store	2.6 (1.3)
Suggested I purchase medical cannabis from an online medical cannabis provider (i.e., licensed seller)	3.5 (1.4)

Participants were asked to respond with how much they agreed with the following questions if they reported talking to a healthcare professional in the last 12 months (1 = Strongly Disagree, 2 = Disagree, 3 = Neither agree or disagree, 4 = Agree, 5 = Strongly Agree).

Across current medical cannabis consumers, the highest ranked sources of individual-based information (on a 1-5 scale, with 1 = very dissatisfied and 5 = very satisfied) were family and friends (4.0), nurse practitioners (4.0), and specialist doctors (3.8). The highest ranked sources of other sources of information were in-person medical cannabis clinics (4.3), unregulated community-based dispensaries (4.2), online support groups (4.2), and research journals (4.1).

RESPONDENTS' REFLECTIONS ON SEEKING MEDICAL CANNABIS INFORMATION FROM HEALTHCARE PROVIDERS:

"I think it would depend solely on the healthcare providers. Some healthcare providers take a very firm stance, and they'll get their back up over it and you can't even discuss it [medical cannabis] with them. Whereas other healthcare providers are a little bit more open-minded, it's a good conversation. If you get the support, it's huge, right?"

"I don't expect them [healthcare providers] to have a master's thesis in it, but I think they should probably have enough information to be able to say, "I think that this might be helpful for you and let me refer you to someone." Whereas right now, they're like, "Well, I think it might be useful for you," and the conversation ends there."

"I would like to see the medical professionals that still have a really big stigma against cannabis, I would like to either see them put through some type of retraining; it's definitely a sensitivity type of training. Because it really does confuse people, if Health Canada says this is legal, if Health Canada says this is medicine, if we're actually going through the process of getting prescriptions and so on. Then why is it I have to take that chance, where if I go to a doctor who has his own stigma and does not realise you can't really talk to people like that or tell them that it's that or whatever, then isn't it kind of counterproductive? You have to pick and choose what doctors you can talk to. It's like I have to interview doctors before I can actually just go in and see a doctor now, pre-screen them. It's almost like a dating site, like, 'I'm 420 friendly, are you OK with that doc?'"

"Yes. It's like, you should be ashamed. Yes, it's like you should be ashamed that you take it, but I should be okay that I take Xanax or Valium or something like that. That's okay. That's normal. I could tell you, I take a whole world of sleep meds or whatever, that's okay, but I take cannabis oil or CBD oil and it's like well, you're some kind of druggy. Like really? It's mind-boggling to me that something that works so well, they try to make it look so bad and I'll never understand it."

"I wanted him to be able to tell me what to expect from it, like, more help in getting the correct dosage. He just kind of put down a number and said, 'I don't know anything about it, so you'll have to do your own research', which I found funny coming from a medical doctor. Seems to me most of them love to research everything."

"More educational opportunities for all levels of practitioners. Where I live, the health system only sees cannabis as being akin to alcohol in that the focus is on substance abuse."

INSURANCE COVERAGE AND COST

INSURANCE COVERAGE (CURRENT CONSUMERS)

Across all current consumers of medical cannabis (N = 5,433), 55.7% of respondents reported having private health insurance (e.g., Canada Life Sunlife, Blue Cross) whereas 59.2% of those with medical cannabis authorization had private health insurance. For those that did not have private health insurance, just over 35% reported having coverage through provincial/territorial disability programs, worker's compensation boards, non-insured health benefit programs for Indigenous people, or Veterans Affairs. Consequently, a total of 1,520 respondents or 28.5% of current medical cannabis consumers reported no insurance coverage.

Across all forms of insurance coverage held, 38.4% of respondents with insurance and currently holding medical authorization (N = 789) attempted to claim medical cannabis or related costs.

Of those individuals, only 170 participants, or 5.8% of individuals who held medical authorization reported being successful in the claims process. The types of expenses that were successful claimed were primarily related to the costs associated with medical cannabis products (87.5%), equipment (31.5%), and shipping (35.0%).

For those individuals with health insurance that did not try to claim their medical cannabis expenses (N = 1,688), the most shared reasons for not submitting their expenses were:

- Medical cannabis is not covered by my insurance coverage (55.7%)
- Didn't know I could claim medical cannabis expenses (24.4%)
- Don't know how to claim medical cannabis expenses (17.9%)

COST OF MEDICAL CANNABIS (CURRENT CONSUMERS)

Overall, the median amount that respondents reported spending out of pocket was $125 per month (IQR:75-225) with over 39.0% of participants reporting spending more than $200/month in out-of-pocket expenses on their medical cannabis. Individuals with medical cannabis authorization reported a median cost of $125 per month (IQR:75-275) while those without medical authorization reported a median cost of $100 per month (IQR:75-175; Mann-Whitney U p-value for difference in medians $p<0.001$). Participants who held medical authorization and were able to claim medical cannabis expenses to their private health coverage (n=170) reported a median out-of-pocket monthly spend of $75 (IQR: 0-175), with 29.6% reporting that they paid $0 out-of-pocket for their medical cannabis-related expenses.

Not surprisingly, a significant difference in the median cost of medical cannabis per month was observed among those respondents reporting taking medical cannabis at least once a day versus those who reported consuming taking medical cannabis less than once a day ($125 vs. $75, respectively; Mann-Whitney U p-value for difference in medians $p<0.001$).

FIGURE 12. MEDIAN COST OF MEDICAL CANNABIS SEPARATED BY MEDICAL AUTHORIZATION STATUS

Respondents with a household income of less than $35,000 per year (37% of which were on medical leave, disability, or unemployment insurance) were found to be spending the same amount on medical cannabis per month as those making more than $35,000 per year (p=0.39). However, participants with medical authorization who made <$35,000 per year reported spending more on medical cannabis costs than participants making >$35,000 a year (median of $175 vs. $125, p<0.001), even though a larger proportion of these participants reported receiving compassionate pricing (57% vs. 28%, respectively). No difference in spending by income was observed amongst participants who did not hold authorization.

Respondents were asked to comment on the how affordable they perceived medical cannabis to be on a scale of 1 (not affordable at all) to 10 (very affordable). On average, respondents rated the costs associated with medical cannabis use as 4.3 out of 10. Respondents with medical authorization rated medical cannabis as less affordable than those without authorization (4.2 vs. 4.5, respectively; p<0.001) as did participants who made <$35,000/year income than those making >$35,000 (3.7 vs. 4.6, respectively; p<0.001).

In relation to taxation of medical cannabis, current consumers of medical cannabis were asked how the removal of applicable taxes, including federal and provincial sales taxes and excise tax, from medical cannabis sales would impact them. Participants who held medical authorization shared that removing tax would reduce the costs associated with medical cannabis (63.9%) and make it easier to access medical cannabis (57.4%). Over a third of participants who obtained their medical cannabis from unregulated sources (i.e., dealer or unregulated seller) and held medical authorization also reported it would reduce their use of unregulated sources (34.8%). Participants who held medical authorization and got their cannabis from recreational stores also reported it would reduce the use of obtaining cannabis through the recreational market (19.2%). However, 28.7% of individuals with medical authorization reported that it would not change much regarding their use and access to medical cannabis.

RESPONDENTS' REFLECTIONS ON THE COST OF MEDICAL CANNABIS

"I guess it's a little bit frustrating because medical cannabis has been legal, even longer than recreational cannabis. But it's still so expensive. And to my knowledge, there's only one insurance company in Canada that actually provides medical cannabis coverage, and most companies would not provide coverage for it".

"It's insanely expensive which has perpetuated, yet again, another unsafe black [sic] market."

"Yes, I wish it [medical cannabis] was more affordable. I just think too, my prescription drugs over the years that I've had to take for whatever, and they've been covered by insurance, it doesn't even really register. You don't even really think about, "Oh, well, I need to put this into my budget, or I need to change my file around to accommodate this. Then all of a sudden, when you do have to pay for it out of pocket, you do start thinking about things like that, and you start to draw a line and be like, "Wow, if my doctor gave me this prescription, and I went to the pharmacy and filled it, it's going to be covered." If I go in and try and buy $200 worth of cannabis online with Shoppers Drug Mart, it's not going to be covered, and they're both medicines. Under the Health Act, the Canada Health Act, there seems to be a discrepancy there."

CHANGES IN MEDICAL CANNABIS USE SINCE IMPLEMENTATION OF THE CANNABIS ACT

For individuals who reported taking medical cannabis before the legalisation of recreational cannabis in 2018, 54.2% reported that where they obtain or purchase medical cannabis has changed. Of these respondents, 79.8% reported starting to get their medical cannabis from a recreational store, 46% from a licensed seller, and 31.0% began growing at home. In contrast, 33.0% reported no longer obtaining medical cannabis from a dealer and 21.0% from family or friends. Figure 13 highlights, however, that 22% of individuals who changed where they obtained cannabis since 2018 reported no longer accessing it through a licensed seller, suggesting possible issues or concerns with the product(s) and/or services provided by this legal source of medical cannabis.

