Exploring the Knowledge and Attitudes of Medical Doctors in South Africa towards Medical Cannabis: A Qualitative Study

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Research Article

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Abstract

Background

The attitudes and perceptions of medical practitioners towards medical cannabis is important to understand. A qualitative study was conducted to examine the attitudes and knowledge of medical doctors in South Africa towards medical cannabis.

Methods

Twenty medical doctors were recruited for online semi-structured interviews, which were guided by predefined themes including knowledge, legislation, willingness to prescribe, and potential risks. The data collected was analyzed using thematic analysis.

Results

There is a general discomfort with the current level of knowledge about medical cannabis among participants, with many expressing a lack of personal knowledge and concern about the quality and accuracy of public information. There is also confusion and uncertainty about the legislation surrounding medical cannabis, with some participants stating that it is unclear or vague, and others reporting that their institutions have negative or exclusionary positions on the use of cannabis in medical treatment. Additionally, participants cited a lack of protocols and access to pharmaceutical grade cannabis as primary impediments to prescribing medical cannabis, and expressed concerns about the potential long-term side effects of abuse and the lack of head-to-head clinical trials with varying cannabinoid subtypes.

Conclusion

The study suggests a need for more education and training on medical cannabis, as well as clearer guidelines and protocols to facilitate its safe and effective use in medical treatment.

Introduction

The term “medical cannabis” refers to the use of cannabis and its derivatives as a form of therapeutic intervention to treat either a medical condition, its symptoms, or the adverse effects of medical treatment, such as cancer chemotherapy. Historically, cannabis has been utilized for its medicinal attributes. The psychoactive effects of tetrahydrocannabinol (THC), one of the main cannabinoids in cannabis, have led to its use for recreational purposes, which has historically overshadowed its potential medical uses. This has made it difficult to conduct research on the medical benefits of cannabis, as it is classified as a controlled substance in many countries. As a result, there is a lack of clinical data on the safety and
effectiveness of medical cannabis for treating specific medical conditions \(^1\). However, the increasing legalization of medical cannabis in some countries has led to a growing body of research on its potential medical uses, and it is thought that cannabis may have therapeutic potential for a variety of conditions, including chronic pain, multiple sclerosis, epilepsy, and other neurological disorders \(^2,^3\).

The regulatory framework for medical cannabis is constantly evolving. Legislation varies considerably according to region or country, hence is not well understood. Despite progress, information on methods of administration, accurate dosage, and feedback on treatment efficacy is still not widely available. The attitudes and perceptions of medical practitioners towards medical cannabis is also important to understand. To date, no study has investigated the knowledge, preparedness and willingness of medical practitioners in low and middle-income countries to prescribe medical cannabis. This study aims to explore these parameters in South Africa, where legislation surrounding medical cannabis have recently changed.

Cannabis legislation was passed by the South African Constitutional Court in 2018. This was followed by the Cannabis for Private Purposes Bill in October 2020. This bill focused primarily on the private consumption of cannabis for recreational purposes; hence little has changed in the medical and research landscape \(^4,^5\). According to a 2019 African Cannabis Report, medical cannabis patients in South Africa need to request permission from the Medical Control Council (MCC) citing exceptional circumstances. A registered practitioner then needs to provide a suitable dosage regimen and ensure the patient is closely monitored whilst on treatment. Medical cannabis products need to be registered with the Department of Health and the South African Health Products Regulatory Authority (SAHPRA). However, according to the Medicines Act, permission can be granted to authorized practitioners to prescribe unregistered products provided it has been imported and is of pharmaceutical grade \(^6\).

**Methods**

This qualitative study was designed to collect descriptive and conceptual findings through online semi-structured interviews with medical doctors practicing for at least two years in South Africa.

South Africa was chosen for this study because 1) medical cannabis laws were amended within the past five years; 2) regulatory framework for prescribing medical cannabis is being developed; and 3) some individuals are already accessing medical cannabis.

Twenty medical doctors were recruited via an email listserv provided by the South African Medical Association. The email contained a cover letter with information about the study, and that participation was strictly voluntary. Interviews were guided by the following predefined themes: knowledge, legislation, ability to prescribe, willingness to prescribe, patient inquiry, and potential risks.

