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Is There a Doctor in the House? Patient Experiences Regarding Information-Seeking and Provider Advice in New Jersey's Medicinal Cannabis Program

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Abstract

Background: To ensure medical oversight in an environment of rapidly expanding medicinal cannabis use, states have established a framework of state-sponsored medicinal cannabis programs (MCPs), with regulatory standards governing qualifying medical conditions and care-monitoring by authorized health providers. Whether MCP regulations strengthen medical oversight, however, is unclear, given the notable lack of research into health communications and provider practices within MCPs. This paper addresses this gap by providing information from the patient's perspective about medical information-seeking and advice within New Jersey's MCP, including the types of cannabis-related medical advice patients desired, sources of information and the factors affecting the receipt or non-receipt of medical guidance from MCP-authorized providers.

Methods: Adult (18+) registered medicinal cannabis users (n = 228) were recruited for this online study as part of a larger, population-based, statewide survey of New Jersey cannabis users conducted in 2022–2023. Respondents were questioned about medical advice sought and received with respect to dosage, side effects, tolerance, withdrawal symptoms and strains. Descriptive statistics, chi-square analysis, ANOVA and multivariable logistic regression were used as appropriate to describe patients' information-seeking behaviors and identify factors associated with receiving advice from MCP-authorized health providers.

Results: Findings revealed a sizeable communication gap between patients and their MCP-affiliated providers. Only 52% received advice from their provider in any of the five topic areas studied while dispensary staff provided information to 85% of patients. The primary driver of patient-provider non-communication was online certification with a medicinal cannabis specialty provider. Patients certified by a cannabis specialist *in person* or by an established provider, such as their primary care provider, were three-four times more likely to have received information than patients certified online. Primary care providers, however, were significantly underrepresented among MCP-authorized providers. Women, patients over age 50 and patients with PTSD were also less likely than others to receive provider advice.

Conclusions: While some states require in-person only certification and monitoring, New Jersey and other states permit all medical monitoring to be conducted virtually. More stringent state requirements surrounding MCP provider training, patient certification and care management may enhance medical oversight while ensuring safer cannabis use and more effective outcomes.

Introduction

By 2025, medicinal cannabis (MC) had been legalized in forty states, three territories, and the District of Columbia.[1] Although the evidence base is sparse, emerging research has found potential therapeutic benefits of cannabis for a number of medical and psychiatric disorders, including certain chronic pain conditions, muscle spasticity, chemotherapy-induced nausea, social anxiety and PTSD.[2–4]Any potential medicinal benefits of cannabis, however, are offset by a number of troubling medical, psychiatric and

cognitive side effects, including the risk of cannabis use disorder.[5,6] Further, many MC patients use cannabis in conjunction with, or as a replacement for, prescribed medications,[3,7,8] a practice which, in the absence of medical monitoring, may lead to disease recurrence and/or drug-cannabis interactions, particularly in older adults with co-morbid conditions.[10,11] The risk of unwanted medical outcomes is further exacerbated by the increasing potency of cannabis products, with the THC content of some products marketed to medicinal users exceeding 70%.[12]

The use of highly potent forms of MC and its attendant medical and psychological risks highlight the need for medical oversight of patients who use cannabis therapeutically. The creation of state-regulated Medicinal Cannabis Programs (MCP) represents an attempt by states to promote such oversight. In New Jersey, for example, physicians must certify that patients have a qualifying medical condition, establish treatment plans and conduct regular follow-up visits to monitor patient progress and response to therapy.[13] The extent to which such MCP regulatory requirements actually strengthen medical supervision of MC patients, however, is unclear, given the notable lack of research into health communications and provider practices within state-sponsored MCPs. Much current research into health provider attitudes, knowledge and practices surrounding MC, has involved surveys of mostly non-MCP-affiliated health practitioners,[7, 14–19] while surveys of cannabis-using patients frequently focus on disclosure of cannabis use to health providers, especially primary care providers (PCPs) who are typically also non-MCP-affiliated.[7, 16] These studies show that, in general, health providers have mixed opinions about cannabis' therapeutic value and feel they lack knowledge about its use,[15,18] while patients hesitate to disclose cannabis use to providers due to stigma and/or perceptions of limited provider knowledge.[7,16] Although ambivalence and non-involvement of non-MCP-affiliated health providers in patients' MC care is not surprising, state regulations require greater engagement of providers authorized to provide this care. The few studies focused specifically on MCP-authorized providers, however, describe similar limitations. Kaplan and colleagues (2020), for example, found that Washington State MCP-affiliated providers were unfamiliar with the state's qualifying medical conditions or the regulations governing cannabis' medicinal use, while those with active MCP patients failed to universally adhere to all state MC care management requirements. Although the number of studies focused on MCP-authorized providers is limited, even fewer quantitative studies have examined medical oversight from the perspective of MCP patients. One small, qualitative study of MCP patients in Pennsylvania[20] however, found that most respondents reported receiving little or no education on the use of cannabis from their certifying healthcare providers.

The dearth of studies on the quality and content of communication between MCP patients and the providers responsible for their care constitutes a significant gap in current research. Especially lacking is information on the extent to which MCP patients receive basic guidance about appropriate dosages and products, management of side effects or the development of tolerance, information that is central to the patient's ability to utilize MC safely and achieve the best possible medical outcomes. This paper attempts to address some of these research gaps by providing information from the patient's

perspective about medical information-seeking and advice within New Jersey's MCP (NJMCP). Specifically, this study aims to answer the following questions:

1. What sources of medical advice, including health providers and non-medical sources, do New Jersey MCP patients turn to for guidance about their MC use?
2. What types of information do patients identify as important for effective MC use and which sources have provided this information?
3. What patient-level and physician-level factors are associated with obtaining MC-related information from certifying physicians?

