RESEARCH ARTICLE

REVISED Views and practices on medical cannabis of unlicensed providers in Thailand: a qualitative study [version 4; peer review: 2 approved]

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Abstract

Background

Despite the legalization of cannabis use for medical purposes in Thailand in February 2019, illicit providers are still widespread and accessible. This study aimed to understand why people still chose to receive medical cannabis treatment or products from unlicensed or illegal providers. The practices of unlicensed or illegal providers in provision of medical cannabis products or treatment services were also examined.

Methods

Qualitative in-depth interviews were conducted among medical cannabis providers and users, including 36 unlicensed and 7 licensed providers and 25 users in 2019-2021. Snowball sampling was used to recruit participants until saturation of data was achieved. Interviews included open-ended questions about the providers' practices and attitudes towards medical cannabis. Interviews were recorded and transcribed, and thematic analysis was performed.

Results

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Overall, six reasons were identified to answer why unlicensed/illicit providers were still popular, including: 1) easy accessibility; 2) familiarity with the unlicensed providers before the legal scheme became available; 3) favorable characters (kind, supportive, non-judgmental) of unlicensed providers; 4) affordable treatment fees; 5) trust in the quality of the medicines; and 6) lack of knowledge and negative attitudes towards cannabis from healthcare professionals. Most providers started their career as medical cannabis providers by using it themselves or with their relatives and being satisfied with the results. They used cannabis products to treat all diseases, including skin, eyes, HIV/AIDS, non-communicable diseases and all kinds of cancers. Additionally, they believed that it was effective, with no or minimal adverse effects.

Conclusions

This study suggests that some patients will continue receiving medical cannabis treatment and products from unlicensed or illegal providers. More attention should be paid on increasing the capacity of medical cannabis service systems within public health hospitals, and the certification of unlicensed providers, so as to integrate them into a regulated system.

Keywords
Medical cannabis, illegal providers, prescription practice, in-depth interview, legalization, decriminalization, thematic analysis, folk healers

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REVISED **Amendments from Version 3**

This is a new version in which a few elaborations and modifications have been added according to the reviewer's comments. These include some justifications or elaborations for the inclusion of licensed providers as study participants, the follow-up visits for data collection, healthcare providers' reluctance to prescribe medical cannabis, the need to empower licensed and unlicensed providers, and the political and policy climate in Thailand with regards to cannabis legalisation. Some terms used in the previous version are also changed.

Any further responses from the reviewers can be found at the end of the article

Introduction

Legality of cannabis use in Thailand has undergone notable changes in recent years. Medical use of cannabis was legalized in February 2019. Nonetheless, cannabis remained an illegal drug until it was recently delisted in the newly amended Narcotics Code which went into effect on December 10th, 2021. On January 25th, 2022, the Narcotics Control Board approved the removal of parts of cannabis plant with no more than 0.2% tetrahydrocannabinol (THC) by weight from the Food and Drug Administration's list of controlled drugs. The decision was approved by Parliament, and the Public Health Minister then signed the announcement of the delisting, which would take effect 120 days after the announcement was published in the government gazette.

After the legalization of cannabis use for medical purpose, medical cannabis clinics, based on contemporary Western medicine and Thai traditional medicine, were piloted in government hospitals in August to September 2019, and scaled-up nationwide in 2020. The Ministry of Public Health released a guideline for the medical use of cannabis on 11th December 2019, including three groups of conditions which may benefit from medical cannabis treatment based on scientific evidence: 1) Conditions with strong evidence of benefits from medical cannabis, i.e. chemotherapy-induced nausea and vomiting, intractable epilepsy or treatment-resistant epilepsy in children, spasticity in patients with multiple sclerosis and treatment-resistant neuropathic pain, 2) conditions with evidence of some benefits (or medicinal cannabis can be used for symptomatic treatment), i.e. patients in palliative care, patients with end-stage cancer, Parkinson's disease, Alzheimer's disease, generalized anxiety disorder and other demyelinating diseases, 3) conditions which may be benefited from treatment with cannabis should there be more evidence in the future, e.g. cancers of some organs. Licensed healthcare practitioners, including medical doctors, dentists, Thai traditional medicine doctors, and folk doctors can prescribe medical cannabis products, which are registered under the Special Access Scheme (SAS). Three groups of medical cannabis products have been approved for medical use: 1) medical cannabis extracts produced by the Government Pharmaceutical Organization or Chao Phraya Abhaibhubejhr Hospital, including three formulas: one-to-one THC to CBD ratio, CBD predominant and THC predominant; 2) Thai traditional medicine with approved compositions (13 regimens) produced by Chao Phraya Abhaibhubejhr Hospital, and 3) folk-doctor cannabis oil produced by the Department of Thai Traditional and Alternative Medicine of the Ministry of Public Health (MoPH). Despite this scale up of medical cannabis clinics, access to registered products for patients had been difficult as indications for prescription were limited and regulations regarding possession as well as production of medical cannabis were constricted. However, illicit cannabis trade from illegal medical cannabis suppliers, recreational dealers, and online suppliers, also became widespread and more accessible during this period.[1]

Previous studies have shown that people use medical cannabis for a variety of health conditions, such as pain, mental health and sleep problems and through its use felt relief of their condition.[2–4] A study in Australia, in the early phase after legalization, indicated that the main sources of supply of medical cannabis were from recreational dealers, friends or family, illicit medicinal cannabis and online suppliers, and by growing their own.[2] In Canada one year after non-medical cannabis legalization, 47.7% of buyers of dried flowers in the past year said they last bought them lawfully.[5] A recent study also shows that although medical cannabis has been legalized for two decades in Canada, 50% of individuals who were currently authorized to use cannabis for medical purposes accessed cannabis from illegal sources.[6]

Studies in Canada[7] and the United States of America (USA),[8] where medical cannabis is legally available, indicated that physicians felt reluctance or ambivalent to authorize cannabis use for their patients, because of either a lack of knowledge or unfamiliarity with pharmacology, formulations, dosing of cannabis, lack of product standardization, lack of research examining the effectiveness and risks of cannabis use, and uncertainty regarding the policies. A study in Israel also indicates that physicians and nurses had less positive opinions toward medical cannabis than did their patients.[9] Given the significant economic and technological obstacles to proving the effectiveness of medical cannabis,[10] medical conditions with strong scientific evidence for the efficacy of cannabis that is based on randomized clinical trials on which physicians use to base their decisions are limited.[11,12] Fortin and Massin provided reasons for the barriers on the following four points: 1) The entourage effect would make the herbal form much more effective than single cannabinoids; 2) It seems difficult to prove the effectiveness of herbal cannabis through randomized controlled trials; 3) Even if it were possible,

there would not be any financial incentive to carry out such research because it could not be patentable; 4) It seems unlikely that public solutions will address this issue quickly and affordably.[10] As seen in many European countries where medical cannabis is allowed, there are considerable limitations on the kinds of items that can be purchased as well as the qualifying medical conditions. Medical cannabis-based medications are typically made available as a last resort treatment, which requires the patient to have exhausted all other widely accepted treatment choices, and through special access programs.[10,13]

To date, no study has examined the views and practices of illicit providers of medical cannabis in Thailand. With an increasing demand of medical cannabis products amidst the restricted access to legal supply in Thailand, unlicensed medical cannabis providers and illegal suppliers come into play as an available source of medical cannabis products. Our study, conducted during the first year after the legalization of medical cannabis use in Thailand, found that 74% of the medical cannabis products used came from illegal sources, such as underground traders, not-for-profit provider groups (for example: priests, folk healers and civil society advocacy groups), friends and relatives, and home or clandestine growers and producers. Crude oil extract (unidentified tetrahydrocannabinol (THC) or cannabidiol (CBD) content) and raw plants (flowers, leaves or whole plants with roots and stems) were reported as the most common form of consumption by medical cannabis users.[14] In this study we aimed to understand why people still chose to receive treatment or medical cannabis products from unlicensed or illegal providers, despite licensed medical cannabis clinics in hospitals under the Ministry of Public Health (MoPH) having been opened nationwide since late 2019. We also examined the practices of unlicensed or illegal providers in provision of medical cannabis products or treatment services. In addition, this study examined the perspectives of medical cannabis users with regards to their access, perceived benefits and risks, and satisfaction towards those providers. It should be noted that this study was undertaken during the first 1-2 years after the enactment of the law allowing the legal use of medical cannabis. It was thus a time when not only healthcare system was unprepared to prescribe cannabis, but also few products were available and expensive. Information obtained from this study could benefit the medical cannabis health care system in Thailand and other countries that have planned to, or have already initiated, medical cannabis policies. It will help in planning strategies to improve the capacity of said providers, and their services as well as improve access to medical cannabis.