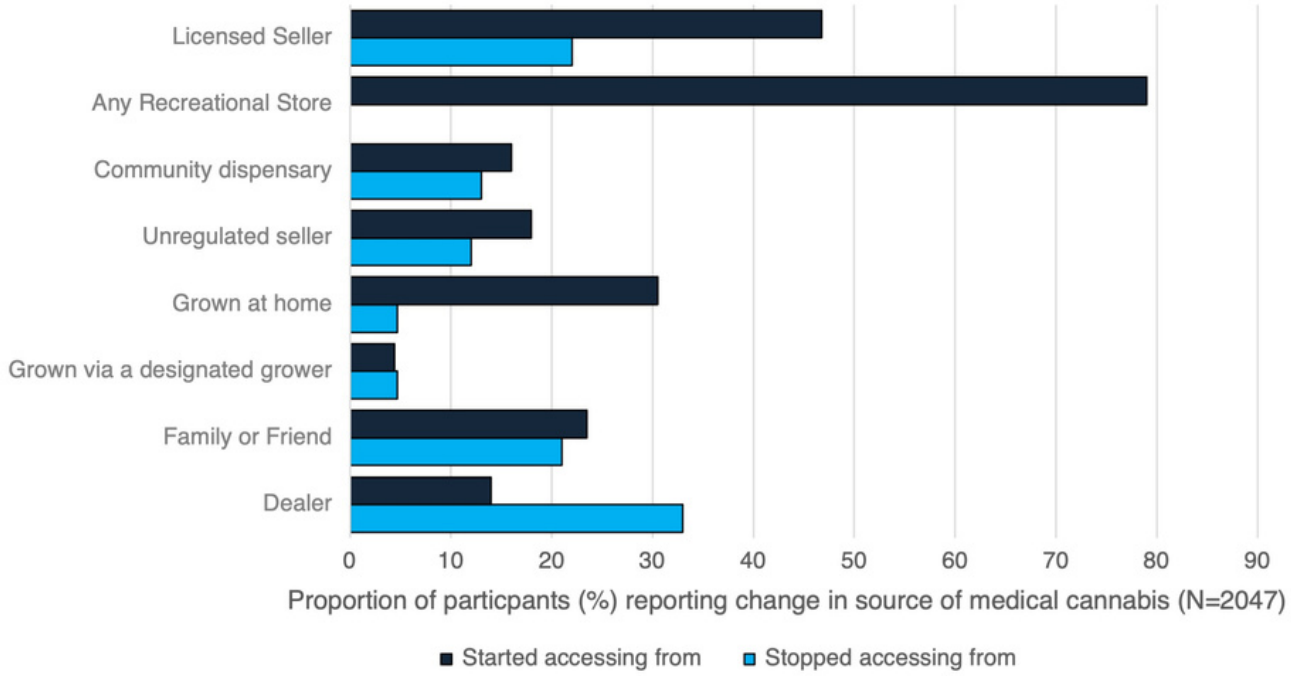


FIGURE 13. CHANGES IN SOURCE OF MEDICAL CANNABIS SINCE LEGALIZATION (STARTED/STOPPED)

With regards to changes to medical cannabis product and the experience of accessing cannabis since legalization, respondents indicated that they somewhat agreed that licensed sellers had higher quality medical cannabis products but charged more for the products they took (See Table 12).

TABLE 12. CHANGES IN MEDICAL CANNABIS PRODUCTS AND ACCESS EXPERIENCE SINCE LEGALIZATION (N=2,238)

Scale Items	Average (SD)
My licensed seller has higher quality medical cannabis products	3.5 (1.1)
My licensed seller charges more for the medical cannabis products that I take	3.4 (1.2)
My licensed seller is frequently out of stock of the medical cannabis products I take	3.1 (1.2)
The licensed seller has less medical cannabis products that work well for me	2.9 (1.3)

Participants with medical authorization reporting that they accessed cannabis through a licensed seller were asked how much they agreed with the following questions（1 = Strongly Disagree, 2 = Disagree, 3 = Neither agree or disagree, 4 = Agree, 5 = Strongly Agree).

A RESPONDENT'S REFLECTION ON IMPACT OF LEGALIZATION

"[Licensed seller name] was my provider and they were excellent, I could get the same stuff all the time. And that was great because when you can have the same stuff time after time after time your body actually gets used to it and knows what to expect and – it can either go bad or you get used to it and it doesn't work, or your body gets used to it and says OK yeah, I know this is coming, I can – right, whatever. But recreational use came into play and they said screw the authorized people and I could not get – it was like half the time I couldn't even order there."

Respondents were asked, using a 1 to 5 scale (1 = strongly disagree and 5 = strongly agree), how their attitudes and experiences related to medical cannabis have changed since the legalization of recreational cannabis in 2018. The highest ranked responses included feeling more comfortable suggesting someone consider taking medical cannabis, talking to their family and friends about medical cannabis, and learning more about medical cannabis and its potential health effects (see Table 13). They disagreed, however, that they felt more comfortable talking to their employers about medical cannabis.

TABLE 13. CHANGES IN ATTITUDES AND EXPERIENCES RELATED TO MEDICAL CANNABIS SINCE LEGALIZATION

Scale Items	Average (SD)
Felt more comfortable suggesting someone else (like a family member or friend) consider taking medical cannabis	3.9 (1.2)
Felt more comfortable talking to my family and friends about medical cannabis	3.8 (1.3)
Learned more about medical cannabis and its possible health effects	3.7 (1.3)
Felt more open to the idea of taking medical cannabis	3.6 (1.6)
Felt more comfortable talking to my healthcare providers about medical cannabis	3.6 (1.4)
Found it easier to find quality information on medical cannabis	3.6 (1.3)
Felt more comfortable taking medical cannabis in a public setting	3.5 (1.5)
Felt more comfortable talking to my employer about medical cannabis	2.1 (1.7)

Participants were asked if they agreed or disagreed with the following statements (1 = Strongly Disagree, 2 = Disagree, 3 = Neither agree or disagree, 4 = Agree, 5 = Strongly Agree).

RETENTION OF THE MEDICAL CANNABIS PROGRAM AND NEEDED IMPROVEMENTS

Respondents who were currently taking medical cannabis and held authorization were asked if there was justification to continue to have separate medical and recreational cannabis programs in Canada. Close to 57% with medical authorization agreed that there was a need to retain the medical cannabis program as separate from the recreational cannabis market, with 23.4% reporting to be uncertain (Figure 14).

FIGURE 14. PARTICIPANTS VIEW OF HAVING A SEPARATE MEDICAL CANNABIS PROGRAM

When those with medical cannabis authorization were asked which aspects of the medical cannabis program were relevant to them, the most common responses were being able to claim medical cannabis on federal tax forms (47.1%), receiving compassionate pricing (35.6%) and requiring higher possession limits (29.1%). The least common reported policies and regulations of the medical cannabis program that applied to participants were workplace protection (7.3%), insurance coverage (7.6%), and being underage in province of legal recreational age (0.4%). For individuals currently taking medical cannabis without medical authorization, 1,273 (55.9%) reported that none of the qualities of the medical cannabis program were applicable to them.