Methods

Participants in the current study were recruited as part of a large, population-based survey of New Jersey cannabis users (the New Jersey Cannabis Use Survey (CUS))[21] conducted in 2022–2023. CUS participants were recruited from the 2023 New Jersey Survey of Drug Use and Health (NJSDUH),[22] a population-based survey of New Jersey adults (age 18+) conducted periodically by the NJ Division of Mental Health and Addiction Services (n = 22,700). All NJSDUH participants who reported cannabis use in the past 12 months were redirected upon survey completion to a Rutgers website where they were invited to participate in the CUS. Of the 4,333 NJSDUH respondents reporting past-year cannabis use, 1,796 (41%) completed the CUS. Of these, 228 were actively enrolled in the NJMCP and provided the data on which the current paper is based. More detailed information on NJSDUH and CUS survey methods can be found at Borys et al., 2024 and Borys et al., 2025.

Measures

Status as a licensed medical cannabis card holder was measured with a yes/no item asking if the participant had been registered as a patient in the NJMCP in the past 12-months.

Our outcome measure, receipt of information from a certifying health provider, was obtained by asking respondents, "Did any of the following sources give you information about marijuana strains, dosage, side effects, tolerance or withdrawal symptoms?" Respondents who reported their certifying provider as a source of at least one category of advice were coded as having received information. A similar strategy was followed to measure receipt or non-receipt of advice from other sources (other health providers; dispensary staff; internet; other cannabis users; family and/or friends).

To measure types of desired information, respondents were asked: "Do you feel you need more information in any of the following areas to make your treatment more effective (Check all that apply)?" Responses included: best strains for my condition; proper dosage; management of side effects, tolerance and withdrawal.

Circumstances surrounding MCP certification and enrollment included questions pertaining to year of enrollment, MCP referral source (self-referred; friends/family; PCP; other health provider), and type of

certifying provider (PCP; other established health provider; new provider seen only for certification). Respondents seen by a new provider were asked if their certifying visit occurred online or in person.

Qualifying medical conditions were measured by asking respondents to select all that apply from a current list of New Jersey MCP qualifying conditions. Additionally, respondents were asked to select the condition they considered their primary, or “most troublesome” condition. Measures of cannabis use practices included items asking frequency of use in the last three months (none, 1x/month or less, 2-3x/month, 1-2x/week, 3-5x/week, daily or almost daily), primary mode of administration (smoke, vape, capsules/tablets, store-bought edibles, homemade edibles, infused beverages, tinctures, oil syringes/pastes, other), primary cannabis strain used (indica-dominant, sativa-dominant, or hybrid/equal use of both), and recreational use of cannabis (“Have you ever used marijuana for non-medical/recreational purposes?”). Additional items included check-off lists of acute adverse side effects experienced and questions regarding developing tolerance.

Problem cannabis use was measured using the 19-item Marijuana Problem Scale (MPS), a widely used measure of negative life consequences associated with cannabis use in the previous three months. Respondents are prompted to rate each potential problem as either “no problem, “minor problem” or “major problem.” In psychometric testing, the instrument has shown good internal reliability (alpha = 0.88) and test-retest reliability (r = 0.81 and 0.73).[23] A total MPS severity score was obtained by summing all items in the scale.

Perceived effectiveness of MC was measured by asking respondents to rate MC effectiveness in treating their primary qualifying condition on a scale of 0%-100%.

Finally, standard measures of demographic characteristics obtained information on age, gender, race/ethnicity, marital status, education and employment.

Data Analysis

We used descriptive statistics to characterize the sample as a whole. We then used analysis of variance and chi-square analysis, as appropriate, to describe and compare MCP participants who did and did not receive information about MC use from their certifying provider on all relevant measures. To further explore factors associated with information receipt, we entered all independent variables showing a bivariate relationship with the dependent variable (p=.10) into a multivariable logistic regression analysis, while controlling for age, race and ethnicity. All variables presented in descriptive tables as categorical, such as perceived effectiveness of MC and MPS problem scores, were treated as continuous variables in the bivariate and multivariable analyses.

Results

Demographic Characteristics

As shown in Table 1, participants had a mean age of 45 and were mostly White (65.5%) and female (63.2%). More than half were married or living as married (58.4%). Respondents were well-educated, with 30.1% having some college education and 54.4%, a college degree or higher. Only 50% were employed full-time, while 30.1% were unemployed and not actively looking for work due to disability, retirement, student status or other reasons.

MCP Enrollment Characteristics

Only 7.5% of participants had enrolled in New Jersey's MCP before 2018, the year medicinal cannabis expansion began in NJ. The majority enrolled in 2018–2020 (41.7%) and 2021–2023 (50.9%). Most participants (59.2%) were self-referred to the MCP, with only 8.3% referred by their PCP and 15.4%, by a health provider other than their PCP.

Most participants (65.4%) obtained MCP certification from a new provider specifically seen for that purpose. Only 11.8% were certified by their PCP and 22.8% by an established provider other than their PCP. Among participants who saw a new provider, most (62.1%) completed the certification visit online, not in person.