Methods

Study design

This study is a part of a larger two-phase study; using a mixed-method approach among medical cannabis users and providers in Thailand. The phase-1 study was conducted between October 2019 and February 2020; the first year of the medical cannabis legalization, followed by phase-2 between November 2020 and February 2021. Both phases comprised of a quantitative cross-sectional study, using respondent-driven sampling among medical cannabis users, and a descriptive qualitative approach involving in-depth interview of medical cannabis providers and users and observation of the providers' practices and their medicines. Data of the qualitative part of both phases were used for thematic analysis. The descriptive qualitative approach, often used to discover the nature of the specific events under study, allows for a comprehensive summarization of views and practices of illegal providers and their services experienced by medical cannabis users, a topic about which little is currently known.[15]

Participants

We included 36 medical cannabis providers, who had not been certified by the MoPH as licensed folk doctors in this study. They included 15 folk healers, 9 growers or clandestine producers, who also provided treatment and counseling on using their products, and 12 workers of civil society networks or social media administrators that provided medical cannabis products and advice. Folk healers wishing to get prescription licenses need to be certified by the head of the provincial public health office or the Department of Thai Traditional Medicine and Alternative Medicine of the Ministry of Public Health. Those that meet the following criteria can be nominated by the village committee or local administrative organization for certification: aged at least 35 years, living in the community where the nomination takes place for more than 10 years, having knowledge and competence in promoting and caring for the health of people in the community using Thai traditional medicine wisdom according to their community culture for more than 10 years with admiration of the people in that community, being sane of mind and never having been incarcerated. Although, some of our participants had been practicing as folk healers for many years, they had not been certified; due to inadequate eligibility criteria or they just did not want to; said participants were recruited as unlicensed providers. Participants were eligible for the study if they were aged 18 years or over and willing to participate in the study. Exclusion criteria were set as being intoxicated, cognitively or mentally impaired, or too ill to be interviewed. However, we did not exclude any subject because of any of these reasons.

Purposive sampling was used to recruit participants. First, some key informants, e.g., folk healers who practiced in the community and workers in non-government cannabis advocacy organizations were identified. These informants were

then asked to provide contact information of other providers, which could be approached for an interview. In addition, some medical cannabis users, participating in this research, also provided us with the contact information of their providers.

In addition, seven licensed providers, including five medical doctors and two Thai traditional and alternative medicine doctors were also interviewed. We recognized that licensed providers might not have direct awareness of the reasons behind patients' continued usage of illicit sources. However, we believe that their perspectives offer valuable insights into the broader landscape of medical cannabis access and utilization in Thailand, for example, helping us understand potential barriers that prevented patients from accessing legal and regulated care and identifying gaps in services - whether the practices of licensed providers were adequately meeting the needs of patients. Further, 25 medical cannabis users were recruited through snowball sampling, starting from some well networked individuals who were known by the researchers as being medical cannabis users. Participants were recruited until enough participants had been interviewed to achieve saturation of data.[16]

Data collection

Participants were first contacted by telephone and invited to participate in the study. Each of four research assistants, who were at least bachelor's degree graduates with previous experience in qualitative data collection with people who use drugs or people living with HIV in our other research projects, together with DS, KT or MT, who were experienced qualitative researchers, then visited the participants at a location set by them, e.g., home or workplace, and conducted the interviews.

Before the interview, verbal informed consent was obtained, and all interviews were audio recorded. At the times of data collection, most providers and consumers of medical cannabis were considered illegal, the use of written consent form might be perceived by participants to be threatening and treated with considerable skepticism by some participants. Signed informed consent form is the only record linking the subject and the research, and the principal risk would be potential harm resulting from a breach in confidentiality. To ensure the anonymity of participants, eliminating the risk that signatures could be linked to responses, verbal informed consent was obtained before the interview. In addition, the interview involved no more than minimal risk to subjects; therefore, the waiver of document of consent did not affect the rights and welfare of the subjects. Our Institutional Review Board thus waived the requirement for documentation of informed consent and allowed for verbal informed consent for both phases of the study.

The interviewers also made notes on nonverbal communications, which were used to supplement the audio-recorded information during transcriptions to ensure extensiveness of data. The interview was conducted in private and took 1-3 sessions of up to one hour each. Multiple interview sessions were conducted with almost all participants. It was deemed necessary to establish rapport and build trust, which we found to be crucial for obtaining accurate and in-depth information about participants' experiences with medical cannabis treatment. The interview guide with open-ended questions and themes developed by the research team was used. We first tested questions included in the interview guide with some medical cannabis providers, such as two folk healers and two staff of not-for-profit medical cannabis organizations, and two users of medical cannabis. The guide covers content on the participants' practicing experiences in providing, producing or using medical cannabis, source of cannabis, knowledge regarding diseases treated with cannabis, how they obtained this knowledge, and opinions towards medical cannabis laws and policies in Thailand. The guides can be found as *Extended data.*[26] DS, KT and MT participated in the interviews and supervised the process of data collection and data transcriptions.

Data analysis

All interviews were transcribed verbatim by the research assistant who did the interview. DS, KT and MT also listened to some randomly selected interview recordings while reading through the respective transcribed data and field notes to ensure completeness and accuracy of the transcriptions. Qualitative data analysis was conducted manually. DS and SA then read the interview transcripts and notes repetitively, coded and aggregated transcribed text into meaningful themes and subthemes. The other members of the research team then read and discussed initial themes and subthemes until agreement was reached. For each subtheme, supporting quotes were selected to illustrate key points in the findings.

Ethical approval

Both study phases were approved by the Research Ethics Committee (REC) of Faculty of Medicine, Prince of Songkla University [REC.62-205-18-1, dated 7 October 2019] and [REC.63-449-18-1, dated 3 December 2020]. The approval of the waiver of written consent was also documented in the REC approval documents.

Results

Altogether, 36 unlicensed or illegal providers, 7 licensed providers and 25 users participated in the study. Some participants initially refused or were reluctant to be interviewed; however, after having been given a detailed explanation of the study, including objectives and confidentiality safeguards by key informants in their community, all agreed to participate. The unlicensed provider sample included 34 men and 2 women, who had been involved in medical cannabis provision for a median of 50 years (range 25-85 years). Three of them were Buddhist monks. The users were 14 men and 11 women, whose age ranged between 32 and 80 years, and had been using medical cannabis for treatment for a variety of conditions, such as cancer, hypertension, migraines, insomnia and stress for a period of 2-10 years.

Why unlicensed/illicit providers were still popular

Overall, six main themes were identified for people choosing unlicensed providers and products: 1) easy accessibility to unlicensed or illegal sources; 2) familiarity with the unlicensed providers; 3) favorable characters of the providers; 4) affordable treatment fees; 5) trust in the quality of the medicines; and 6) a lack of knowledge, confidence and negative attitudes towards cannabis from healthcare professionals.