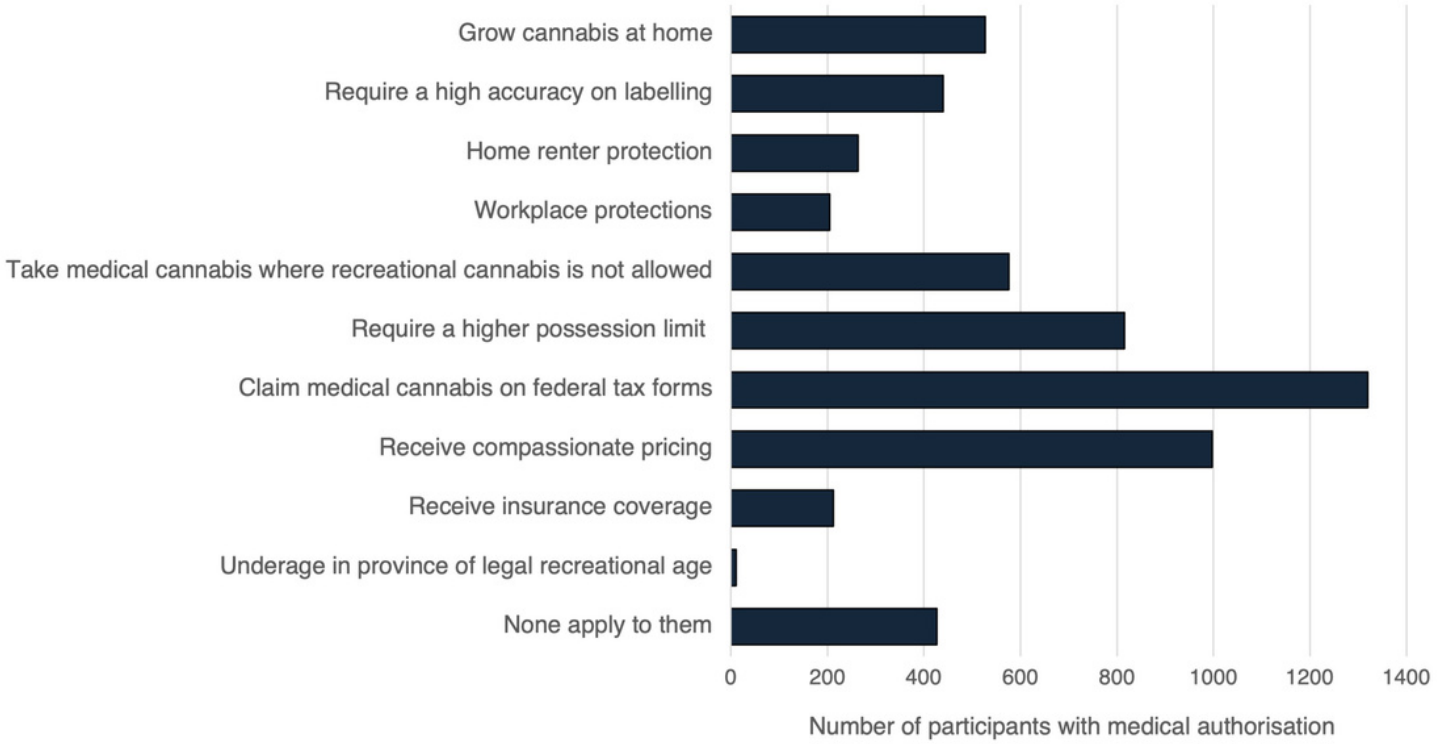


FIGURE 15. NUMBER OF INDIVIDUALS WITH MEDICAL AUTHORIZATION REPORTING APPLICABLE QUALITIES OF THE MEDICAL CANNABIS PROGRAM

PERCEIVED IMPROVEMENTS TO THE MEDICAL CANNABIS PROGRAM

With regards to what improvements to the medical cannabis program are needed, an overwhelming number of ideas were put forward by respondents. These suggestions ranged from restructuring the medical cannabis system in Canada, overcoming identified barriers to medical cannabis access, to addressing the stigma that continues to surround cannabis. In addition, specific suggestions were also put forward regarding regulatory changes needed related to medical cannabis products and services.

With regards to cannabis products, many respondents commented on the restrictive THC limits for edibles, which caused significant financial hardship as patients needed to purchase and consume a larger number of edibles to achieve their desired dose of cannabis. One respondent went as far as to state the 10mg limit to be "an insult to medical patients". In addition, concerns were raised about the quality of the dried flower available from some licensed sellers, including being too dry, having a "chemical" taste and smell, and lacking the trichomes with the associated terpenes. Numerous suggestions were also raised about the packaging of medical cannabis, including the use of childproof lids that caused difficulties for those with physical dysfunction and pain, opaque containers the prevented assessment of the amount of product available, and reducing the size of bottles, requiring the purchase of more product and leading to more waste. The shift to retention caps on bottles, forcing cannabis to be accessed through a syringe, was also a challenge for individuals with arthritis and other musculoskeletal conditions, resulting in wastage of product and inaccurate dosing.

"No comment on the program but since cannabis was legalized the CBD/THC bottles have become much smaller which is an environmental waste. The syringes for the oils are also smaller which makes the oil more cumbersome to take now (have to reload twice to get to my nightly dosage)."

"Also, the white plastic bottles prevent us from seeing how many capsules are available or oil, etc. Before, in 2018 we had brown glass bottles. Health Canada is overstepping its mandate by interfering with these details that are important to users."

The cost of medical cannabis was also perceived by numerous respondents to require urgent attention. Foremost, respondents highlighted the discrepancy between pharmaceutical medications and medical cannabis with regards to coverage by health and workplace insurance programs. They spoke of the "mixed signals" that are being sent when medical cannabis is legal in Canada and authorised by a clinician but is not treated in the same way as other medications when it comes to reimbursement. As one respondent shared:

"Since it has become legal, I think the government should step in and help cover the costs for medically authorized cannabis. A lot of us are in tough situations and are not able to work full-time or some, none at all. Also, it should definitely be recognized by private insurances. I mean it's legal now, right? So, what is the problem? I find that all the issues mentioned above lead to a confusion about the whole subject. Is it legal or not? Anyways, that's my take on the whole thing. It's giving us mixed signals."

Numerous respondents cited that one way to reduce the cost of medical cannabis was to end the federal excise tax and sales tax currently applied to cannabis for medical purposes, as this was widely perceived to increase the cost of medical cannabis for Canadians. In addition, implementing compassionate pricing broadly throughout existing licensed sellers to ensure that medical cannabis is priced less than recreational cannabis was supported by many respondents. The current cost of medical cannabis was perceived by some to perpetuate the illicit market as those with limited financial means are forced to source their cannabis outside the legal, regulated market. And lastly, numerous respondents identified medical cannabis clinics as being problematic from a cost perspective, with some charging fees for medical authorization services, and others receiving a "kick back" from referring individuals to specific licensed sellers. As one respondent share:

"Ban the practice of some clinics, where they get a kick back/fee from an licensed seller for every patient referral, thus sending clients to those licensed sellers, and coercing client/patient to go with that licensed seller, when it might not be the patient's first choice, or best choice for them."

The concept of reasonable access to medical cannabis was also raised by several individuals as requiring attention, reflecting on existing laws and regulations that limited their access to, and use of, medical cannabis. A common suggestion was that medical cannabis should not only be available through licensed seller, but also through pharmacies. Being able to consult a pharmacist about dose and product, discuss possible interactions with other medications, and obtain medical cannabis in a timely manner were all reasons provided for allowing medical cannabis to be distributed through pharmacies in Canada.

"Access to medical cannabis in actual stores, just recreational users, that's super easy for them and it's a medication. Why can't I go to the pharmacy? This is what doesn't make sense. I have to order it from a site and then wait in the mail for it to go through. Sometimes problems happen with orders and it gets delayed or it gets lost."

A pharmacy was also perceived by some to be the ideal place for high dose medical cannabis to be available, especially given recent restrictions on THC limits in Canada. As one respondent shared:

"Let doctors write exemptions for people with high tolerance so they can go to their pharmacy and get high dose stuff that recreational users cannot access. If you can ask your doctor for a fentanyl patch, you should be able to ask your doctor for a 500mg suppository. The medical system needs to catch up to patient's medical needs. It's a disaster."

There were those individuals, however, that struggled with having two parallel systems of access and questioned why medical cannabis could not be purchased through recreational store fronts and still be claimable on their income tax and health insurance. A small proportion of respondents also commented the need for a separate medical cannabis system to eliminate the "red tape" that was making medical cannabis access frustrating for people "already suffering with our health."

Numerous respondents commented on the laws restricting the use of medical cannabis in public spaces and the juxtaposition with tobacco use, which was perceived to be addressed in a more lenient manner. Others raised the issue of being allowed to only consume medical cannabis on "private property", which marginalized individuals who rent or live in social or communal housing facilities.

"Medical cannabis should be exempt from all anti-consumption legislation. Its use should be protected under the Charter under all circumstances, in all jurisdictions. Public health facilities must accommodate its use inside, including for inhaled cannabinoid therapy (one can use a vaporizer so there's no smoke). Also, legislation should not presume all cannabinoid therapy patients can consume their cannabis orally: some patients--like me--require inhaled cannabis, and it's the only form that works, and its use should be supported with as much vigor as it is with edibles and topicals."

"We should have the right to vaporize medical cannabis everywhere we can smoke cigarettes. I do it sometimes, but I don't like to break the rules, so I often prefer to suffer a lot than to act against the laws and regulations."

In addition, the regulations in some jurisdictions that restrict how medical cannabis is transported have also created barriers to medical cannabis use for some individuals:

"You cannot carry it on you unless it's in the package with its original seal and if you buy it from a store you have to store it in your trunk with the seal intact. So, basically once you open it you can't bring it with you anywhere."