Participants reported a range of conditions for which medical cannabis was sought, with most respondents reporting more than one condition. The most common conditions were anxiety (70.2%) and chronic pain (53.1%), followed by post-traumatic stress disorder (PTSD) (22.8%), migraines (16.2%), inflammatory bowel disease (7.9%), cancer (3.9%), and multiple sclerosis (3.5%).

Characteristics of Medicinal Cannabis Use

Daily cannabis use was reported by 59.2% of patients, while 29.8% used monthly but not daily and 11.0% used once a month or less. On days they used cannabis, 43.6% reported using once a day, 35.5%, two to three times per day, and 21.1%, three or more times per day. The most frequent administration route was smoking (48.7%), followed by edibles and beverages (24.6%) and vaping (21.1%). Other routes, such as tinctures, pills, or syringes, were less commonly used (5.7%). Most participants reported using hybrid strains or both sativa and indica-dominant strains equally to treat their primary qualifying condition (55.9%). Indica-dominant strains were used by 28.6%, and sativa-dominant strains, by 15.5%.

In terms of negative side effects, 26.3% of respondents experienced at least one adverse effect in the past 12 months, including panic reactions (8.8%), faintness/dizziness (7.9%), disassociation or depersonalization (7.0%), paranoia (6.6%), nausea or vomiting (6.1%) and depression (4.4%). Nearly a quarter (23.2%) of respondents developed a tolerance to MC. More than half (52.6%) used cannabis recreationally as well as medicinally and 9.2% reported one or more major problems associated with cannabis use on the Marijuana Problem Scale (MPS). However, over half of respondents (50.9%) reported no problems and 39.9% reported minor problems only.

Overall, the majority (84.2%) of MCP patients rated MC as 50% or more effective in treating their primary qualifying condition, with 22.8% rating it as 90% effective or higher.

[Insert Table 1 **Here]**

Sources and Content of Information on MC Use

As shown in Fig. 1, the most frequently consulted source of information overall was dispensary staff (84.6%), followed by the internet (61.0%) and the patient's friends and family (53.9%). Certifying health providers were no more likely to provide information (52.2%) than friends and family. Only 14.9% received information from another established provider, such as their PCP or medical specialist.

When asked about types of information patients felt they needed to better manage their conditions (Fig. 2) respondents most frequently mentioned information on cannabis strains (50.0%), followed by proper dosage (39.9%) and managing tolerance (36.8%). Somewhat fewer patients were concerned with managing side effects (25.9%) and withdrawal symptoms (25.0%).

As shown in Table 2, dispensary staff were the most frequent information source for respondents' two top informational needs, strains (81.6%) and dosage (58.8%). Certifying health providers were substantially less likely to provide advice on strains (38.2%) and dosage (36.4%). Only 6.6% received information on strains, and 7.5% on dosage, from a health provider other than their certifying provider. Information on tolerance, the third highest informational priority, was obtained by comparable proportions of patients from the internet (24.6%), the certifying provider (24.6%), and dispensary staff (24.1%). Information on side effects was most frequently obtained from dispensary staff (37.7%), the certifying provider (34.2%) and the internet (33.8%), while information on withdrawal was obtained from the internet (19.7%), the certifying provider (13.2%) and dispensary staff (12.7%).

Table 2
Types of Advice on Use of Medicinal Cannabis Patients Received from Each Information Source

Advice Source	Type of MC Advice Received				
	Strain (% of Patients)	Dosage (% of Patients)	Tolerance (% of Patients)	Side Effects (% of Patients)	Withdrawal (% of Patients)
Dispensary Staff	81.6	58.8	24.1	37.7	12.7
Internet	54.8	36.0	24.6	33.8	19.7
Social Network	48.2	31.1	17.5	21.5	10.1
Certifying Provider	38.2	36.4	24.6	34.2	13.2
Other Established Health Provider	6.6	7.5	6.6	9.2	5.3

Correlates of Receipt of MC Information from Certifying Health Providers

As shown in Table 3, African Americans were significantly more likely than other racial/ethnic groups to receive advice ($X^2 = 8.52; p=.036$), while there was a non-significant trend for patients aged 50 + to be less likely than younger patients to receive advice ($X^2 = 4.44; p=.109$). The type of certifying provider was highly related to information receipt, with low information being more likely among patients certified online by a new provider compared to those certified by their PCPs, other established providers or new providers in person ($X^2 = 9.09; p=.028$). Similarly, the patient's qualifying medical condition was related to advice, with patients having PTSD as their primary condition being less likely to receive advice than those with other qualifying conditions ($X^2 = 9.97; p=.019$). Advice was also associated with preferred cannabis strains, with patients using sativa-dominant strains being less likely to have received advice than those using indica-dominant or hybrid strains ($X^2 = 8.97; p=.011$). Patients who received provider advice were also more likely to give MC higher ratings of effectiveness in treating their primary qualifying conditions ($X^2 = 5.29; p=.022$).

Not related to provider advice was gender, marital status, education or employment, year of MCP enrollment, the mode of cannabis delivery, frequency of cannabis use, recreational use, development of tolerance, side effects or problem use.

[Insert Table 3 **Here]**

Multivariate Analysis of Factors Associated with Receipt of Health Provider Advice

Multivariable analysis (Table 4) showed that receipt of information was most likely among males (AOR = 2.44; 95% CI = 1.23–4.83; *p*=.010) and Black patients (AOR = 4.08; 95% CI = 1.18–14.15; *p*=.027), but significantly less likely among older patients aged 50+ (AOR = 0.38; 95% CI = 0.19–0.79; *p*=.009) and patients whose primary qualifying condition was PTSD (AOR = 0.09; 95% CI = 0.02–0.41; *p*=.002).