Easy accessibility. Although medical cannabis clinics have been opened nationwide indications for treatment with medical cannabis oil extracts are limited, and accessibility has been poor and slow. Therefore, unlicensed or underground providers, who were more easily accessible, became their best available choice. Folk healers usually opened their practice within their own home where patients could visit them anytime without prior appointment. Some providers allowed their patients to contact them by Line application or telephone for consultation concerning health problems and medication adjustment; making patients feel supported and confident. Some even provided home visits or home delivery of medicine to their patients with limited mobility, such as the elderly or those with physical disabilities.

> *Some patients cannot come by themselves, so they ask their children or caretakers to fetch medicines for them. They can come any day, or at their convenience. Some patients could not come up to my cubicle, so I went down to see them in their cars. When patients or their relatives come, we never refuse to see them or tell them to go home; even when their conditions are beyond treatment. (Folk Doctor 01)*

> *Some hospitals limited the number of patients to as little as 5 per day, and they are not open every day; maybe even only one day per week. (Folk Doctor 02)*

> *After five weeks of the clinic opening, we have seen 127 patients; however, only 48 cases have received cannabis medicine, because the others did not fulfil the indications. Many came because of insomnia, which does not fit the indication. Most have cancers; for example, lung, stomach and colon, with metastasis to other organs, but they are still in stage 3 which is not an indication; so, we cannot give them cannabis. The others have Parkinson and Alzheimer, for which they cannot receive cannabis oil either, because we have only THC oil. (Medical Doctor 01)*

> *I know I can get cannabis oil from the hospital, but I don't want to go to the hospital. Going to a hospital is complicated. (PT01Patient 01)*

Familiarity. In some areas, folk healers had been well-known and accepted long before the boom of medical cannabis use in modern society. Using cannabis plants in folk and traditional medicine regimens has been regarded as ancient Thai wisdom. These folk healers, therefore, had already had follow-up with their patients for many years, and these patients preferred to continue treatment with their respectful and trustful doctors, rather than changing to new doctors in MoPH hospitals.

> *Most of my patients are local people living in this village, so we meet when we make merit at the temple regularly. I visit my patients at home every week. I do it as a routine. For some families I take care of the whole family. (Folk Doctor 03)*

> *I am confident and trusting in … (a popular provider in the area)'s cannabis oil. I have been using it for more than one year. I have had migraines for 20-30 years. I had used medicines obtained from the hospital for several years, but they did not work. Two weeks after I took cannabis oil, I felt better so I continue using it. Why should I waste my time and pay bus and ferry fees to go to the hospital, while I can just ride a motorcycle or call …'s team to deliver the oil for me? (Patient 03)*

Providers' characters. The folk healers that were interviewed appeared to be natural counselors, who understood and empathized with their clients' illness and suffering. They were volunteer-minded and had the same goal as that of to help people. Patients also found the folk healers to be non-judgmental and non-stigmatizing. Almost all folk healers did not

record their patients' information systematically and did not make follow-up appointments with their patients. They just memorized the information and told patients to come back as needed, or they visited their patients at home when convenient. This surprisingly made patients more comfortable, as their information was confidential.

> *Why patients are getting well is not only because of the medicines, but it is also the conversations between patient and provider. It is a positive energy. They can talk with us through the chat box. We cheer them up and encourage them to fight the disease. (Civil Society Officer 01)*

> *I never record patients' information, and never give patients' information to anyone. They trust me and can call me anytime. Some relatives call me late at night; telling me that the patient cannot tolerate anymore. I encourage them and tell them to come in to take cannabis oil. (Folk Doctor 03)*

> *He (a respectful monk) is very kind. He always asks about my symptoms and if I have any side effects of chemotherapy after using cannabis oil. He advises me about diet, selfcare and teaches me some dharma (Buddhist teachings) too. (Patient 04)*

> *He (a cannabis oil producer) visits me regularly, brings me the cannabis oil and some snacks. He knows that I live by myself, so he comes very often. When I got sick, he is the one who took care of me. I feel happy, laughing and not stressed when he comes. (Patient 05)*

> *Folk doctors never refuse us. They are always ready to give help and good advice for us to fight. (Patient 06)*

Affordability. Some folk healers - for example, Buddhist monks and those working in some civil society not-for-profit organizations - provided medical cannabis products free of charge for those who could not afford to pay. Folk healers who have been practicing in a conventional way do not usually ask for treatment fees; they accept only a "teacher worship fee", which is very small. Although medical cannabis treatment in the MoPH hospitals was also free, as it was covered under the universal coverage or other medical insurance schemes, patients had to pay the transportation fee by themselves. Additionally, at the time of data collection of this work, MoPH medical cannabis clinics had yet been opened in every province, so some patients had to travel far to receive treatment. Nonetheless, some unlicensed providers charged for their products and treatment cost was very high; especially those who advertised their services and products through social media.

> *Our center provides free cannabis oil to both Thai and foreign patients, regardless of their sex, age and socioeconomic status. We send free cannabis oil to every patient's home and follow them up. … We make a sticker to put on the products that they are free, not for sale and that it is from a not-for-profit organization. Some foreign patients who received treatment from us and were impressed with it donated some money to our foundation, or sent product containers to us depending on their convenience. (Civil Society Officer 02)*

> *I teach patients and their relatives to make their own cannabis medicine. I told them to secretly grow 2-3 plants and produce their own medicine. I just give advice and follow their symptoms. I cannot take money from them because I don't buy cannabis. (Folk doctor 03)*

> *I don't buy cannabis as my friends who grows it gives it to me. Folk doctors exchange their products; for example, I gave my colleagues some herbs that they don't have to trade with cannabis. We don't put money value on our herbs. (Folk doctor 04)*

Quality of the medicines. Some patients believed that the medical cannabis oil extract provided from the MoPH hospital was too low in concentration (say, 1.7%) of active ingredients to be effective, while the oil extract from unlicensed sources was of better quality and could treat more diseases. Most conventional folk healers used the parts of raw plants to make their medicine mixture or extracted the crude oil in their home-kitchen. They may also grow, or suggest patients grow their own cannabis plants, to assure quality, and to keep the plants free from contamination. However, some patients as well as providers also worried about the quality of the illegal products as their sources were unknown, so they might be contaminated, and the production process might neither be so qualified.

> *I tested cannabis medicine from the Government Pharmaceutical Organization. I think it's not good. I think I make better products than those of the government hospitals, because I extract it by myself to treat my patients. I tailor make the medicine to the severity of the patients' conditions. (Folk Doctor 03)*

Now underground products are of premium grade. Their production technique has gone so far, there are many talented chemists who have ever lived overseas. They want to make it known that the best formula is not what produced by the governmental people. We (underground producers) import extraction machines from China and Switzerland and secretly sent the extracts to some university professors to qualify them. (Civil Society Officer 03)

How can we deal with the underground dealers? Some sell fake oil which has no medicinal content at all. (Folk Doctor 03)

I am confident in … … (a popular provider in the area), because he extracts it in an organic way. (Patient 03)

Healthcare providers' lack of knowledge and negative attitudes. One of the main reasons for medical cannabis being limited in prescriptions at public hospitals was due to the clinicians' attitudes coupled with their readiness to provide it. Although medical cannabis training courses have been organized for doctors, pharmacists and other healthcare professionals to provide knowledge and grant certification for prescribing medical cannabis since the legalization, not many practitioners attended the courses; hence, most clinicians were not well enough prepared for medical cannabis practice. The general attitudes of medical professionals; in particular psychiatrists and pharmacists, were negative, due to concerns over adverse effects of mental health from cannabis use. Additionally, they were of the opinion that safer and more evidence-based medicines were already available for any indications wherein cannabis was to be used. Most medical professionals learn to practice medicine based on scientific evidence and from what they learn in medical schools. However, medical cannabis was new for them and supporting evidence was still limited, while conflicting evidence of benefits and harms was abundant. They were thus reluctant to prescribe medical cannabis. Moreover, there were strict regulations to follow and many forms to fill out when prescribing cannabis; medical cannabis prescription in a public hospital was still very restricted. An experienced and licensed doctor, who supported medical cannabis, expressed that medical professional might be the one who referred patients to the unlicensed or illegal system, because they refused to learn and prepare themselves to prescribe medical cannabis; despite their full awareness that their patients were using it.