The need for additional research and education focused on medical cannabis was also raised by many respondents. With regards to research, studies that examine the efficacy and safety of various cannabis strains, routes of administration, and dosing across health conditions were perceived to be urgently needed to lend legitimacy to the field of medical cannabis, as well as provide guidance for both patients and clinicians. In addition, the need for better education about medical cannabis across healthcare professionals, but especially for physicians who receive the large share of authorization request, was highlighted:

> *"More educational opportunities for all levels of practitioners. Where I live the health system only sees cannabis as being akin to alcohol in that the focus is on substance abuse. More peer reviewed research on the medicinal benefits is needed."*

There was also the suggestion that "outreach" may be needed to encourage physicians to become better educated on medical cannabis, as well as more open to the therapeutic potential of medical cannabis:

> *"I want sort of outreach for doctors, so doctors are forced to become educated on it [medical cannabis] or get trained on it. Because there's really no point in having a medication that your doctor can't tell you anything about..."*

DISCUSSION

This national survey offers important insights into the current state of medical cannabis utilization in Canada, including adult Canadians' experiences obtaining authorization to use medical cannabis, as well as accessing and taking medical cannabis. The survey also explored how access and use of medical cannabis changed since the legalization of non-medical cannabis in Canada in the fall of 2018. It is hoped that these findings will provide direction for future policy reform as part of the federally mandated review of the Cannabis Act and the associated cannabis regulations and be informative for other jurisdictions engaged in cannabis policy and program development.

Over a 5-month period in the summer of 2022, 5,744 adult Canadians participated in the survey, most drawn from social media postings and through recruitment efforts of medical cannabis patient advocacy groups. Survey respondents were predominantly current medical cannabis consumers (94.5%; n = 5,433), who identified as White, female, being well-educated, and living with a chronic health condition, such as chronic pain, anxiety, or depression. Nearly 30% of respondents reported living at or near the low-income cut-off (15), with an annual household income of less than $35,000 CAD, consistent with the socioeconomic status of many Canadians living with severe disability (16). All regions of Canada were represented in the sample, with close to half living in either Ontario or Quebec.

While our study is limited in generalizability to the larger Canadian population due to the use of a non-probability sample, our study is one of the largest to examine Canadians' medical cannabis use and experiences in the past decade (5,17–19). In addition, with the specific goal of understanding the impact of legalization of non-medical cannabis on access to and use of medical cannabis in Canada, a randomly selected national sample of Canadians may not have offered detailed insights into the experience of those actively taking medical cannabis and the potential barriers they have experienced. However, the survey findings do need to be considered with caution, particularly regarding individuals of minority backgrounds and those living in the Territories, who were underrepresented in our sample. In addition, with most the sample reporting current use of medical cannabis, the decision was made to focus this report on this population. As such, the experience of adult Canadians who had taken medical cannabis in the past or were thinking about it are not represented in this report.

CURRENT MEDICAL CANNABIS USE

Our sample, comprised largely of daily consumers of medical cannabis with more than 10 years of experience, represented perspectives of Canadians who had extensive experiences in taking cannabis for therapeutic purposes and could reflect on the impact of legalization of non-medical cannabis on the medical cannabis system. Other recent surveys of medical cannabis consumers in Canada have instead focused on individuals relatively new to the medical cannabis program and with more sporadic use of medical cannabis (e.g., weekly, as needed), reflecting perhaps a less experienced group of people who are not reliant on cannabis as part of their daily health care (19).

On average, individuals in our sample reported taking three different forms of medical cannabis, with most reporting daily use. While dried flower was the most reported form of medical cannabis, ingested products such as oils, edibles and capsules, and vaping products, appear to be growing in popularity. Dried flower, edibles and concentrates were particularly popular among individuals without authorization, whereas those who have consulted with a healthcare professional and held authorization were found to be more likely to use oils and capsules. This finding highlights the potential importance of medical authorization in educating and directing individuals towards medical cannabis products that may come with less risk with regards to lung health and intoxication. Alternatively, those without authorization may be drawn towards different medical cannabis products that receive limited support within the existing medical cannabis system (20).

The most significant finding with regards to the amount of medical cannabis utilized by current medical cannabis consumers was the difficulty they experienced in determining how much cannabis they were consuming. Individuals using both inhaled and ingested forms of medical cannabis reported being uncertain about the amount of cannabis they consumed, as well as the ratio of THC:CBD in the cannabis product. This uncertainty may reflect the variability in cannabis products utilized by respondents, product conversion challenges (i.e., dried flower vs. oil), daily shifts in cannabis use based on fluctuating symptoms, as well as the challenge in estimating dose when using inhaled forms of cannabis (21). In addition, the enforced grams per day allotment on the federal medical authorization form and the lack of dosing information on illegal cannabis products (which those without authorization were more likely to report using) may contribute to difficulties faced in estimating cannabis amount used. Further, the uncertainty expressed regarding the amount of cannabis consumed by individuals without authorization may suggest that consulting with a healthcare practitioner may result in more guidance regarding dosage. While the data related to the amount of medical cannabis consumed must be viewed with caution due to the aforementioned challenges, the median amount of dried flower reported of 2 grams/day is consistent with prior reports from Health Canada (10).

With regards to relative levels of THC and CBD in the medical cannabis products consumed by respondents, the median percentages of THC and CBD reported across dried flower, oils, edibles, vaping and capsules suggests that individuals consuming cannabis through inhaled routes are taking THC-forward products whereas those utilizing ingestible products are focused on high-CBD products. As respondents were utilizing an average of three different medical cannabis products to address a median of five unique health issues, generalizations about the relative level of THC and CBD in the products they were consuming are challenging to make as different levels of THC and CBD may have been used to address different health conditions.

The uncertainty surrounding dose and THC and CBD levels raises several concerns from a treatment and harm reduction perspective. Foremost, understanding the efficacy and side effects of medical cannabis in the absence of dosing information creates challenges for healthcare practitioners attempting to engage in shared treatment decision making with individuals. Without knowing the dose and THC and CBD levels consumed by an individual, advice regarding increasing or decreasing one's dose or shifting to a different product is near to impossible. In addition, documenting the efficacy of different doses of medical cannabis and THC and CBD levels across health conditions provides valuable clinical data for healthcare practitioners working in such a nascent field as medical cannabis, and offers an important starting point for future clinical trial research. In the context of harm reduction, the lack of dose and THC and CBD level information prevents healthcare practitioners from understanding the thresholds at which severe side effects may arise for certain individuals. Knowing the minimal dose required for the effective management of symptoms and health conditions will allow healthcare practitioners to co-create treatments plans with individuals that will minimize risks related to such side effects as cognitive impairment, dizziness, anxiety, and paranoia (20).

PURPOSE AND REASONS FOR TAKING MEDICAL CANNABIS

Our findings regarding the purpose and reasons associated with medical cannabis use highlight the complex nature of cannabis as both a therapeutic agent and a recreational substance. While an overwhelming majority of respondents with and without medical authorization reported taking medical cannabis to directly treat a health condition, it was also used by nearly half our sample for recreational purposes. However, the fact that those without medical authorization were significantly more likely to report using cannabis for non-therapeutic purposes underscores the importance of retaining a medical cannabis program in Canada. By seeking medical authorization, Canadians have an opportunity to not only discuss the potential efficacy and safety of medical cannabis, but also the potential risks associated with the recreational use of cannabis. Without such a program, Canadians will be forced to seek products and advice within a recreational market that is not only geared towards the consumption of high-THC products but is legally restricted from offering recommendations related to medical use of cannabis.

The findings regarding the purpose and reasons underlying medical cannabis use also point to potential gaps in health care and treatment experienced by Canadians. The health conditions most often reported by respondents to be managed by medical cannabis – chronic pain, sleep issues, anxiety, and depression - are among those that have proven to be particularly challenging to address within the conventional medical system (22,23). With over 80% of the sample reporting medical cannabis to "work well" in managing their health conditions and 61% perceiving it to work better than other medications they have taken, it is not surprising that medical cannabis is seen to be a valid treatment alternative, particularly for health issues that they may have struggled for years to find relief. However, the positive perspectives expressed regarding effectiveness may have also been the result of a sampling bias, with our analyses focused solely on current cannabis consumers.

Respondents in our sample also reported utilizing medical cannabis in what has been increasingly framed in the literature as a harm reduction approach (24,25); namely, to reduce the consumption of other medications perceived to hold significant risk. The types of drugs that respondents reported using cannabis as a replacement for, including non-opioid and opioid pain agents, anti-anxiety medications, and anti-depressants, come with the potential of life-altering side effects, including dependency, liver toxicity, suicidal ideation, fatigue, and sexual dysfunction. While cannabis is far from a benign substance, Canadians may be weighing the perceived benefits and risks of medical cannabis against those associated with medications they have been prescribed (26,27). Further, the fact that many respondents also reported taking cannabis as an adjuvant therapy alongside other medication speaks to the importance of addressing polypharmacy and drug interactions within HCP consultations.