Table 4
Multivariable Logistic Regression Estimating Correlates of Receipt of Health Provider Advice About Medicinal Cannabis Use

Variable	**AOR (95% CI)**	***p***
Demographic Characteristics		
Male	2.44 (1.23–4.83)	**.010**
50 and Older	0.38 (0.19–0.79)	**.009**
Non-Hispanic Black	4.08 (1.18–14.15)	**.027**
Primary Qualifying Condition		
Anxiety	0.51 (0.21–1.24)	.137
Pain	0.73 (0.30–1.73)	.469
PTSD	0.09 (0.02–0.41)	**.002**
Type of Certifying Provider		
PCP	3.73 (1.25–11.14)	**.018**
Medical Specialist/Other Established Provider	3.11 (1.35–7.16)	**.008**
MC Specialist Seen in Person	4.09 (1.78–9.39)	**< .001**
Preferred Strain for Primary Qualifying Condition		
Indica-Dominant	2.97 (1.02–8.65)	**.046**
Hybrid	3.76 (1.41–10.04)	**.008**
Perceived Effectiveness of MCP for Qualifying Condition	1.02 (1.00-1.03)	**.020**
Nagelkerke R^2 .294		
*Reference Categories (in order): Female/Other; Younger Than 50; White, Hispanic or Other Ethnicity; All Other Qualifying Conditions; MC Specialist Provider Seen Online Only; Sativa-Dominant		

In terms of MCP enrollment characteristics, provider advice was significantly more likely among patients certified by PCPs (AOR = 3.73; 95% CI = 1.25–11.14; *p*=.018), other established providers (AOR = 3.11; 95% CI = 1.35–7.16; *p*=.008) or new providers seen in person (AOR = 4.09; 95% CI = 1.78–9.39; *p*<.001) compared to patients certified by a new provider online.

In terms of cannabis use characteristics, provider advice was significantly associated with preferred cannabis strain. Compared to patients who used sativa-dominant strains, patients who received advice were more likely to use hybrid (AOR = 3.76; 95% CI = 1.41–10.04; *p*=.008) or indica-dominant strains (AOR = 2.97; 95% CI = 1.02–8.65; *p*=.046). Finally, receiving provider advice was positively associated with higher ratings of cannabis' therapeutic effectiveness (AOR = 1.02; 95% CI = 1.00-1.03; *p*=.020).

Discussion

This study of medical oversight and patient information-seeking in New Jersey's MCP revealed a sizeable communication gap between patients and their certifying providers. Overall, only 52% of patients received provider advice in at least one of the five topic areas studied, compared to nearly 85% who received advice from dispensary staff. Further, more patients received advice from dispensary staff than from providers in areas considered basic to the prescribing of controlled medications,[24–26] such as appropriate dosages (58.5% vs. 36.4%) and the management of side effects (37.7% vs. 34.2%). This finding is similar to findings of Kaplan et al. (2020), who found that less than half of MC certifying providers in Washington State "always" or "very often," discussed how to use cannabis or recommended product types. Although Sajdeya et al. (2021) found somewhat greater communication in Florida's MCP, only 62% of certifying providers "often" or "always" provided specific recommendations about dosage.

Additionally, only 12% of MCP patients were certified for the program by their PCP, reflecting a well-documented hesitancy among PCPs nationally to recommend or support cannabis treatment.[7,15,27] Studies suggest this hesitancy may reflect limited formal training, uncertain evidence of MC effectiveness, regulatory ambiguity, and/or liability concerns.[28] Compounding the disengagement of PCPs from patients' MC care is a notable lack of care coordination between PCPs and MC-certifying providers.[29] This is especially concerning in the context of medication substitution. In one Michigan study, 86% of cannabis users reported substituting cannabis for their prescribed medication, with 44% of those who substituted reporting no PCP knowledge of the substitution and 69% reporting some communication gaps.[7] As a result, medicinal cannabis has become siloed from patients' routine health care, impeding the integration of medicinal cannabis into mainstream medical practice while reducing opportunities for medication management, monitoring of benefits or side effects, and coordinated care of complex conditions.

Filling the information gaps for cannabis users, findings show that dispensary staff became patients' primary sources of advice, rendering them the de facto medical counselors for MC patients. Other studies have noted the prominent informational role of dispensary workers, despite their variable medical training.[30–32] While dispensary staff generally offer recommendations based on product familiarity,[31,33] patient reliance on non-medical information sources raises concerns about unverified recommendations,[32] financial conflicts of interest to sell products,[34] absence of ongoing medical assessment of patients, and potential drug-cannabis interactions.[35]

In multivariable analysis, the type of certifying provider and the circumstances surrounding the certification process were key to whether MC patients received health provider advice. Over 65% of patients in the current study were certified by a new provider who marketed MC specialty services online. While many specialists have established, office-based medical practices in the state (e.g. family practice or pain clinics), others provide exclusively online certification services through national medical cannabis "clinics." In the current study, 62% of MC specialist patients completed their certification visit online. In multivariable analysis, online certification was a key driver of patient-provider non-communication. Patients certified by their PCP, another established provider, or an MC specialist *in person*, were three to four times more likely to have received provider advice than patients certified online. While online certification visits do not necessarily imply future online-only assessments, many of the largest MC specialty clinics that certify New Jersey patients, such Compassionate Care Clinics of America, offer telehealth services only.[36]