In our hospital, pharmacists and psychiatrists don't agree with medical cannabis use. … I think it's not evidence that makes the resistance, but it's the mindset. (Medical Doctor 01)

We, medical doctors have no right to refuse medical cannabis. We know that our patients use it. If we don't learn and become aware of it, it means we don't care for the patients and let them use it without our advice. Now we don't even know if cannabis is good or bad, but if we refuse to learn and prescribe medical cannabis, it means we push our patients towards the underground system. (Medical Doctor 02)

Previously we have learned how to treat other diseases from what we learned in the university. However, for this issue (medical cannabis prescription) we have to learn it by ourselves, and start using it on our own; based on very limited evidence and a two-day training course. (Medical Doctor 03)

How unlicensed providers practiced medical cannabis treatment

Six subthemes were derived, including: 1) how they started their career as medical cannabis providers; 2) roles of the providers; 3) health conditions for which medical cannabis was used; 4) types of products and dosing; 5) use of modern medicine while using cannabis; and 6) progression of illness after treatment with cannabis.

Starting the career. Most providers started their role as medical cannabis service providers from using cannabis as a self-medication for their or their relative's health problems. After success in treating themselves or their relatives, they felt confident in using cannabis for other people. Some providers were full of interest and enthusiasm in acquiring knowledge on medical cannabis obtained from international published literature, social media, training courses and actual case studies. Moreover, cannabis has been a medicinal herb in Thai traditional medicine pharmacopeia since ancient times. Folk healers have acquired knowledge regarding medical cannabis from their ancestors, who were often folk healers as well. Therefore, folk healers were knowledgeable and experienced in medical cannabis treatment long before the start of medical cannabis within modern healthcare systems.

The origin of my work as a medical cannabis provider was because my mother got sick and could not walk. So, I trained from Mr. … (a famous unlicensed provider) and also took a Cannabinoid Medicine Training Course. I started using it with my mom and was very satisfied with the results; my mother can walk again. People are confident in me and ask me to provide treatment for them. (Civil Society Officer 04)

At that time there was a social trend that cannabis is a cancer medicine, I sought some information and photocopied the documents to give to my patients and relatives. Firstly, my close relative was sick and had to take a handful of medicines each day. I thought that in not so long his liver and kidney would be damaged, so I told him to try cannabis oil. He got better, blood pressure and sugar decreased. So, after that I advised other people in the area to find good quality cannabis products to treat their diseases. (Folk Doctor 03)

I have to try it with myself before using it with my patients, because all cannabis plants are different. (Folk Doctor 06)

Cannabis oil is new in modern medicine, but traditional medicine has used it for a long time. All folk doctors know that cannabis is a kind of medicine and use it as an ingredient in several types of medicine; for example: "Happy sleep" regimen helping in sleep and appetite, "Santhakart" relieving constipation. I have cooked these regimens for a long time. (Folk Doctor 07)

Providers' roles. The providers had varied roles, including providing assessment, treatment and counseling as folk doctors, providing knowledge concerning medical cannabis summarized from published literature, being active advocators for legalizing cannabis, and growing, producing and selling medical cannabis products. Buddhist monks played active roles in not only being a spiritual center for local people, but also providing holistic care to patients, from the beginning to the terminal phase of illness; especially those classified as beyond available conventional treatment. Some providers believed that anyone could be a medical cannabis provider, if they cared about people and continued acquiring knowledge about diseases, by learning from research documents and by observing patients' symptoms and progression.

My role is not only a monk who provides spiritual guidance, but also a doctor, pharmacist and counsellor. Patients can telephone me anytime. I advise them to follow religious principles to pray and be mindful on breathing, not to be too worried about the illnesses; as birth, aging, illness and death are a common truth. We encourage them to fight and find something to do. We should think that we are better than many people and well taken care of by our children. (Folk Doctor 05)

After seeing a lot of patients, we would know why they do not respond to treatment, know if they use it in a correct way and have the discipline in taking care of themselves. We do not have to be a folk doctor or know everything like a medical doctor. We just know what should or should not be eaten, and that all diseases have different symptoms and stages; then adjust the dosages to best suit the patient's current condition. (Civil Society Officer 05)

Health conditions. The health conditions for which cannabis was prescribed by folk healers included: cancers of various organs, Parkinson's disease, epilepsy, muscle aches, headaches, insomnia, stress, depression, nausea, vomiting, psoriasis, acnes, ringworm, hemorrhoid, diabetes, hypertension, gout, HIV, and as a substitute for other drugs of abuse (methamphetamine and crystal methamphetamine). Terminal stage cancers, such as breast and brain cancers were the most common diseases patients sought out for cannabis treatment; especially when they were beyond available modern treatment or when they were to receive chemotherapy or radiotherapy. Their perception was that cannabis would help prepare the body to tolerate the side effects of such modern treatments. Most providers and their clients believed that cannabis could treat all diseases. Some providers indicated that cannabis balanced the system inside human body and could help relieve all symptoms that patients were suffering, for example: pain, fatigue, low appetite and sleep difficulty. If patients improved from these symptoms they would feel well and have the energy to fight the disease.

Cannabis can treat all diseases; it is the God of all medical herbs. (Folk Doctor 07)

Cannabis can treat almost all diseases, say more than 80 diseases. It can also be mixed with many herbal medicine regimens to help patients to get rest and repair their body. Cannabis is a repairer to help us sleep soundly. (Folk Doctor 04)

Cannabis oil will control cancer cells, so as they do not proliferate. (Folk Doctor 03)

Cannabis has several benefits, especially effects on the nervous system, helping with sleep, dementia and Parkinson, etc. (Folk Doctor 04)

I think it (cannabis) helps balance the body. It does not treat a disease but gives immunity to us. Whatever disease we have, if our body is good, it will treat itself. Cannabis helps release a happiness agent, this agent then kills all diseases or suffering agents. Any medicine which makes us happy will balance our body system to fight a disease. (Folk Doctor 09)

Products and dosing. The products forms were various, such as extract oil in liquid form for sublingual administration or in a capsule for swallowing or for rectal suppository, tea made from dried raw plants, including flowers and whole plants, which was claimed to be a good remedy for insomnia, topical skin cream and soap for skin diseases, toothpaste for toothache and caries, and a mixture bolus of the cannabis plant with other Thai herbs. Some folk healers also prescribed dried plants or flowers for smoking. These products were mostly obtained from illegal sources such as underground traders and home growers. Information related to product forms, route of administration, actions, dosing and sources is widely available on the Internet, through social media and word of mouth, for both providers and patients to learn and adaption of use for themselves, or when prescribing to others.

Some healers advised their clients to start off with a test dose of one small drop of extract oil. If there was no sign of an allergic reaction, the patients were advised to step up the dosage slowly until they found a suitable dose for themselves. They were then advised to maintain that dose until their symptoms subsided, then decrease the dose and finally stop when the symptoms disappeared. Females were advised to take a smaller dose than males. Morning and/or bedtime doses were usually recommended. Most providers emphasized that their clients should not take a second dose of oral extract oil within four hours after their first dose. They said that the action of the oral form was slow: approximately 30 minutes; therefore, if the second dose was taken shortly after the first dose their clients could easily get intoxicated. However, in a smoked form it was fast acting; approximately 5-15 minutes; thus, it was recommended for cases of cancer or severe stress, and for those who had pains or sleep difficulties.