HEALTH EFFECTS OF MEDICAL CANNABIS

Further to the complexity of medical cannabis, respondents often took cannabis to manage up to five different health conditions. While chronic pain, sleep issues and mental health issues were among the most prevalent health conditions reported to be managed by medical cannabis, respondents also utilized cannabis to treat symptoms such as muscle spasms, nausea and vomiting, and poor appetite. Overall, respondents perceived medical cannabis in a very positive light with regards to effectiveness, rating it to be moderately to extremely effective across almost all health conditions. Poor appetite, nausea, agitation, epilepsy/seizures, and sleep issues were among the health conditions or symptoms that medical cannabis was perceived to be the most effective. In contrast, cannabis was perceived to be less effective for such conditions as obesity, diabetes, irritable bowel syndrome/colitis, and autism.

Despite the high perceived effectiveness of medical cannabis, most respondents reported experiencing minor side effects, including dry mouth, cough, and feeling tired. An intriguing finding was that those individuals who did not have medical authorization were more likely to report experiencing side effects than those with authorization. This may be a consequence of lacking clinical guidance regarding dose, cannabis product, and frequency of use, or the use of unregulated cannabis products in which potency information about THC/CBD is not available. In the recent Health Canada report, side effects arising from incorrect use of medical cannabis (e.g., wrong dose, incorrect product) was a frequent explanation provided by respondents for why they experienced an adverse effect (19).

While randomized controlled trials measuring the effect of medical cannabis on both objective and patient-reported outcomes are required before any formal conclusions can be reached about the overall efficacy and safety of cannabis across a range of health conditions and symptoms, the above person-centred data provides direction regarding where future research efforts should be focused. Trials are especially needed that explore the potential efficacy and safety of medical cannabis products for sleep issues, mental health disorders, chronic pain, and seizure disorders.

MEDICAL CANNABIS AUTHORIZATION

Nearly half of the sample reported taking medical cannabis without obtaining an authorization from a physician or nurse practitioner – these included individuals who never sought authorization, those who had held it in the past, and those who sought authorization in the past but were not successful in obtaining it. This shift away from medical authorization is reflective of recent findings from the Canadian Cannabis Survey (5) and highlights a growing concern that the medical cannabis system in Canada is not addressing one of its longest standing principles that has been upheld in numerous court challenges – to allow reasonable access to medical cannabis for those Canadians with medical need (28,29).

In looking more closely at the reasons provided for not holding authorization, it becomes clear that the legalization of non-medical cannabis in late 2018 has made seeking medical authorization a moot point for many. Purchasing medical cannabis from a recreational store front is easy, less expensive than going through online licensed sellers, and less time consuming compared to waiting for product to be in stock and couriered to one's home (30). In addition, accessing medical cannabis through a recreational cannabis store allows individuals immediate access to cannabis products when running low in supply, which can be critical for symptom management and overall quality of life, as well as to test new products without a lengthy delay. Further, nearly half of respondents who reported being unsuccessful in gaining authorization in the past cited their inability to find a healthcare professional willing or able to speak about medical cannabis as a primary reason for not holding authorization.

The uncertainty about how the medical cannabis program works in Canada also speaks to the failure to provide sufficient education to not only Canadians about how to access cannabis for therapeutic purposes, but healthcare professionals, who should be a key source of information about medical cannabis. Instead, the reliance of many Canadians on the recreational cannabis market for their medical cannabis needs means many individuals may not be receiving evidence-based decision support and follow-up care that should be an essential component of high-quality, comprehensive and safe health care in Canada.

For those that held authorization, the vast majority reported obtaining medical cannabis through a licensed seller; however, a quarter also held authorization to grow medical cannabis. In looking more closely at the data, of those who were authorized to grow at home, only 55% of those individuals reported doing so. This may reflect the challenges related to growing high quality medical cannabis, as well as the structural barriers, such as restrictions around growing cannabis in rental or subsidized housing, fear of stigma and law enforcement involvement, and access to required equipment and seeds (31). It could also suggest that licensed sellers were meeting the medical cannabis needs of individuals who initially requested authorization to grow at home.

With regards to where medical cannabis authorization was obtained, only a quarter received authorization from their primary care provider or a medical specialist; instead, the majority went through a clinician employed at a medical cannabis clinic or an online medical cannabis provider. While this finding may reflect the current shortage of primary care providers in the Canadian healthcare system as well as the lack of knowledge held by many family physicians and nurse practitioners about medical cannabis (19,32–34), it poses some concerns. Foremost, having individuals seek authorization through healthcare professionals and clinics that may be less familiar with their medical history than their primary care provider raises questions about the comprehensiveness of healthcare being provided, especially when less than half of those with authorization reported attending a follow-up consultation. With many medical cannabis clinics charging a variety of fees to access services, this may also add to the financial burden and inaccessibility of medical authorization, particularly for marginalized groups.

In considering who was most likely to hold authorization to use medical cannabis, Canadians who were older, identified as a man, and reported a higher socioeconomic status were more likely to report receiving medical authorization. This speaks to the privilege that surrounds medical cannabis and how those marginalized economically may have less access to this form of health care compared to others in Canada. From an ethnicity perspective, the finding that Indigenous people were significantly less likely to hold authorization whereas those who identified as Black were 2.5 times more likely to hold authorization reflects the complicated history cannabis has held for people of colour in Canada. With Indigenous and Black Canadians historically being overly represented in those incarcerated for cannabis possession (35), being publicly acknowledged for one's therapeutic use of cannabis through authorization may be viewed as either a benefit or a risk. Lastly, the discrepancy in medical authorization status across Canada, with individuals in Manitoba and the Maritimes being less likely to hold authorization, suggests there may be regional inequities or unique barriers to authorization in these jurisdictions. Further analyses are needed to better understand these regional inequities.

SOURCES OF MEDICAL CANNABIS PRODUCTS AND INFORMATION, AND ACCESS EXPERIENCE

What became readily apparent from our findings was that most respondents were not relying on only one source of medical cannabis to meet their needs – recreational cannabis stores (both in person and online), licensed sellers, personal production and family and/or friends were each utilized as a source of medical cannabis in the past year by over 1,000 individuals surveyed. The use of multiple sources was also not influenced by medical authorization status; however, those with authorization were significantly more likely to access cannabis through legal medical and non-medical sources compared to those without authorization, who were more likely to turn to family and/or friends, dealers, and unregulated online sellers. The fact that only 35% of individuals with authorization were accessing medical cannabis only from the source designated on their authorization form suggests that legal sources of medical cannabis (i.e., licensed sellers, personal and designated growing) are not meeting the needs of medical cannabis consumers in Canada. In addition, the finding that older individuals with more financial means were more likely to report holding an authorization and to obtain medical cannabis products from licensed sellers suggests that the current medical cannabis program is not well serving the needs of individuals and groups that are marginalized and disadvantaged in Canadian society.

The popularity of recreational cannabis stores among individuals with and without authorization raises questions about what factors are pushing or pulling Canadians who are seeking medical cannabis towards this source. Are they being pushed by improper guidance from trusted sources, such as primary care providers, family members, or their peers (as per the recent Health Canada report in which 70% of healthcare professionals (n=823) recommended recreational storefronts as a source of medical cannabis (19)? Are they being pulled by the ease of being able to walk into a recreational cannabis store without spending the time, energy and expense required to seek authorization and obtain product from a licensed seller? Or are individuals seeking medical cannabis simply unaware or confused about the existing medical cannabis system and related processes? Our data, in conjunction with other study findings (19), suggest that the decision to seek medical cannabis outside of licensed sellers is complex and a reflection of concerns about cost, ease of access, and time delays as well as misunderstandings and misdirection about how to access medical cannabis in Canada. In particular, the recent Health Canada survey of 150 Canadians that obtained cannabis from licensed sellers found a quarter of individuals expressing frustration by the inability to obtain medical cannabis immediately as well as from a physical store (27%).

When we consider the preferred sources of medical cannabis of individuals with and without authorization, what becomes clear is that Canadians prefer to obtain cannabis from legal sources, including licensed sellers, recreational storefronts, and online stores. Somewhat surprisingly, pharmacies, which have not successfully launched in Canada as a supplier of medical cannabis (36), were ranked above personal and designated growing, as well as unregulated sources. It may be advantageous to reconsider the role pharmacies could play in the distribution of medical cannabis in Canada as part of the effort to reduce the use of the recreational and illegal cannabis markets by individuals that would benefit from the advice and oversight of a pharmacist.