Patient demographic characteristics were also found to significantly influence patient-provider communication, with women and patients aged 50 and older being significantly less likely than others to receive health provider advice. These findings parallel larger trends toward gender and age bias in medical communications and treatment across a range of medical specialties.[37–42] The clinical consequences of such disparities may be significant. Adults aged 50+, for example, are adopting cannabis at a faster rate than younger age groups[43] yet remain at greater risk of falls[44] and cannabis-drug interactions, given their higher rates of multimorbidity and multiple medication use.[45] Women are more likely to have cannabis-related medical problems,[46–47] experience a faster onset of cannabis use disorder[48–50] and suffer more severe adverse medical, psychological and functional consequences from addictive disorders than men, including more severe withdrawal symptoms.[51] These findings thus suggest a significant gap in the medical monitoring of two vulnerable populations for whom MC use may pose an especially high risk.

In contrast, Black patients were found to be four times as likely to receive provider guidance as other racial/ethnic groups, a finding consistent with at least one other study in which Black oncology patients reported greater comfort than White patients in discussing MC with their providers.[52] Rates of cannabis use have been rising faster among Black Americans than Whites, with increases also noted among Black patients with conditions commonly treated by MC, such as epilepsy, irritable bowel syndrome and chronic pain.[53–54] Additionally, studies suggest that Black Americans experience lower pain thresholds than Whites yet are more likely to encounter providers who either underestimate their pain or have insufficient resources to adequately diagnose and treat it.[54] These factors may not only increase Black patients' desire to use cannabis for pain management, but their higher pain levels may prompt greater assertiveness in seeking information from MC providers.

Patients with PTSD were notably less likely to receive provider advice than those with other qualifying conditions. While the reasons for this gap are unclear, studies show that PTSD patients who use cannabis are more likely than PTSD patients with no cannabis use to have mental health comorbidities,

lower cognitive functioning, reliance on avoidance coping strategies and, despite greater psychiatric problems, no corresponding increase in mental health treatment engagement.[55] This tendency toward avoidance and reduced care-seeking may partially explain the lower levels of patient-provider communication among cannabis-using PTSD patients.

Our multivariate analysis also showed a preference for indica and hybrid strains over sativa strains among patients who received provider advice. Although there is some evidence that sativa and indica strains as popularly defined produce different subjective and physiological effects,[56–58] the validity of the popular strain distinction has been questioned due, in part, to the extensive hybridization of modern products.[59–60] Presumed differences in the physiological effects of sativa and indica, however, appear on numerous cannabis-related websites,[61] and dispensary staff often recommend indica and/or hybrid strains over sativa strains for chronic pain, anxiety and insomnia.[32, 62] Given our incomplete understanding of the effects of phytocannabinoids on human physiology,[63] it is possible that certifying providers' recommendations are influenced by popularized ideas about strains. Sajdeya et al. (2021) for example, found that 93% of MC providers in Florida obtained information about cannabis from online sources and 90%, from cannabis dispensary staff.

Although lack of communication between patients and their certifying providers was pervasive, our analysis showed that patients who received advice rated their cannabis treatment as more effective than patients who received no advice. This finding is consistent with that of Clobes et al. (2025), who found higher treatment efficacy ratings among patients who collaborated with a cannabis clinician or whose PCP knew of their cannabis use. Communication and guidance from healthcare providers may thus positively influence patients' satisfaction and, ultimately, their treatment outcomes, potentially through clearer expectations, better usage instructions, and/or increased confidence in the treatment plan.

While a limited research base and lack of standard clinical protocols reduce the ability of MC-prescribing clinicians to provide clear clinical recommendations, consensus-based MC practice guidelines have emerged in recent years, including protocols for treating specific medical conditions, guidelines for low-risk use, and recommendations for core clinician competencies for MC prescribing and management.[65–67] However, wide variations in state regulations governing MC may contribute to patient-provider communication gaps by reducing provider incentives to participate in evidence-based learning opportunities and/or to conduct office-based certification and assessment visits. Many states, including New Jersey, require no CME or other training for MC-authorized providers,[68] thus reducing the level of medical expertise in those areas in which standards and evidence do exist. Similarly, while some states, such as Florida, require patients and providers to be physically present in the same room during patient certification visits and annual assessments,[29] many states, including New Jersey, permit all patient-provider communications to be conducted online,[69] a practice this study found significantly reduces patient-provider communication in all areas of cannabis prescribing and monitoring. The current study results thus suggest that more stringent state requirements surrounding MCP provider training, patient

certification and care management may enhance medical oversight while insuring safer MC use and more effective treatment outcomes.

Limitations

Our sample included only 228 participants and thus may not represent all patients enrolled in New Jersey's MCP.[70] However, the sample was derived from a population-based, representative sample of New Jersey cannabis users[22] and includes respondents from all 21 New Jersey counties whose distribution of qualifying medical conditions closely matches those of MCP enrollees statewide. Demographically, however, study respondents were somewhat more likely than all enrollees to be female (63% vs. 47%) and under age 50 (68% vs. 56%), possibly reflecting a tendency for lower participation of males and older adults in online surveys generally.[71] (See Additional File 1 for demographic characteristics and qualifying medical conditions). Further, the experiences of current survey respondents are unlikely to reflect those of MC patients nationally, given the wide divergence in state MCP regulations and practices. Because this was a cross-sectional survey, associations between patient characteristics and receipt of medical advice do not imply causality. Also, recall bias may have affected reporting of past cannabis use practices as well as MC-related communications with health providers.