> *Each body is different. They should try it by themselves, so as to find out how much is suitable for them by measuring from their sleep. If it is too small, we cannot sleep then we can increase the dose; if it's too much, intoxication will occur, so we should decrease the dose. (Folk Doctor 08)*

> *Capsules work with the enzyme system and is good for patients with colon cancer and cancers of the organs of the lower part of the body, such as prostate and ovarian cancers. For brain cancer, I recommend the smoking form with oil extract as cannabinoid glands are in this area. (Civil Society Officer 02)*

> *Vaginal cancer patients should use a suppository form before having chemo or radiotherapy. Rectal suppository is good as it is not intoxicating and will revive our liver. (Folk Doctor 09)*

Use of modern medicine. Most folk healers advised their patients to stop or reduce their dose of modern medicine which they had used before. They explained that modern medicine contained a lot of chemicals, causing imbalanced body function, and might impair liver and renal functions. However, some said cannabis and modern medicine should be used together, as cannabis would enhance the effects of modern medicine. Some folk healers viewed that terminally ill cancer patients who required morphine to relieve pain should receive supplementary cannabis, while tapering off morphine until stopping and then maintaining treatment with cannabis alone. Some folk doctors advised their patients to take cannabis and modern medicine at different times, so they would not interact with each other. Some even knew that cannabis was contraindicated for patients with cardiac arrythmia, bipolar mood disorders and those who used psychiatric medicines.

> *I do not use modern medicine, because medical cannabis makes me feel better, healthier; so, I stopped modern medicine. Using too much modern medicine is not good for our liver and kidney. But it's OK to use medical cannabis, even when we use too much there is less impact than from modern medicines. (Civil Society Officer 06)*

> *Chemotherapy changes our tastebuds. Cannabis makes us feel sweater in the mouth and improves our tastebuds, so we can eat more. Cannabis should be taken along with chemo or radiotherapy. (Folk Doctor 02)*

> *I advise DM patients to not use cannabis oil with medicine received from the hospital. If they faint, they should stop either modern medicine or cannabis, because their blood sugar may drop too much as cannabis washes out sugar in our body. (Folk Doctor 03)*

> *Patients with irregular heartbeats cannot use cannabis. Bipolar patients and other psychiatric diseases should be careful too. If wanting to use medical cannabis it should be at a very low dosage, stop modern medicine or make a 2-3-hour interval between cannabis and modern medicine. (Folk Doctor 02)*

Progression of illness and side effects. After use of medical cannabis, most patients felt markedly better or cured, while some no longer returned to the hospital for treatment. The participants, either providers or patients, believed that cannabis helped users to acquire deep sleep, an increase in appetite and a decreased pain, so the patients' health and quality of life improved, their symptoms subsided, or their disease was cured. A number of folk doctors were aware of the negative health effects of cannabis; for example, intoxication when overdosing and toxicity when using low-quality products that

were contaminated with insecticides or other toxic agents. However, most patients and folk doctors we interviewed had never experienced adverse effects of cannabis use by themselves.

> *The negative impact of cannabis is zero. I never see anyone with shock, death or progressive diseases because of cannabis. (Folk Doctor 03)*

> *Patients with skin diseases can use cannabis oil. Some who have whole body psoriasis get better after using cannabis oil, soap and cream for one month. Itching and lesions disappear. (Folk Doctor 03)*

> *The obvious change I have seen is in cancer patients. Patients feel hopeful. People generally think that cancer patients must die, get chemo or radio. However, using cannabis, patients just stay happily at home and drop cannabis oil. This makes them feel more energetic. Cannabis activates the thought system in that they can survive. We advise them to use medical cannabis along with modern medicine. Cannabis is just an alternative. (Civil Society Officer 02)*

Discussion

Our paper provides insights on the experiences of folk healers and illegal providers in providing medical cannabis treatment. It was found that unlicensed providers were more popular than licensed practitioners in government medical cannabis clinics. Warmth, friendliness, supportiveness, non-judgmental attitudes and all-time accessibility, with free or low-cost treatment, made those folk healers or not-for-profit providers in this study well accepted by their patients. This led them to continue their practice, despite the availability of medical cannabis clinics in MoPH hospitals all over the country. The providers in this study used cannabis products to treat all diseases, such as skin, eyes, HIV/AIDS, and non-communicable diseases as well as all kinds of cancers. Additionally, it was believed that it was effective, with no or minimal adverse effects. They chose the product forms and dosages based on the patient's symptoms, and some even tailor-made the medicine concentration to suit the patients' condition. As mentioned earlier, this study was conducted in the first 1-2 years after medical cannabis legalization, when the healthcare system was not yet ready and medicinal cannabis products were limitedly available and expensive. This prevented physicians from prescribing them, and patients turned to illegal sources where they could access cheaper options to treat their medical conditions. These findings mirror what was found from our cross-sectional studies among medical cannabis users, in that they sought medical cannabis products and treatment from illegal or unlicensed sources more than from the governments' official medical cannabis clinics, and used cannabis for treatment of all diseases or symptoms.[14]

Previous literature on physicians' reluctance and ambivalence to prescribe cannabis highlights concerns about a lack of information on dosing, impacts, routes of administration, and side effects. The current lack of information on the long-term safety and efficacy of medical cannabis is also a major barrier to its widespread adoption by healthcare professionals.[7,8,17,18] However, our participants, both providers and patients, reported few or none of these concerns. A lack of worry might be because medical cannabis was seen as the last option for patients with terminal illnesses who had limited access to contemporary healthcare systems. To our knowledge, there has not been a published study on attitudes and practices of medical doctors towards medical cannabis in Thailand. If it is similar to what was found in other countries, we could perceive that unlicensed or illegal providers could fill the gap of treatment for most patients of medical cannabis.

Similar to other studies,[19–21] medical cannabis use was common among cancer patients. Both providers and patients in this study believed cannabis was good for the treatment of cancers, by alleviating pain, anorexia, nausea and sleep difficulty as well as improving body systems to tolerate modern treatment side effects; with few or no adverse effects being reported. Providers' trustworthiness, caring attitude and easy accessibility were the main ingredients for these patients to adhere to their treatment and a feeling of improvement from their suffering. Thus, it is expected that many cancer patients - especially those in the terminal stage in Thailand - will turn to unlicensed or illegal medical cannabis providers, and cannabis use will continue to expand nationally. It has been unfortunately observed that many clinicians in the public healthcare system have limited knowledge concerning medical cannabis, and this results in patients turning to unlicensed providers who are willing to provide treatment. As such, our findings underline the need for oncologists or palliative care clinicians to be prepared to discuss with their patients regarding medical cannabis, or to recommend it clinically. To facilitate informed decision-making about medical cannabis, healthcare providers, including physicians, need to be equipped with the necessary knowledge and skills to discuss its potential benefits and risks with patients. Evidence to inform cancer treatment guidelines on potential benefits and harms of medical cannabis, matched with a Thai context is also required.

Our study suggests that some patients will continue receiving medical cannabis treatment and products from unlicensed or illegal providers, despite licensed providers being available. This indicates the need to expand medical cannabis services in MoPH hospitals, and the requirement for reliable information for patients to access. The profusion of non-scientific information from websites, social media and community interaction reflects inadequate scientific information on efficacy and current healthcare service systems. However, increasing evidence of the benefits and safety of medical cannabis has appeared in international literature.[22–25] Real-world evidence, which is gathered and documented systematically, including patient-reported outcomes, on individuals who use medical cannabis products would supplement the limited evidence from randomized control trials and be advantageous to both patients and doctors.[13] Capacity development and certification of unlicensed providers, and a simplified version of correct scientific evidence for patients to understand the risks and benefits of use are imperative. As reported by the participants of this study, some underground cannabis businesses who produce and sell expensive, but poor-quality or fake products also exist. There needs to be a system to monitor and to control quality, price and safety of medical cannabis products sold in the market place, which will be most beneficial to users who need it.