Data were analyzed using thematic analysis, which utilizes systematic coding to detect patterns and themes to examine the attitudes of medical doctors towards medical cannabis. Braun and Clarke's approach to thematic analysis analyzes qualitative data by identifying, coding, and interpreting patterns.
It is widely used in health and social sciences, as it allows researchers to systematically identify and interpret the meaning of patterns in data. 

**Results**

**Table 1: Participant demographic characteristics**

<table>
<thead>
<tr>
<th>Gender</th>
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<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
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<td>5</td>
<td></td>
</tr>
<tr>
<td>Western Cape</td>
<td>7</td>
<td></td>
</tr>
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<td>Gauteng</td>
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<tr>
<td>Free State</td>
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<td></td>
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<tr>
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<td>11</td>
<td></td>
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<tr>
<td>&gt;50 years</td>
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</tr>
</tbody>
</table>

**Knowledge**

For the Knowledge theme, two sub-themes emerged: lack of personal knowledge, and lack of public information. Twelve respondents expressed discomfort with their level of knowledge, primarily due to a lack of medical training on cannabis and/or the endocannabinoid system. One respondent mentioned possibly having more knowledge than peers due to Master's degree training in Medical Pharmacology. Fourteen participants expressed discomfort with the public information available on the benefits and risks of medical cannabis - citing various ranging from a paucity of evidence risk analysis, to widespread misinformation on health claims. A minority of participants expressed comfort with available information, with two participants saying they were “extremely comfortable” and “confident”.
R1: “We don’t get taught much about it in med school, my current knowledge is based more on external research”

R10: “We had no training at medical school about the endocannabinoid system or medical cannabis.”

R3: “I do not believe the information is entirely accurate and more geared to marketing of products.”

R17: “I’ve read a lot and done CPD courses on it, therefore I am comfortable with the information I’ve gathered”

Legislation

Twelve participants claimed that legislation was largely vague, unclear and confusing. There were also discordant views on the prescribing of medical cannabis. Another four participants stated they were unaware of any legislation regarding medical cannabis.

R4: “It is very grey. There are not much actual guidelines”

R5: “Legislation does not allow prescribing cannabis, but personal use is permitted under a constitutional court ruling”

R7: “The legislation is reasonably clear in terms of scheduling and who may prescribe. However, the actual implementation of policy is unclear”.

R8: “Are there government legislation except that it is not a criminal offence anymore?”

Ability to prescribe

Participants were asked about their institution’s position on medical cannabis. Six stated their institution held a positive position, highlighting that cannabis has its place in medical treatment. Four participants stated their institution held a negative/exclusionary position on cannabis, highlighting that medical cannabis was not available to patients via their institution. Six participants stated they did not know of their institution’s position, while three stated their institution held no position on the matter.

R18: “We are very excited about the potential benefits for many different patients”.

R6: “It is not used as we do not have enough information.”

Eight participants stated they had limited to no knowledge of where patients could access pharmaceutical grade cannabis. Two participants reported having a “fair” amount of knowledge. Some
elaborations regarding access presented contrasting views, however, participants overwhelmingly reported there were no protocols in place to facilitate prescribing of medical cannabis.

*R1: “I have minimal knowledge as we never received official training on it. As far as I know there is no access to pharmaceutical grade cannabis currently”*

*R16: “My knowledge is fair. I am currently involved in cannabis research however the differences in product formulations and administration raises new challenges.”*

**R3: “Purchasing the drug is illegal”**

**R17: “Pharmaceutical grade cannabis is available through Section 21”**

**R10: “I believe people are selling but not commercially.”**

The primary impediment to prescribing was a lack of knowledge, information and training on medical cannabis. Two participants cited long-term side effects from potential abuse.

*R1: “There are no guidelines available and I do not know where the patients would receive the cannabis”*

*R10: “Some of the impediments to prescribing cannabis are:*

- Lack of head-to-head clinical trials with varying cannabinoid subtypes.
- Lack of experience of clinicians with medical cannabis.
- Lack of formal training regarding medical cannabis.