Despite these limitations, this is one of the few quantitative surveys to measure patient-provider communications in MC programs from the perspective of patients. Further, it is one of the first to document the negative effects of MCP telehealth certifications and assessments on information-sharing between patients and their providers, with the findings arguing for changes in state regulatory requirements involving provider education and oversight of MC patients.

Declarations

Ethics approval and consent to participate: The current study was approved by the Rutgers Institutional Review Board (IRB). All participants completed an informed consent prior to participating in any study activities.

Consent for publication: Not applicable.

Availability of data and materials:

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests: The authors declare that they have no competing interests.

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Tables

Table 1
Sample Demographic Characteristics and Characteristics of Medical Cannabis Program Enrollment and Medical Cannabis Use

Demographic Characteristics		**MCP Patients (*n* = 228) % or Mean (SD)**
Mean Age		45.19 (14.43)
Gender	Male	35.1
	Female	63.2
	Gender Minority	1.8
Race/Ethnicity	White	65.5
	African American	9.3
	Hispanic	18.1
	Other	7.1
Marital Status	Married or Living As	58.4
	Never Married	22.6
	Divorced/Separated/Widowed	19.0
Education	Less Than High School or High School Grad	15.5
	Some College	30.1
	College Grad+	54.4
Employment	Full-Time	50.0
Status	Part-Time	12.8
	Unemployed, Looking	7.1
	Unemployed, Other (Retired, disabled, student, etc.)	30.1
MCP Enrollment Characteristics		
[1]*MCP patients who saw a new provider for MCP Certification only (n = 145)*		
[2]*Opioid Use Disorder, Dysmenorrhea, Seizure Disorder, Glaucoma, HIV or AIDs, Intractable Skeletal Spasticity, Muscular Dystrophy*		

Demographic Characteristics		MCP Patients (*n* = 228) % or Mean (SD)
Year of MCP Enrollment	2017 or before	7.5
	2018–2020	41.7
	2021–2023	50.9
Who First Suggested MC as Treatment	The Patient	59.2
	Friends/Family	17.1
	Primary Care Provider	8.3
	Other Specialist/Clinician	15.4
Who Certified Patient for MC	Primary Care Provider	11.8
	Other Specialist/Clinician	22.8
	New Provider for MCP Certification	65.4
Medical Enrollment Visit Type[1]	Saw the Provider in Person	37.9
	Saw the Provider Online Only	62.1
Patient Qualifying Conditions for MC Card	Anxiety	70.2
	Chronic Pain	53.1
	Post Traumatic Stress Disorder	22.8
	Migraines	16.2
	Inflammatory Bowel Disease	7.9
	Cancer	3.9
	Multiple Sclerosis	3.5
	Other[2]	9.6
Medical Cannabis Use		

[1]*MCP patients who saw a new provider for MCP Certification only (n = 145)*

[2]*Opioid Use Disorder, Dysmenorrhea, Seizure Disorder, Glaucoma, HIV or AIDs, Intractable Skeletal Spasticity, Muscular Dystrophy*

Demographic Characteristics		MCP Patients (*n* = 228) % or Mean (SD)
Frequency of MC Use in the Last Three Months	Once a Month or Less	11.0
	Greater Than Monthly, but Not Daily	29.8
	Daily	59.2
Frequency of MC Use on Days Used	Once a Day	43.6
	2–3 Times a Day	35.5
	3 + Times a Day	21.1
Most Frequent Mode of MC Administration in Last 12 Months	Smoking (Joint Pipe, Bong)	48.7
	Edibles and Beverages	24.6
	Vaping (Cartridge or Bud)	21.1
	Other (Tinctures, Pills, Syringe)	5.7
Cannabis Strains Preferred for Treating Primary Qualifying Condition Overall	Sativa Dominant	15.5
	Indica Dominant	28.6
	Hybrid Strains or Used Sativa and Indica Equally	55.9
Perceived Effectiveness of Cannabis in Treating Primary Qualifying Condition	Less than 50% Effective	15.8
	50%-75% Effective	36.0
	76%-89% Effective	25.4
	90%+ Effective	22.8
Acute Adverse Side Effects of MC Experienced in the Last 12 Months	Experienced Any Adverse Side Effects	26.3
	Panic Reactions	8.8
	Feeling Faint/Dizzy	7.9
	Disassociation/Depersonalization	7.0
	Paranoia	6.6

[1]*MCP patients who saw a new provider for MCP Certification only (n = 145)*

[2]*Opioid Use Disorder, Dysmenorrhea, Seizure Disorder, Glaucoma, HIV or AIDs, Intractable Skeletal Spasticity, Muscular Dystrophy*

Demographic Characteristics		MCP Patients (*n* = 228) % or Mean (SD)
	Nausea/Vomiting	6.1
	Depression	4.4
	Flashbacks	1.3
	Hallucinations	0.9
	Other	4.8
Developed a Tolerance to Medical Cannabis		23.2
Uses Cannabis Recreationally AND Medicinally		52.6
Marijuana Problem Scale Responses	No problems on all items	50.9
	One or more minor problems but no major problems	39.9
	One or more major problems	9.2

[1]*MCP patients who saw a new provider for MCP Certification only (n = 145)*

[2]*Opioid Use Disorder, Dysmenorrhea, Seizure Disorder, Glaucoma, HIV or AIDs, Intractable Skeletal Spasticity, Muscular Dystrophy*