Moreover, given the prevalence of misinformation and potentially harmful claims about cannabis, it is imperative that unlicensed providers also receive appropriate education on the therapeutic uses and contraindications of cannabis. By implementing robust educational programs and regulatory frameworks, we can empower unlicensed providers with the knowledge and skills necessary to deliver safe and effective care. This would also help mitigate the spread of misinformation and protect patient safety. Only through evidence-based interventions in healthcare systems, clear public health policies of medical cannabis, and comprehensive education for both licensed and unlicensed providers can success in medical cannabis service provisions be ensured with best outcomes of safety and efficacy.

The political and policy environment that currently governs cannabis access in Thailand is complicated and dynamic. While the recent legalization of medical cannabis has opened up new possibilities for research and medical use, there is a rising effort to return cannabis to its former classification as a prohibited substance. This draws attention to the ongoing debate regarding the appropriate regulatory framework for cannabis and the necessity of more research before making any policy decisions. It is noteworthy that the dynamic policy changes could potentially influence the implementation of medicinal cannabis initiatives in Thailand as well as the availability of cannabis-based treatments for patients. Further research is needed to understand the potential implications of these policy changes on patient outcomes and healthcare access.

Limitations

Only data from a limited number of medical cannabis providers and users were included. Although we recruited sample to saturation and stopped interviewing new participants when no additional themes emerged in our last interview, our sample might subject to volunteer bias as most of the respondents were positive towards medical cannabis use. This may have led them to report only the positive side of cannabis use, and the unlicensed or illegal services. Snowball sampling was used to reach the participants, so this might limit the participants to the group of those who had similar values towards medical cannabis, and overrepresent supporters of medical cannabis. Lastly, women were less represented in our sample than men in the unlicensed provider group. In Thailand, the predominance of male folk doctors can be attributed to the traditional practice of knowledge inheritance within families, often with the eldest son as the designated successor. Societal roles and expectations might also influence women's involvement in medical cannabis-related activities, both as providers and users. This gender imbalance among providers and users likely influenced the overall gender distribution of our sample. Furthermore, we employed a purposive sampling technique, relying on key informants to identify potential participants. Unfortunately, the majority of contacts provided by these informants were male providers, contributing to the overrepresentation of men in our sample.

Conclusion

Unlicensed or illegal medical cannabis providers were still, and tended to remain popular, in Thailand. Patients regarded them as a last, dependable and trustful resource under limited access to public healthcare systems. Significantly more attention should be paid on increasing the capacity of medical cannabis service systems within public health hospitals. Additionally, certification of unlicensed providers, so as to integrate them into a regulated system where quality assurance can be maintained, is required. Furthermore, clear scientific information should be disseminated to patients who require the use of cannabis for treatment of their illnesses.

Data availability

Underlying data

The interview transcripts cannot be shared publicly as they contain personal and sensitive information, which could identify the participants. The interview transcripts are all in Thai. Anyone wishing to read the summary report of the data,

including quotes may contact the corresponding author (savitree.a@psu.ac.th), who will do translation of the parts requested.

Extended data

Open Science Framework: Views and practices on medical cannabis of unlicensed providers in Thailand: a qualitative study. https://doi.org/10.17605/OSF.IO/PBRHJ.[26]

This project contains the following extended data:

- Interview guide-providers.pdf
- Interview guide-users.pdf

Acknowledgements

We would like to thank Mr. Andrew Tait, from the International Affairs Department, for English proofreading of the manuscripts.

References

1. Centre for Addiction Studies: *A survey on knowledge, understanding and opinion of Thais aged 15 and over on medical and recreational use of cannabis.* Songkhla: Centre for Addiction Studies, Epidemiology Unit, Faculty of Medicine, Prince of Songkla University; 2020; 126.
Reference Source

2. Lintzeris N, Mills L, Suraev A, *et al.*: **Medical cannabis use in the Australian community following introduction of legal access: the 2018-2019 Online Cross-Sectional Cannabis as Medicine Survey (CAMS-18).** *Harm Reduct. J.* 2020; **17**: 37.
PubMed Abstract | Publisher Full Text

3. Luque JS, Okere AN, Reyes-Ortiz CA, *et al.*: **Mixed methods study of the potential therapeutic benefits from medical cannabis for patients in Florida.** *Complement. Ther. Med.* 2021; **57**: 102669.
PubMed Abstract | Publisher Full Text

4. Sexton M, Cuttler C, Finnell JS, *et al.*: **A cross-sectional survey of medical cannabis users: patterns of use and perceived efficacy.** *Cannabis Cannabinoid Res.* 2016; **1**: 131–138.
PubMed Abstract | Publisher Full Text

5. Wadsworth E, Driezen P, Hammond D: **Retail availability and legal purchases of dried flower in Canada post-legalization.** *Drug Alcohol Depend.* 2021; **225**:108794.

6. Capler NR, Balneaves LG, Buxton JA, *et al.*: **Reasonable access: important characteristics and perceived quality of legal and illegal sources of cannabis for medical purposes in Canada.** *J. Cannabis. Res.* 2023; **5**(1): 18.
PubMed Abstract | Publisher Full Text | Free Full Text

7. Ng JY, Gilotra K, Usman S, *et al.*: **Attitudes toward medical cannabis among family physicians practising in Ontario, Canada: a qualitative research study.** *CMAJ Open.* 2021; **9**: E342–E348.
PubMed Abstract | Publisher Full Text

8. Christensen VA, Nugent SM, Ayers CK, *et al.*: **A qualitative study of VHA clinicians' knowledge and perspectives on cannabis for medical purposes.** *Fam. Pr.* 2021; **38**: 479–483.
PubMed Abstract | Publisher Full Text

9. HaGani N, Sznitman S, Dor M, *et al.*: **Attitudes toward the use of medical cannabis and the perceived efficacy, side-effects and risks: a survey of patients, nurses and physicians.** *J. Psychoactive Drugs.* 2022; **54**(5): 393–402.

10. Fortin D, Massin S: **Medical cannabis: thinking out of the box of the healthcare system.** *Journal de gestion et d'economie de la sante.* 2020; **2**(2): 110–118.
Publisher Full Text

11. Chang-Douglass S, Mulvihill C, Pilling S: **Cannabis-based medicinal products: summary of NICE guidance.** *BMJ.* 2020; **369**: m1108.

12. National Academies of Sciences Engineering and Medicine. The Health Effects of Cannabis and Cannabinoids: The Current State of Evidence and Recommendations for Research 2022 [cited 2022 9 Dec].
Reference Source

13. Fortin D, Marcellin F, Carrieri P, *et al.*: **Medical cannabis: toward a new policy and health model for an ancient medicine.** *Front Public Health.* 2022; **10**: 904291.

14. Assanangkornchai S, Thaikla K, Talek M, *et al.*: **Medical cannabis use in Thailand after its legalization: a respondent-driven sample survey.** *PeerJ.* 2022; **10**: e12809.
PubMed Abstract | Publisher Full Text

15. Lambert VA, Lambert CE: **Qualitative Descriptive Research: An Acceptable Design.** *Pac. Rim. Int. J. Nurs. Res.* 2013; **16**: 255–256.