- Red tape accessing, manufacturing & dispensing safe medical cannabis.”

*R4: “A major impediment is the lack of information on long-term safety, especially regarding psychiatric complications”*

**Willingness to Prescribe**

Participants were asked whether they would recommend CBD, THC or both/neither to patients. Five participants reported not knowing enough to prescribe either THC or CBD. Another five participants stated they would prescribe neither of the cannabinoids, primarily citing safety issues and available alternatives. Four recommended the use of both THC and CBD. Three mentioned CBD only, possibly related to its non-psychoactive effect compared to THC. In general, Five participants were in support of prescribing medical cannabis, albeit with conditions. Three were not in support, while others remained unsure. Two main circumstances participants were willing to prescribe medical cannabis were for patients undergoing palliative care and those experiencing chronic pain. Other conditions mentioned included insomnia, with
one participant mentioning it can be prescribed for many conditions. Several mentioned they would not prescribe for any condition.

*R3: “If I know enough, I may consider it, if there are evidence published about the benefits”*

**R8: “What are THC and CBD?”**

**R2: “I would prescribe neither as there are alternatives with better data and efficacy”**

*R1: “I would stick to conventional drugs, but I may recommend if options are limited or if other treatments have failed”*

*R17: “I would recommend both THC and CBD: you need the whole array of cannabinoids and terpenes.”*

**R18: “I would say both. Each have their own therapeutic uses in theory and practice.”**

*R11: “I would recommend cannabis for palliative care yes. For other only if I know enough and are convinced of the benefits.”*

**R2: “I think more research is needed before we can prescribe.”**

**R15: “I would prescribe it for chronic pain, palliative care, certain psychiatric conditions.”**

*R4: “I would only consider prescribing it when and where it is indicated as a potential therapeutic option.”*

**Patient Inquiry**

Participants were asked about patient inquiries since the laws have been amended. Six stated not having any inquiries, whereas four stated having numerous, even as much as 50 patients. Six participants reported receiving less than 10 patient inquiries, with one participant saying one, two and three inquiries respectively.

Six participants mentioned the basis of their patient inquiry was related to pain, three mentioned cancer, two mentioned anxiety, while other mentioned seizures, fibromyalgia and ADHD in children. One inquiry was related to CBD and one was on where to find medical cannabis. Two participants mentioned insomnia/sleeping problems. Patients generally had low levels of knowledge on medical cannabis, with two participants mentioning patients with reasonable/intermediate knowledge
R16: “Patients were looking for help with pain, anxiety and sleep problems.”

R18: “Patients were asking mainly about pain or cancer diagnosis”

When asked about methods of administration, recommended options included oral, sublingual, topical, vaporized, and suppositories. Three participants discouraged smoking, while two were supportive of all forms of administration. Three participants reported having insufficient knowledge to recommend any particular method, and three said they would not recommend it in any form.

R18: “Oils for sublingual use, although bud for smoking may be more accessible.”

R1: “I would not recommend it until there is proper regulation in place and evidence for its use.”

Potential risks

When asked about potential negative effects of prescribing medical cannabis, addiction and risk of psychiatric effects were mentioned. Three participants stated there were no potential negative effects, whilst three claimed to not have sufficient knowledge. The majority of substitutions would have been made for pain medication, particularly opioids. Others include anxiolytics and anti-emetics

R5: “Some of the negative effects I believe are addiction, long term psychiatric effects, finding the right dose / formulation, not knowing the constituents if not tested by repeatable labs.”