Table 3
Bivariate Associations Between MCP Patient Characteristics and Receipt of Health Provider Advice about Medical Cannabis

	Received Health Provider Advice about Medical Cannabis (*n* = 127)	**Did NOT Receive Health Provider Advice about Medical Cannabis (*n* = 101)**		
Demographic Characteristics	**Mean or % (SD)**	**Mean or % (SD)**	***X*^{2} or F**	***p***
Age			4.44	.109
18–35	28.6	28.4		
36–49	42.0	30.3		
50+	29.4	41.3		
Sex			1.39	.238
Male	38.7	31.2		
Female/Other	61.3	68.8		
Race/Ethnicity			8.52	**.036**
White	59.3	72.2		
Black	14.4	3.7		
Hispanic	18.6	17.6		
Other	7.6	6.5		
Marital Status			3.95	.139
Married or Living as Married	52.5	64.8		
Never Married	27.1	17.6		
Divorced/Widowed/Separated	20.3	17.6		
Education			3.33	.189
Less Than High School or High School Grad	19.5	11.1		
Some College	27.1	33.3		
College +	53.4	55.6		
Employment			0.31	.858
Full-Time	48.3	51.9		

	Received Health Provider Advice about Medical Cannabis (*n* = 127)	Did NOT Receive Health Provider Advice about Medical Cannabis (*n* = 101)		
Demographic Characteristics	**Mean or % (SD)**	**Mean or % (SD)**	χ^2 or F	*p*
Part-Time	13.6	12.0		
Unemployed	38.1	36.1		
MCP Enrollment Characteristics				
Certifying Health Provider			9.09	**.028**
Primary Care Provider	14.3	9.2		
Medical Specialist or Other Established Provider	25.2	20.2		
MC Specialist Seen in Person	30.3	21.1		
MC Specialist Seen Online Only	30.3	49.5		
Primary Qualifying Medical Condition			9.97	**.019**
Anxiety	36.1	37.6		
Pain	34.5	36.7		
PTSD	3.4	11.9		
Other	26.1	13.8		
Year Enrolled in MCP			2.16	.141
2013–2020	53.8	44.0		
2021 or later	46.2	56.0		
Cannabis Use Characteristics				
Preferred Strain for Primary Qualifying Condition			8.97	**.011**
Sativa	8.8	23.2		
Indica	28.9	28.3		
Hybrid or Equal Use of Both	62.3	48.5		
Most Frequent Mode of Delivery			2.07	.558
Smoke	52.1	45.9		

	Received Health Provider Advice about Medical Cannabis (*n* = 127)	Did NOT Receive Health Provider Advice about Medical Cannabis (*n* = 101)		
Demographic Characteristics	**Mean or % (SD)**	**Mean or % (SD)**	χ^2 or F	*p*
Vape	17.6	24.8		
Eat or Drink	25.2	25.7		
Other	5.0	3.7		
Frequency of Medical Cannabis Use			0.87	.647
Monthly or Less	11.8	10.1		
More than Monthly but Less Than Daily	31.9	27.5		
Daily	56.3	62.4		
Recreational Use			0.01	.922
Uses Recreationally AND Medicinally	52.9	52.3		
Uses Medicinally Only	47.1	47.7		
Developed Tolerance to Cannabis			2.14	.143
Yes	19.3	27.5		
No	80.7	72.5		
Mean Number of Adverse Effects from Cannabis Use	0.39 (0.90)	0.58 (0.99)	2.32	.129
Perceived Effectiveness of Cannabis in Treating Primary Qualifying Condition	74.08 (20.78)	67.05 (25.30)	5.29	**.022**
Mean Score on Marijuana Problem Scale (MPS) Score	1.53 (3.23)	1.82 (3.18)	0.46	.501