16. Ando H, Cousins R, Young C: **Achieving saturation in thematic analysis: development and refinement of a codebook.** *Compr Psychol.* 2014; **3**.
Publisher Full Text

17. Szaflarski M, McGoldrick P, Currens L, *et al.*: **Attitudes and knowledge about cannabis and cannabis-based therapies among US neurologists, nurses, and pharmacists.** *Epilepsy Behav. EB.* 2020; **109**: 107102.
PubMed Abstract | Publisher Full Text

18. Braun IM, Wright A, Peteet J, *et al.*: **Medical oncologists' beliefs, practices, and knowledge regarding marijuana used therapeutically: A nationally representative survey study.** *J. Clin. Oncol. Off. J. Am. Soc. Clin. Oncol.* 2018; **36**: 1957–1962.
PubMed Abstract | Publisher Full Text

19. Martell K, Fairchild A, LeGerrier B, *et al.*: **Rates of cannabis use in patients with cancer.** *Curr. Oncol.* 2018; **25**: 219–225.
PubMed Abstract | Publisher Full Text

20. Nielsen SW, Ruhlmann CH, Eckhoff L, *et al.*: **Cannabis use among Danish patients with cancer: a cross-sectional survey of sociodemographic traits, quality of life, and patient experiences.** *Support Care Cancer.* 2021; **30**: 1181–1190.
PubMed Abstract | Publisher Full Text

21. Pergam SA, Woodfield MC, Lee CM, *et al.*: **Cannabis use among patients at a comprehensive cancer center in a state with legalized medicinal and recreational use.** *Cancer.* 2017; **123**: 4488–4497.
PubMed Abstract | Publisher Full Text

22. Tafelski S, Häuser W, Schäfer M: **Efficacy, tolerability, and safety of cannabinoids for chemotherapy-induced nausea and vomiting--a systematic review of systematic reviews.** *Schmerz Berl Ger.* 2016; **30**: 14–24.
PubMed Abstract | Publisher Full Text

23. Whiting PF, Wolff RF, Deshpande S, *et al.*: **Cannabinoids for medical use: A systematic review and meta-analysis.** *JAMA.* 2015; **313**: 2456–2473.
Publisher Full Text

24. Allan GM, Finley CR, Ton J, *et al.*: **Systematic review of systematic reviews for medical cannabinoids: Pain, nausea and vomiting, spasticity, and harms.** *Can. Fam. Physician Med. Fam. Can.* 2018; **64**: e78–e94.

25. Black N, Stockings E, Campbell G, *et al.*: **Cannabinoids for the treatment of mental disorders and symptoms of mental disorders: a systematic review and meta-analysis.** *Lancet Psychiatry.* 2019; **6**: 995–1010.
PubMed Abstract | Publisher Full Text

26. Assanangkornchai S: **Views and practices on medical cannabis of unlicensed providers in Thailand: a qualitative study.** 2022, March 15.
Publisher Full Text

Open Peer Review

Current Peer Review Status: ✔ ✔

Version 4

Reviewer Report 29 August 2024

https://doi.org/10.5256/f1000research.170500.r317688

✔ **Thomas Kerr**
The University of British Columbia, Vancouver, British Columbia, Canada

I have no further comments.

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: substance use epidemiology and public health

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Version 3

Reviewer Report 07 August 2024

https://doi.org/10.5256/f1000research.159429.r303294

? **Thomas Kerr**
The University of British Columbia, Vancouver, British Columbia, Canada

This is an interesting and well conducted study on an important topic. I congratulate the authors on a fine piece of work. The study nicely details reasons why medical cannabis users in Thailand continue to rely on unlicensed dealers, and how providers practice. One issue with the study is the inclusion of second objective which looks at how unlicensed providers practiced medical cannabis

treatment. This makes the study quite long and its unclear how this relates to the first objective, which seems more interesting. Given the large size of the sample (large for a qualitative study), one wonders if that could be saved for a second paper. A small number of detailed comments are provided below:

- I suggest the authors use the term "theme" instead of "reasons" to describe their results, as is common practice in qualitative research
- The authors may wish to refer to "contemporary Western medicine" when contrasting it with "Thai traditional medicine" in the introduction.
- Can you specify how many follow-up interviews were done and with which participants?
- Can the author provide some justification for including those who are legal providers?

Why would they have insight into why some continue to rely on illegal sources?

- Can the authors provide some explanation for the low number of women in the study sample?
- The acronyms after each quote are difficult to discern. Can these be spelled out somewhere?
- It seems that the study covers a second topic – how unlicensed providers practiced medical cannabis treatment – but the themes arising from this are not listed in the abstract as with the first objective.
- Previous literature on physician's reluctance to prescribe cannabis also highlights concerns about a lack of information on dosing, impacts and routes of administration, and this should likely be added to the related section in the discussion.
- The section recommending that physicians be better prepared to talk about medicinal cannabis should also perhaps highlight that unlicensed providers should also be better educated about uses and contraindications of cannabis use given some of the inaccurate and potentially harmful claims evident in the qualitative quotes. Perhaps the authors could elaborate on this sentence to make this point: "*Only through evidence-based interventions in healthcare systems and clear public health policies of medical cannabis, can success in medical cannabis service provisions be ensured with best outcomes of safety and efficacy.*"
- Could the authors add some commentary to the discussion about the current political/policy climate surrounding cannabis access in Thailand? I understand there is a move to reclassify cannabis to its previous status.

Is the work clearly and accurately presented and does it cite the current literature?
Yes

Is the study design appropriate and is the work technically sound?

Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Yes

Are all the source data underlying the results available to ensure full reproducibility?
Yes

Are the conclusions drawn adequately supported by the results?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: substance use epidemiology and public health

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 16 Aug 2024

Sawitri Assanangkornchai

We sincerely appreciate your time in reviewing our manuscript and providing such thoughtful and constructive feedback. Your comments have been very helpful in improving the clarity and focus of our paper.
We agree with your comment that the inclusion of the second objective (how unlicensed providers practised medical cannabis treatment) makes the paper quite long and somewhat disjointed from the main focus on why patients continue to rely on unlicensed dealers. Ideally, we would have addressed this issue by saving the results of the second objective for a separate paper, as you suggested. However, as the paper is already published, this is unfortunately not possible now. We hope you understand our position on this matter.

- I suggest the authors use the term “theme” instead of “reasons” to describe their results, as is common practice in qualitative research

Response: Thank you for your suggestion. We have changed it accordingly.

- The authors may wish to refer to “contemporary Western medicine” when contrasting it with “Thai traditional medicine” in the introduction.

Response: Thank you for your suggestion. We have changed it accordingly.

- Can you specify how many follow-up interviews were done and with which participants?

Response: Thank you for your feedback. We appreciate your bringing this to our attention. We understand that the number of follow-up interviews may not be immediately apparent

from the data presented. We have clarified this point in the revised manuscript.

In our data collection, we visited almost all participants more than once. This was because, on the first visit, we needed to establish rapport and build trust and might not get much data. The follow-up visits were then necessary to obtain accurate and in-depth information.

- Can the author provide some justification for including those who are legal providers? Why would they have insight into why some continue to rely on illegal sources?

Response: We appreciate your question regarding including licensed providers in our study. We understand the concern about their potential lack of insight into why patients continue to rely on illegal sources. However, we believe that including licensed providers in our analysis was crucial for some reasons, such as helping us understand potential barriers that prevented patients from accessing legal and regulated care and identifying gaps in services -whether the practices of licensed providers were adequately meeting the needs of patients. We have included this justification in the revised manuscript.

- Can the authors provide some explanation for the low number of women in the study sample?

Response: We appreciate your query regarding the low number of women in our study sample. We acknowledge that women are less represented than men in both the unlicensed provider and user groups. However, in Thailand, as our data indicates, the majority of unlicensed providers were men. Societal roles and expectations might influence women's involvement in medical cannabis-related activities, both as providers and users. This gender imbalance among providers and users likely influenced the overall gender distribution of our sample.