Despite one of the intentions of legalization to promote evidence-based education about cannabis among Canadians, non-evidence-based sources of information, such as family and friends and Google remain the most frequently consulted by individuals seeking information about medical cannabis. While holding medical authorization led to a higher likelihood of consulting a primary care provider or medical specialist, between 22-35% of both authorized and non-authorized individuals reported receiving information about medical cannabis from recreational cannabis stores, which under the Cannabis Regulations, are not permitted to discuss the therapeutic potential of cannabis. These findings raise concerns about the validity of the information Canadians are receiving about medical cannabis and whether they are being supported in making informed treatment decisions. With 40% of healthcare professionals in the recent Health Canada survey reporting they are not well informed enough about cannabis to support authorizations (19), further efforts may be needed to educate healthcare professionals across the multidisciplinary healthcare team about medical cannabis as well as their important role as an evidence-based information source.

INSURANCE COVERAGE AND COST

Despite most individuals with medical authorization reporting having private health insurance or other coverage (n=2192, 74.4%) only 170 individuals, or 5.8% of all participants with medical authorization, were successful in having their medical cannabis-related claim covered, with most of these participants (92%) reporting their claim was accepted via their private health insurance. These findings highlight the fact that very few individuals with medical authorization receive coverage for their medical cannabis costs. Moreover, individuals who held medical authorization and had coverage for their medical cannabis-related expenses reported a median out-of-pocket spend of $75 per month, which was a median difference of $50 per month from other individuals who held medical authorization but did not report to having coverage for medical cannabis-related expenses.

Examining the median cost individuals spent on medical cannabis and related expenses, participants with medical authorization reported a median spend of $125 per month whereas those without medical authorization reported a median spend of $100 per month. This difference in cost may be due to a variety of factors; individuals with medical cannabis authorization reported using products that are typically more costly (i.e., cannabis oils) and using cannabis more frequently. Individuals with medical authorization also reported getting medical cannabis products from different sources in comparison to those that did not hold authorization; they were less likely to obtain cannabis from illegal sources (e.g., unregulated seller, dealer) and nearly 80% reported purchasing cannabis from a licensed seller, which incurs shipping costs with each order. Further, those with medical authorization may have additional expenses related to obtaining their medical document (i.e., medical cannabis clinic fee).

Regardless of authorization status, participants who reported an income of <$35,000/year reported spending the same amount on their medical cannabis as those making >$35,000/year. However, participants with medical authorization and making a relatively low income reported spending more on cannabis than individuals with medical authorization making >$35,000/year. This is despite a higher proportion of participants with a relatively low income reporting they received compassionate pricing (57% vs. 28%). This finding is important as individuals with less income reported paying a proportionally higher amount for their medical cannabis products relative to their yearly income. There could be multiple reasons for this. Participants who made <$35,000/year were more likely to report they were on disability than those who made >$35,000/year (34% vs. 18%), which may indicate these individuals are more ill and therefore need to take medical cannabis more frequently and in larger quantities to manage their symptom(s) or condition(s). The addition of applicable taxes on medical cannabis for those using more medical cannabis products also contributes to this form of inequity.

The cost of medical cannabis is a concern for many individuals currently taking cannabis for therapeutic purposes (37–42). As private health insurance and provincial programs (i.e., disability, worker's compensation) do not typically cover medical cannabis-related expenses, individuals are left to pay out-of-pocket, which depending on their health condition as well as medical cannabis consumption, can be incredibly costly and contribute to their financial insecurity. Further to the affordability of medical cannabis, participants were asked to rate on a 1-10 scale how affordable they perceived medical cannabis to be. Overall, participants rated the affordability of medical cannabis as 4.3 (SD 2.5), indicating that most individuals found medical cannabis to be generally unaffordable. Individuals who held medical authorization rated affordability of medical cannabis to be slightly less affordable (4.2) and participants with an annual household income of <$35,000 rated the affordability to be even lower (3.7). It is important to note the heterogeneity of perceived affordability of medical cannabis; those with a high income that used medical cannabis less frequently found the cost of medical cannabis to be more reasonable. In contrast, those who are most marginalized, including living with less income and experiencing the most disability, held the lowest perception of affordability.

Most participants with medical authorization reported that removal of applicable taxes on medical cannabis products would make medical cannabis more affordable as well as accessible. In Canada, both medical and non-medical cannabis products are subject to sales tax, as well as an excise tax paid for by the producer. This taxation structure was implemented based on Health Canada's recommendation to create a single supply of medical and non-medical cannabis in Canada. The implementation of the excise tax on medical cannabis products was also enacted due to the concern that individuals who take cannabis for recreational purposes may attempt to enter the medical cannabis system in search of less expensive product (43). However, our data does not support this; individuals with medical authorization reported paying more for their cannabis despite over half getting products from the recreational market due to costs incurred within the medical cannabis system (i.e., shipping, higher cost of product, Provincial Sales Tax). As well, ~40% of participants who never held authorization reported not knowing how the medical cannabis system worked. Further, participants who had held authorization in the past perceived cannabis products from licensed sellers to be too expensive and saw little need for authorization with the legalization of non-medical cannabis. This sentiment was supported by respondents in the recent Health Canada survey in which they reported licensed sellers to be more expensive than other sources (19). Lastly, concerns about recreational cannabis consumers accessing the medical cannabis system ignores the fact that a medical professional needs to authorise medical cannabis before an individual can purchase their products from a licensed seller.

Currently, no other prescription medicines or pharmaceuticals are subject to taxation in Canada (44). When it comes to medical cannabis, however, Canada has chosen to apply an excise tax (10%) at the same rate as recreational cannabis products and where applicable, provincial/ territorial sales tax is applied to both medical and non-medical cannabis. An exception is Manitoba, which chose in 2018 to apply provincial sales tax to medical cannabis products but not to recreational products in what was described as an effort to reduce Manitobans' use of the illicit market (45,46). The rationale for taxing medical cannabis, however, was not clear. Licensed sellers and retail stores are also required to add goods and services tax (GST) to all cannabis products, be they intended for therapeutic or recreational use. Internationally, other jurisdictions have chosen to reduce the tax burden on patients requiring medical cannabis. For example, in Colorado there is no excise tax on medical cannabis and a differential sales tax is applied to medical versus recreational cannabis (2.9% vs. 15%, respectively) (43,47).

Overall, the application of an excise tax on both recreational and medical cannabis as well as the difference in taxation between medical cannabis products and other prescription medicines has implications for how cannabis is perceived by the government, Health Canada, and the larger medical community. Segregating and alienating medical cannabis products from other prescription drugs by subjecting this medicine to taxation, sometimes at a rate greater than recreational cannabis, is a regressive taxation scheme that is inequitable for those who need to take this medicine in order to live and function.

CHANGES IN MEDICAL CANNABIS USE SINCE THE CANNABIS ACT IN 2018

Not surprisingly, the most significant shift in medical cannabis since the legalization of non-medical cannabis was where individuals obtained their medical cannabis products. Recreational stores, licensed sellers and growing at home became more popular while dealers and family/friends became less so. Thus, while legalization appears to have encouraged some individuals to pursue medical cannabis through the regulatory process and avoid unregulated sources within their communities, others chose to obtain medical cannabis through the now legal recreational market. Even more striking was the fact that over 20% of individuals using medical cannabis before 2018 made the decision to no longer access it through a licensed seller, which may reflect some of the previous issues raised regarding the time, energy and money required to access cannabis through the legal medical cannabis system. The increase in those growing at home following legalization may also be a consequence of the decreasing cost of personal medical cannabis production (48) since 2018, or perhaps the lessening of the stigma surrounding cannabis (49) as well as concerns related to engagement with law enforcement regarding home production.

From the perspective of respondents, the legalization of non-medical cannabis also resulted in licensed sellers having higher quality cannabis products. Similar findings were reported in the recent Health Canada survey (19). This may reflect a maturing industry that has seen the introduction of new varietals and cannabis products (e.g., edibles, oral strips, suppositories, and CBD-forward products) that are well suited for therapeutic purposes. The cost of medical cannabis through licensed sellers, however, continued to be an issue, with respondents moderately agreeing that their licensed seller charges more for medical cannabis products since legalization. The taxation and courier costs associated with medical cannabis purchased from licensed sellers continue to be contentious issues among patient advocacy groups in Canada (50) and may explain the popularity of the recreational market, and the persistent use of unregulated sources by some individuals.

Legalization also brought a perceived change in attitudes towards medical cannabis, with respondents reporting feeling more comfortable discussing and suggesting medical cannabis to others, except for their employers. Given the continued reports of discrimination experienced by workers who take medical cannabis (51), restrictive workplace and human resources policies related to medical cannabis (52), and the continued public education campaign that emphasizes the harms of cannabis, this hesitancy to disclose to employers is understandable.

RETAINING THE MEDICAL CANNABIS PROGRAM AND NEEDED IMPROVEMENTS

Despite the challenges experienced by respondents in accessing the medical cannabis system and their use of the recreational market to obtain medical cannabis, over half believed that the medical and recreational cannabis programs should remain separate. Another quarter were uncertain and likely either were unfamiliar with the medical cannabis system as reported in our findings, or had experienced barriers to accessing medical cannabis, such as cost or inability to secure authorization.