Figures

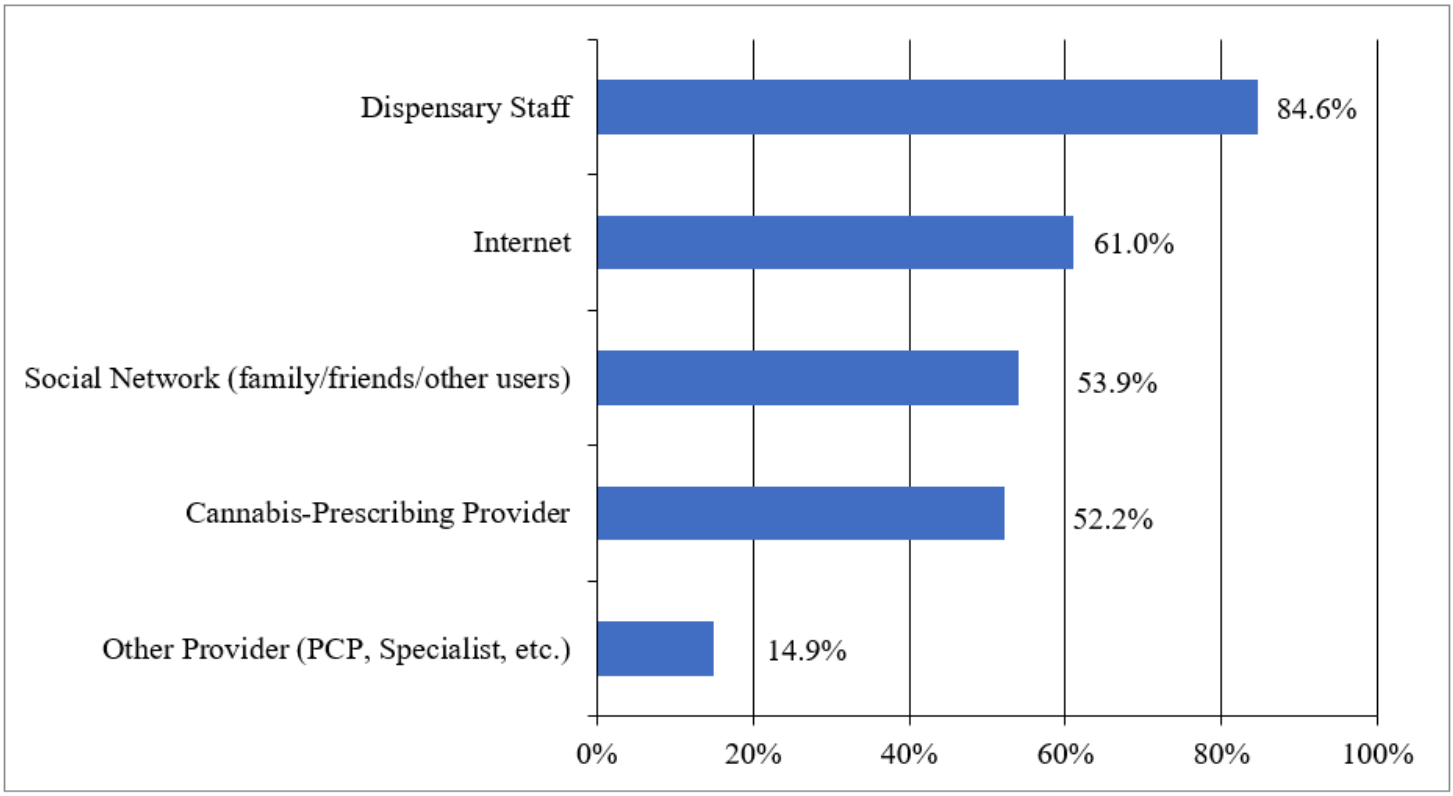


Figure 1

Sources of Medical Cannabis Information: Proportion of MCP Patients Who Received Information from Each Source

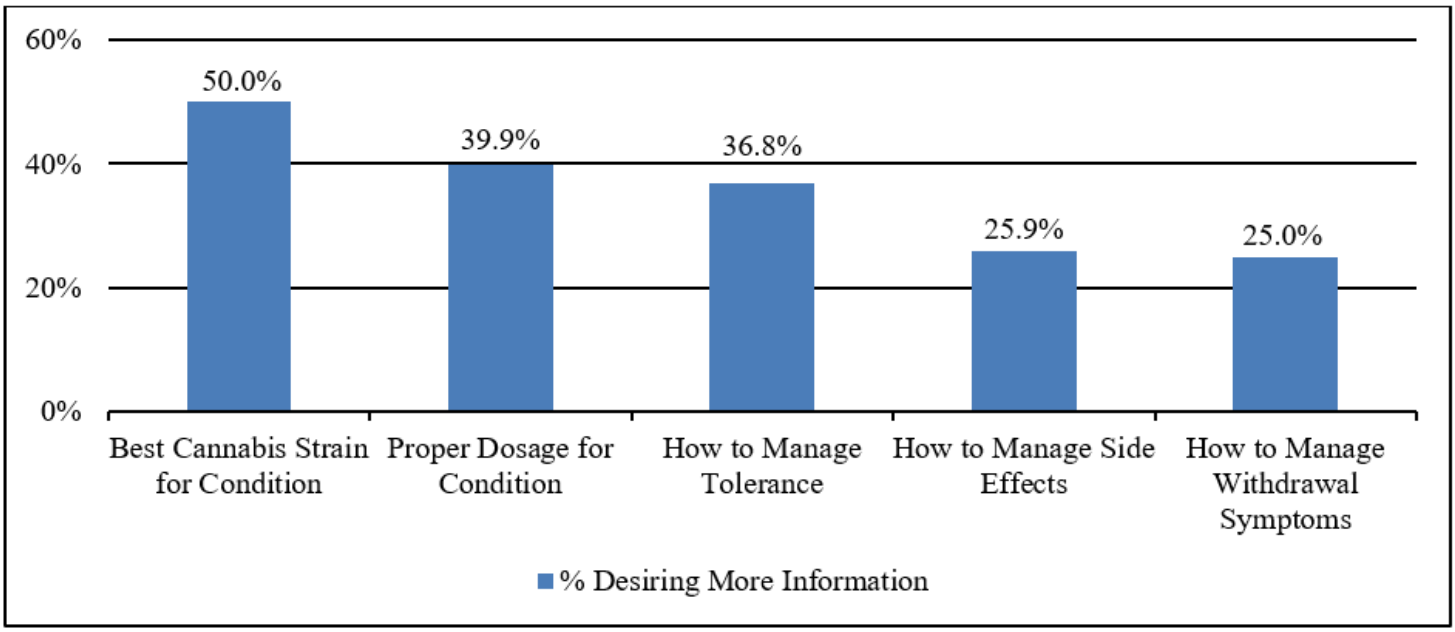


Figure 2

Types of Information Desired to Make Treatment More Effective

Supplementary Files

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- AdditionalFile1SupplementalTable1.docx