Discussion

Medical cannabis is a topic that has gained increasing attention in recent years, with several countries around the world adopting legislation to allow for its use in medical treatment. However, there is still a lack of understanding among medical practitioners about the potential benefits and risks of medical cannabis, and many receive little to no training on the topic. This can lead to a reliance on anecdotal information and unreliable sources, as well as a lack of confidence in discussing medical cannabis with patients. Studies have shown that medical practitioners tend to have higher levels of knowledge and comfort with medical cannabis if they have had prior experience prescribing it, or if they have received additional education on the topic. A thematic study exploring the perceptions of US-based medical students on cannabis, identified four themes including 1) erroneous beliefs about medical cannabis 2) unreliable information sources, 3) mixed attitudes on legalization, and 4) desire for medical cannabis content in medical school training. A qualitative study exploring attitudes toward medical cannabis among family physicians in Canada identified four themes, including 1) reluctance to prescribe, 2) safety concerns, and 3) insufficient practical knowledge of both patients and practitioners. In a study among
general practitioners in Australia, although more than half supported the availability of medical cannabis on prescription, only 28.8% felt comfortable to discuss it with their patients. Support for its application was condition-specific, with more support for its use in cancer pain, palliative care and epilepsy, and less for its use in anxiety and depression \(^{10}\). In South Africa, a study among medical students at the University of Free State concluded that students generally had a low level of knowledge on medical cannabis, with higher knowledge found among cannabis users compared to non-users. The study highlighted that close to half of students could not name any potential medical benefits of cannabis; while 20% were unaware of the side effects of its use \(^{11}\). Similar findings were produced in this current study, where practitioners largely felt uncomfortable with their level of knowledge on medical cannabis. Only those with an active interest and motivated to seek additional information appeared to be more knowledgeable on the topic.

There is evidence to suggest that pharmacists may be in a better position to provide unbiased information to patients about medical cannabis, due to their higher levels of knowledge and training.

In an online survey conducted among US health practitioners (neurologists, nurses, and pharmacists), over 80% were in support of medical cannabis use, particularly for CBD. However, around half of participants reported feeling unfamiliar with cannabinoid pharmacology and their clinical applications \(^{12}\). This indicated a general paucity of information on medical cannabis in practitioner training, and the need for professional education on the endocannabinoid system and cannabinoid therapy. Among practitioners from the online survey, pharmacists reported the highest knowledge levels \(^{12}\). In this current study, the respondent with the academic background in Medical Pharmacology expressed confidence in their level of knowledge on medical cannabis. Hence, compared to doctors, pharmacists may be in a better position to present unbiased information to patients on the benefits and risks of using medical cannabis.

To facilitate the incorporation of medical cannabis into clinical practice, it is important to have clear regulation, safety and efficacy data, improved education, and regular monitoring of product quality and cost. However, there are also a number of barriers that can hinder the safe, effective, and equitable access to medical cannabis, including inadequate healthcare systems, a lack of knowledge and training among practitioners, and concerns about the quality of evidence on the medicinal value and safety of medical cannabis. In Australia, a qualitative study among physicians identified factors that facilitated the incorporation of medical cannabis into clinical practice, which included the adoption of appropriate regulation, safety and efficacy data, improved education, and regular product quality and cost monitoring. An identified hindrance to incorporation was inadequate healthcare systems required to access to medicinal cannabis safely, effectively, and equitably \(^{13}\). A systematic review of 21 studies from five countries (US, Canada, Israel, Australia, Ireland) found that whilst physician willingness to prescribe medical cannabis varied from 10% – 95% - it was higher among physicians with experience prescribing cannabis, and lower among physicians specialized in addiction treatment \(^{14}\). The review concluded on a general lack of knowledge among physicians about the clinical benefits and risks of medical cannabis. To address these issues, there is a need for more research, education, and training on medical cannabis,
as well as the development of clear guidelines and protocols to facilitate its safe and effective use in medical treatment.

Cannabinoids, including delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD), have a wide range of therapeutic effects including anti-inflammatory, anti-carcinogenic, immunomodulatory, analgesic, and neuroprotective properties. Both THC and CBD have been shown to have anti-cancer activity and stimulate neuroplastic changes in the nucleus accumbens and amygdala, which can reduce seizure activity and protect against brain injury. Cannabinoid receptors, which are present throughout the human body, are upregulated at sites of injury or inflammation, and their expression levels vary among individuals. This means that treatment response and dosage requirements may vary, and it is important to consider the most appropriate method of administration for patients. Participants in this current study were largely unaware of the mechanisms of action of THC and CBD, citing a lack of exposure during their medical training.