Holding authorization held benefit for many individuals who participated in the survey – it afforded them the opportunity to claim medical cannabis on federal income tax, receive compassionate pricing that reduced the cost of medical cannabis, and permitted them to hold higher amounts of medical cannabis than would be allowed under non-medical cannabis regulations. Not surprising, given the limited number of third-party insurance companies that cover medical cannabis expenses in Canada, as well as the lack of representation of caregivers/parents in the sample, insurance coverage and being able to access cannabis for underage children were not perceived as pertinent benefits.

LIMITATIONS

The study findings must be viewed with some caution considering the following limitations. Foremost, participants were recruited through social media, patient advocacy groups, and medical cannabis clinics. As a result, this convenience sample may not be representative of the larger medical cannabis community in Canada. A selection bias also exists in which individuals who are willing to participate and complete an online survey on their experiences and perceptions of medical cannabis may be different than individuals who decline such an opportunity. In addition, individuals who do not have ready access to internet and/or have a device to complete the survey online were not able to participate in the study (e.g., homeless, living in poverty, incarcerated). The survey was also only offered in English and French, limiting participation by new immigrants and individuals who primarily speak other languages. The results presented here in this report are not weighted on factors such as region, sex, or age based on the underlying Canadian population, however, when weighting was explored, minor differences in proportions were observed.

The survey itself was investigator-developed and has not gone through rigorous psychometric testing. However, it went through numerous iterations following consultations with patient advocates and was reviewed by leading medical cannabis experts in Canada. Pilot testing was undertaken within the medical cannabis advocacy community and final revisions completed prior to survey launch.

The possibility of the survey being completed inauthentically by a computer program (i.e., bot) in the attempts to enter the draw for a gift card must be acknowledged. Several preventive strategies, however, were employed including requiring human authentication before beginning the survey, the use of enhanced fraud detection software embedded in Qualtrics, and the detection of multiple responses obtained from the same device. As a result, numerous invalid surveys were omitted from the data analysis.

Finally, like any observational, cross-sectional study, the associations observed between study variables may be due to other factors that were not measured or accounted for.

CONCLUSIONS

These study findings present an overview of the diverse, complex nature of medical cannabis access in Canada.

The authors of this report have developed the below recommendations for consideration during the consultation process to review the medical cannabis access program in Canada. Review of these proposed recommendations is welcomed from all stakeholders, including the Government of Canada, Canadian provincial governments, Health Canada, Ministers of Health, healthcare professional regulatory bodies, associations, and organizations, health professionals, health care institutions and clinics, and patient advocacy groups.

There is an unmet need for ongoing, sensitive and specific consultation with patients, healthcare professionals and other interested and affected groups to provide advice to the Government of Canada on matters related to the health, well-being, and quality of life of individuals who take medical cannabis.

This data highlights the complex landscape of medical cannabis, access challenges and unmet needs among the patient community, supporting the importance of locating patients at the heart of consultations. The Cannabis Act is currently under review by a federally appointed Expert Panel, with no representation from patients, relevant clinicians, and researchers and minimal accessible opportunities for input on the medical cannabis framework.

Continued consultation and information gathering must include accessible and inclusive methodology that facilitates a better understanding of the experience of remote and marginalized populations in Canada, as well as caregivers of paediatric and other patients who are underrepresented in this sample population.

RECOMMENDATIONS

Based on the findings of this study, six key recommendations have been developed that should be actioned as part of the federally mandated review of the Cannabis Act and Regulations, as well as implemented within provincial/territorial policy and programming.

1 DESIGN, IMPLEMENT, AND MAINTAIN A FORMALIZED EVALUATION OF THE MEDICAL CANNABIS FRAMEWORK IN CONSULTATION WITH PATIENTS AND KEY EXPERTS

- This data highlights the complex landscape of medical cannabis, access challenges and unmet needs among the patient community, but the Cannabis Act is currently under review by a federally appointed Expert Panel with no representation from patients, relevant clinicians, and researchers and minimal accessible opportunities for input on the medical cannabis framework.
- There is an unmet need for ongoing, sensitive, accessible, and specific consultation and information gathering with the diverse community of patients and caregivers, healthcare professionals, marginalized communities and other impacted groups on all regulations and matters related to the health, well-being and quality of life of individuals who take medical cannabis.

2 MAINTAIN REASONABLE ACCESS TO CANNABIS THROUGH A DEDICATED MEDICAL FRAMEWORK EMBEDDED WITHIN THE CANNABIS REGULATIONS

- This data highlights that Canadians using cannabis for medical purposes without medical authorization spoke to healthcare professionals less, relied more on internet and other non-evidence-based and unqualified sources of information, were less certain about how much medical cannabis they were taking, and were more likely to experience adverse effects and obtain medical cannabis from unregulated sources than individuals with medical authorization.
- The majority of respondents with medical authorization agreed that there was value in retaining the medical cannabis program as separate from the recreational cannabis market due to its unique exemptions, benefits, and products.

3 IMPLEMENT CHANGES TO CANNABIS REGULATIONS, TAX POLICY, AND INSURANCE FORMULARIES TO REDUCE OUT-OF-POCKET COSTS ASSOCIATED WITH MEDICAL CANNABIS AND RE-DIRECT USE AWAY FROM THE UNREGULATED MARKET

- Cost was identified as a substantial barrier to accessing cannabis for medical purposes. Canadians with the lowest income reported the highest out-of-pocket expenses related to medical cannabis.
- Medical cannabis is the only medication that is subject to excise duty and sales taxes. Participants who held medical authorization shared that removing sales tax would make it easier to access medical cannabis and reduce the use of unregulated sources.
- Individuals who had current medical authorization reported spending more on cannabis and only 5% indicated that they received some level of reimbursement for medical cannabis costs under any insurance plan or coverage.
- The tax burden faced by individuals should be addressed through the elimination of sales taxes and reforms to federal excise duty directed towards benefitting those who take medical cannabis.
- Private and public payers are encouraged to review the status of medical cannabis on their formularies and consider expanding covered indications. Employers should also consider adding medical cannabis as part of their group benefit plans.

4 DEVELOP, IMPLEMENT, AND EVALUATE HEALTHCARE PROFESSIONAL EDUCATION TRAINING FOCUSED ON MEDICAL CANNABIS ACROSS THE MULTIDISCIPLINARY HEALTHCARE TEAM

- Respondents perceived a lack of knowledge among healthcare professionals about cannabis for medical purposes.
- The majority of individuals who were denied a medical authorization to take medical cannabis perceived a lack of understanding or stigma from their healthcare professional as key reasons. The recent survey of healthcare professionals by Health Canada found around half of clinicians are not well informed about the usage of cannabis for medical purposes and do not recommended cannabis as a therapeutic option due to lack of information about dosage (19).
- With funding support and resources from federal and provincial/territorial government agencies, healthcare professional regulatory colleges and training programs are encouraged to collaborate on the development of key competencies needed to provide safe and informed care related to medical cannabis.
- Inclusion of medical cannabis on healthcare professional credentialing exams, and the creation of medical cannabis curricula for the diverse healthcare professional community in Canada is needed.

5 EXPAND REASONABLE ACCESS TO MEDICAL CANNABIS BY ADDING COMMUNITY PHARMACY DISPENSING

- Currently, there are no or very limited dedicated in-person access points for medical cannabis designated under the Cannabis Regulations. Respondents highlighted the lack of in-person access points for medical cannabis as a challenge and identified a need for community pharmacy dispensing of medical cannabis and evidence-based information.
- The majority of respondents reported taking medical cannabis alongside other medications. There are possible drug-drug interactions and safety considerations that must be considered when using medications, including cannabis, which require oversight from pharmacists.
- The expansion of medical cannabis access through community pharmacies would encourage consultation with pharmacists about the efficacy, safety, and appropriate product usage of medical cannabis, as well as address delays in receiving cannabis products.

6 MAINTAIN AND AMPLIFY A FEDERAL RESOURCE HUB THAT PROVIDES UPDATED, EVIDENCE-BASED INFORMATION AND RESOURCES ABOUT MEDICAL CANNABIS

- In this study, the majority of respondents reported using Google to find information on cannabis for medical purposes. A substantial proportion also reported being unaware about the medical cannabis program in Canada.
- Existing healthcare professional resources developed by Health Canada have not been updated since October 2018 (3). As clinical evidence on medical cannabis continues to increase, resources need to be updated on a regular basis for healthcare professionals and institutions.
- ·Effort should be made to develop a federal resource hub that is accessible to all Canadians, contains updated and evidence-based information, forms, and algorithms that are informed by clinicians and researchers, and individuals with lived experience of taking medical cannabis.
- To support the development of evidence to inform clinical decision making about medical cannabis, a well-funded, coordinated national research strategy focused solely on medical cannabis is urgently needed.

GLOSSARY

Cannabis: Plant of the species Cannabis sativa. Includes all plant materials: flowers, leaves, seeds, stalks, and other materials, phytocannabinoids, and derivative products (cannabis resins, extractions and other products). Synonym: Marihuana, Marijuana (outdated use).

CBD: Cannabidiol; second most abundant cannabinoid in the cannabis plant. CBD is a non-psychoactive compound in cannabis.

Chronic pain: Recurrent or constant pain that lasts more than 3 months, and that can result in suffering, disability and physical disturbances. Frequent condition for which patients seek medical cannabis treatment.

Compassion club: Retail location selling cannabis; illegal in Canada under the current regulations.

Designated Production: A legal framework in which an individual is authorized to grow a limited number of cannabis plants for their personal use or for the use of a registered person who is unable to produce their own cannabis due to a medical condition.

Designated grower: An individual who is authorized to produce cannabis on the behalf of a medical cannabis patient.

Dried flower: The harvested and dried buds of the cannabis plant, which can be smoked or vaporized for their effects.

Drug interaction: The impact on the activity of a drug when combined with another substance (can be a drug, food, etc.). The drug activity can be increased or decreased depending on the mechanism of the interaction

Edibles: Cannabis-infused food products that can be ingested through the mouth, such as baked goods, candies, and beverages. The edible category does not include dried cannabis, fresh cannabis, cannabis plants or cannabis plant seeds.

Healthcare Professional: Individual who provides medical care, treatment, and support to patients or clients in various healthcare settings. Healthcare professionals are trained and licensed to diagnose, treat, and prevent illnesses and injuries, and to promote overall health and well-being. Healthcare professionals are responsible for assessing patients' medical conditions, developing treatment plans, administering medications, performing procedures and tests, and providing counseling and education to patients and their families. Examples include doctors, nurses, nurse practitioners, pharmacists.

Inhaled Administration: Taking a medication where the active ingredient is transformed into a vapour or smoke and aspired into the lungs.

Interquartile range (IQR): The difference between the 75th percentile and the 25th percentile for a specific variable or data. The IQR provides a measure of the spread of the central part of the distribution.

Intoxicating effect, "feeling high": State of altered consciousness or impairment caused by the ingestion or use of substances that affect the central nervous system, such as alcohol, drugs, or certain medications.

Licensed Sellers: Companies that are legally authorized to grow, process, and sell cannabis for medical purposes. Previously known as *licensed producers.*

Medical Authorization: The legal permission granted by a healthcare professional to take and access medical cannabis for a therapeutic purpose.

Medical Cannabis Access Survey (MCAS): This present research study conducted by the University of Manitoba, SheCann Cannabis, Medical Cannabis Canada, Santé Cannabis, and McGill University.

Medical Cannabis: Cannabis that is used for therapeutic purposes, such as pain management, nausea relief, or treatment of other medical conditions.

Medical Cannabis Regulations: Regulates access to cannabis for medical purposes under the Cannabis Act

Medical Document: Document provided by a healthcare professional to support [authorize] the use of cannabis for medical purposes. The Medical Document is a legal authorization, and is not defined as a prescription or included in the category of prescription of drugs available in pharmacies.

Non-medical Cannabis: Cannabis used for other purposes than medical ones, including for recreational purposes.

Oral Administration: Taking a medication via the mouth. Products for oral administration include cannabis oils, capsules/softgels, sprays and cannabis edible.

Odds ratio: Measure of the strength of association between categorical variables. An odds ratio greater than 1 indicates that the event is more likely to occur in the comparator group, while an odds ratio less than 1 indicates that the event is more likely to occur in the reference group.

P-value: A measure of how likely it is that the results of a study occurred by chance alone. A smaller p-value (in this study we use <0.01) indicates stronger evidence that there is a significant difference or association.

Personal Production: The legal cultivation of a limited number of cannabis plants for personal use, either for medical or recreational purposes, in accordance with local laws and regulations.

Possession Limit: Regulations allow patients to store as much cannabis as they want at home. Public possession limits for authorized patients registered with a federally licensed seller or with Health Canada is the lesser of 150 grams or a 30-day supply of dried cannabis (or the equivalent in cannabis product) in addition to the 30 grams allowed for non-medical purposes.

Prescription: Written instruction by a medical practitioner for a medication or treatment. Concerning a medication, it usually includes the name and quantities of medication, dose frequency and directions for compounding by a pharmacist.

Recreational Cannabis: Cannabis that is used for non-medical purposes, such as for relaxation, socialization, or enjoyment. Recreational cannabis may be obtained through recreational stores, personal production, or illegal sources such as a dealer.

Self-medication: Self-administration of a medication or treatment in an attempt to relieve symptoms or improve a condition, without recommendation, instructions or monitoring from a healthcare professional.

THC: Tetrahydrocannabinol, the most abundant cannabinoid in the cannabis plant. THC is the main psychoactive compound in cannabis, meaning it's the compound responsible for the "high" associated with taking cannabis.

Vaping: Inhaling and exhaling an aerosol produced by a vaping product, such as an electronic cigarette (also electronic cartridge vapourizer, e-cigarette, vape, vape-pen

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SUPPLEMENTARY TABLE 1. REPORTED HEALTH CONDITIONS DIAGNOSED BY A HEALTHCARE PROFESSIONAL SEPARATED BY MEDICAL AUTHORIZATION STATUS

Health Condition	Hold medical authorization	Do not have medical authorization	All
Alzheimer's disease	12 (0.4%)	1 (<0.1%)	13 (0.2%)
Amyotrophic Lateral Sclerosis	9 (0.3%)	7 (0.3%)	16 (0.3%)
Anxiety	1475 (51.0%)	1531 (62.3%)	3006 (56.2%)
Arthritis	1220 (42.2%)	812 (33.0%)	2032 (38.0%)
Attention Deficient Hyperactive Disorder	336 (11.6%)	465 (18.9%)	801 (15.0%)
Autism	81 (2.8%)	91 (3.7%)	172 (3.2%)
Bipolar	158 (5.5%)	180 (7.3%)	338 (6.3%)
Cancer	212 (7.3%)	140 (5.7%)	352 (6.6%)
Cardiovascular Disease	142 (4.9%)	97 (3.9%)	239 (4.5%)
Chronic Pain	1742 (60.3%)	1129 (45.9%)	2871 (53.7%)
Colitis	72 (2.5%)	71 (2.9%)	143 (2.7%)
Crohn's disease	84 (2.9%)	59 (2.4%)	143 (2.7%)
Diabetes	280 (9.7%)	261 (10.6%)	541 (10.1%)
Depression	1213 (42.0%)	1366 (55.6%)	2579 (48.2%)
Eating Disorder	159 (5.5%)	218 (8.9%)	377 (7.0%)
Endometriosis	175 (6.1%)	166 (6.8%)	341 (6.4%)
Epilepsy	54 (1.9%)	43 (1.7%)	97 (1.8%)
Fibromyalgia	649 (22.4%)	375 (15.3%)	1024 (19.1%)
Other Gastrointestinal	677 (23.4%)	590 (24.0%)	1267 (23.7%)
High Blood Pressure	608 (21.0%)	476 (19.4%)	1084 (20.3%)
Liver Disease	67 (2.3%)	72 (2.9%)	139 (2.6%)
Low Back Pain	1162 (40.2%)	958 (39.0%)	2120 (39.6%)
Lung Disease	347 (12.0%)	327 (13.3%)	674 (12.6%)
Migraines/Headaches	851 (29.4%)	746 (30.3%)	1597 (29.9%)
Multiple Sclerosis	98 (3.4%)	51 (2.1%)	149 (2.8%)
Muscular Dystrophy	11 (0.4%)	4 (0.2%)	15 (0.3%)
Short Term Pain	155 (5.4%)	156 (6.3%)	311 (5.8%)
Overweight	610 (21.1%)	686 (27.9%)	1296 (24.2%)
Parkinson's	8 (0.3%)	2 (0.1%)	10 (0.2%)
Post traumatic stress disorder	727 (25.1%)	706 (28.7%)	1433 (26.8%)
Polycystic ovarian syndrome	109 (3.8%)	144 (5.9%)	253 (4.7%)
Sleep Disorder	1039 (35.9%)	804 (32.7%)	1843 (34.4%)
Spine Disorder	355 (12.3%)	185 (7.5%)	540 (10.1%)
Traumatic Brain	159 (5.5%)	98 (4.0%)	257 (4.8%)
Other Diseases	472 (16.3%)	333 (13.5%)	805 (15.0%)