There are various methods for administering medical cannabis, each with their own costs and availability/accessibility. Smoking is the most effective and quickest method for delivering cannabinoids, but it also carries the risk of inhaling toxic compounds and is difficult to regulate the dosage. More research is needed on the safety and efficacy of different methods of administering medical cannabis, as well as the appropriate dosages. There is moderate evidence to support the use of medical cannabis for certain conditions such as chronic pain, chemotherapy-induced nausea and vomiting, and multiple sclerosis, but more data is needed on effective dosages and administration methods. A policy brief from the Alcohol, Tobacco and Other Drug Research Unit (ATODRU) of the South African Medical Research Council (SAMRC) presented findings from a systematic review, which showed a moderate level of evidence to support the application of medical cannabis for the treatment of chronic pain, chemotherapy-induced nausea, vomiting, and multiple sclerosis. However, this evidence was hampered by the lack of data on effective/appropriate dosages and methods of administration for medical cannabis.

There can be side effects to using medical cannabis, including anxiety, impaired driving, psychosis, cognitive impairment, and addiction, and it is important to conduct a risk assessment for patients to identify potential factors that may increase their susceptibility to adverse reactions. In a study among mental health practitioners in Canada, reported side effects of medical cannabis among some users included anxiety, relational challenges, impaired driving, psychosis, cognitive impairment, educational/employment dysfunction, and addiction.

Continuing education can improve knowledge and confidence in medical practitioners regarding medical cannabis, but there is a disconnect between this knowledge and its application in practice. In the US, findings from a continuing education module to improve knowledge, confidence, and willingness to communicate with patients on medical cannabis revealed significant improvements, particularly in knowledge of metabolism, pharmacokinetics, and drug–drug interactions.
Following the module, over half of participants reported a positive change in attitude about medical cannabis. As much as 92% reported to be more likely to ask patients about cannabis use, and 84% were more likely to counsel patients on medical cannabis. At the same time, 86% admitted to rarely or never applying their new knowledge in practice\textsuperscript{20}. Results for this current study also support the need for further education on medical cannabis and the endocannabinoid system before the full potential of this treatment can be materialized.

**Conclusion**

Based on the results presented, it appears there is a general discomfort with the current level of knowledge about medical cannabis among participants, with many expressing a lack of personal knowledge and concern about the quality and accuracy of public information on the topic. There is also confusion and uncertainty about the legislation surrounding medical cannabis, with some participants stating that it is unclear or vague, and others reporting that their institutions have negative or exclusionary positions on the use of cannabis in medical treatment. Additionally, participants cited a lack of protocols and access to pharmaceutical grade cannabis as primary impediments to prescribing medical cannabis, and expressed concerns about the potential long-term side effects of abuse and the lack of head-to-head clinical trials with varying cannabinoid subtypes.

To maximize the use of medical cannabis, it is important to conduct clinical research to assess its safety and effectiveness, educate healthcare providers about its potential uses and risks, develop guidelines for prescribing and dispensing, monitor and evaluate its use, and ensure that patients have access to it. These steps can help to ensure that medical cannabis is used appropriately and effectively, and that patients have the opportunity to benefit from it. Overall, these results suggest a need for more education and training on medical cannabis, as well as clearer guidelines and protocols to facilitate its safe and effective use in medical treatment.

**Declarations**

**Ethics approval and consent to participate**

The study adhered to the ethical principles outlined in the Declaration of Helsinki, and was designed and conducted in a manner that ensures the safety, welfare, and rights of the participants. Informed consent was obtained from all participants, and their confidentiality was protected. The study was reviewed and ethical clearance was granted by the Research Ethics Committee of the South African Medical Association (SAMAREC). All data collected during the study was kept confidential and used for research purposes only.

**Consent to publish**

Not applicable
Availability of data and materials

The dataset generated and analysed during the current study are not publicly available due to the presence of identifying information, but are available from the corresponding author on reasonable request.

Competing interests

The author declares no competing interests.

Funding

The research was conducted independently and no financial support was received for this work.

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Author Contribution

The author was the sole contributor to the manuscript, taking full responsibility for all aspects of the work presented. This included collecting and analyzing the data, interpreting the findings, and writing the manuscript's various sections.

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