Furthermore, we employed a purposive sampling technique, relying on key informants to identify potential participants. Unfortunately, the majority of contacts provided by these informants were male providers, contributing to the overrepresentation of men in our sample. We have added this explanation to the “Limitations” section of the revised version.

- The acronyms after each quote are difficult to discern. Can these be spelled out somewhere?

Response: Thank you for your suggestion. We have changed all accordingly.

- It seems that the study covers a second topic – how unlicensed providers practiced medical cannabis treatment – but the themes arising from this are not listed in the abstract as with the first objective.

Response: Thank you for your feedback. We have added it accordingly.

- Previous literature on physician’s reluctance to prescribe cannabis also highlights concerns about a lack of information on dosing, impacts and routes of administration, and this should likely be added to the related section in the discussion.

Response: Thank you for your suggestion. We have added it accordingly.

- The section recommending that physicians be better prepared to talk about medicinal cannabis should also perhaps highlight that unlicensed providers should also be better educated about uses and contraindications of cannabis use given some of the inaccurate and potentially harmful claims evident in the qualitative quotes. Perhaps the authors could elaborate on this sentence to make this point: "*Only through evidence-based interventions in healthcare systems and clear public health policies of medical cannabis, can success in medical cannabis service provisions be ensured with best outcomes of safety and efficacy.*"

Response: Thank you for your feedback. We have revised the discussion accordingly.

- Could the authors add some commentary to the discussion about the current political/policy climate surrounding cannabis access in Thailand? I understand there is a move to reclassify cannabis to its previous status.

Response: Thank you for your feedback. We appreciate you bringing this to our attention. We have added a paragraph discussing this point to the revised manuscript.

We are truly grateful for the reviewer's positive assessment and valuable recommendations. Your feedback has significantly enhanced our work.

Competing Interests: I have no competing interests to declare.

Reviewer Report 25 May 2024

https://doi.org/10.5256/f1000research.159429.r227708

Davide Fortin
[1] Barcelona Institute for Global Health (ISGlobal), Hospital Clínc, University of Barcelona, Barcelona, Spain, Spain
[2] Economic and Social Sciences, Health Systems and Medical Informatics (SESSTIM), Aix-Marseille University, Marseille, France

This article can be approved.

Is the work clearly and accurately presented and does it cite the current literature?
Yes

Is the study design appropriate and is the work technically sound?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?

Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Yes

Are all the source data underlying the results available to ensure full reproducibility?
Yes

Are the conclusions drawn adequately supported by the results?
Yes

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Version 2

Reviewer Report 01 November 2023

https://doi.org/10.5256/f1000research.157733.r218877

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Davide Fortin
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[2] Economic and Social Sciences, Health Systems and Medical Informatics (SESSTIM), Aix-Marseille University, Marseille, France

This version is much better.

I still cannot find any mention in the article about the following points:

1. Is it (or was it during the study period) possible to buy cannabis flowers as therapy, or is it only possible to buy cannabis extracts and other oral formulations?

2. About the technical and economic barriers which limits the scientific evidence related to cannabis (Fortin and Massin, 2019)

Is the work clearly and accurately presented and does it cite the current literature?
Yes

Is the study design appropriate and is the work technically sound?

Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Yes

Are all the source data underlying the results available to ensure full reproducibility?
Yes

Are the conclusions drawn adequately supported by the results?
Yes

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 27 Nov 2023

Sawitri Assanangkornchai

Thank you for your further comments.

1. We have added some information on the availability of cannabis flowers during the study period as follows.
-**Introduction, Paragraph 4:** "Our study, conducted during the first year after the legalization of medical cannabis use in Thailand, found ... Crude oil extract (unidentified tetrahydrocannabinol (THC) or cannabidiol (CBD) content) and raw plants (flowers, leaves or whole plants with roots and stems) were reported as the most common form of consumption by medical cannabis users."

-**Results, under Subheading *Products and dosing:*** "The products forms were various, such as ..., tea made from dried raw plants, including flowers and whole plants, ... Some folk healers also prescribed dried plants or flowers for smoking. These products were mostly obtained from illegal sources such as underground traders and home growers."

2. We have added some discussion regarding the technical and economic barriers which limit the scientific evidence related to cannabis as follows.
-Introduction, Paragraph 3: "Given the significant economic and technological obstacles to proving the effectiveness of medical cannabis [1], medical conditions with strong scientific evidence for the efficacy of cannabis that is based on randomized clinical trials on which physicians use to base their decisions are limited. [9, 10] Fortin and Massin provided reasons for these barriers on the following four points: 1) The entourage effect would make the herbal form much more effective than single cannabinoids; 2) It seems difficult to prove the

effectiveness of herbal cannabis through randomized controlled trials; 3) Even if it were possible, there would not be any financial incentive to carry out such research because it could not be patentable; 4) It seems unlikely that public solutions will address this issue quickly and affordably [1]."

Competing Interests: None

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REPORT "*Views and practices on medical cannabis of unlicensed providers in Thailand: a qualitative study*"

In a market which legalize the distribution of cannabis for medical purposes, the reason why patients still choose to buy cannabis illicitly is an interesting topic of research. In the article, the authors study this phenomenon during the first year after the legalization of 'medical cannabis' in Thailand. To do so, the authors perform interviews with medical cannabis providers and users. They identified six reasons behind the popularity of unlicensed provider, namely accessibility, familiarity with the providers prior to legalization, favourable character of the providers, affordability, quality and lack of knowledge towards cannabis from healthcare professionals.

The paper is written quite decently, and the way the healthcare system in Thailand has integrated medical cannabis through three different groups of products is of interest for other countries with similar approaches to traditional medicine.

A major issue is that it does not highlight enough the fact that interviews were taken during the first year after the passage of the law, when not only healthcare system is unprepared to prescribe to patients, but also few products are available and those which are distributed are thus likely to be quite expensive. This affect both patients from using them and physicians to prescribe it when they are aware of cheaper options to treat the medical condition. To help readers to better understand the research context, this fact should be probably not only be included in the abstract,

but also the reason of low affordability and accessibility should be the first mentioned behind the choice of patients to go to unlicensed providers.

I have a few other concerns which I believe need some attention and would help improve the paper :

- In the second paragraph, it is mentioned that “access to registered products for patients had been difficult as indications for prescription were limited and regulations regarding possession as well as production of medical cannabis were constricted.”. I think it should expanded to understand whether there is a limited number of medical conditions which allow the prescription of medical cannabis based on the existence of randomized clinical trials proving its efficacy. From the results, I understand insomnia is not consider a condition for the prescription, but the rationale behind which condition is accepted should be clearly identified in the text.

- It is not clear whether one of the three types of medical cannabis products which can be prescribe include flowers (or inflorescence). If this is not the case, it should be clearly stated as this type of products is the most used among countries which legalize the medical use of cannabis (e.g. Canada, US). In parallel, it should be also clarified whether some of the unlicensed producers were selling flowers and/or resins, or if they are only selling non-smokable products (If they sell flowers, this should be another reason why they are popular, the fact that they have a different type of medical cannabis product).

- In the third paragraph, the authors mention “Furthermore, studies in Canada and the United States of America (USA), where medical cannabis is legally available, indicated that physicians felt reluctance or ambivalent to authorize cannabis use for their patients, because of either a lack of knowledge or unfamiliarity with pharmacology, formulations, dosing of cannabis, lack of product standardization, lack of research examining the effectiveness and risks of cannabis use, and uncertainty regarding the policies.”. Considering the increased in research in recent years related to cannabis (Ng and Chang, 2022), the real issue relates to the lack of Randomized Clinical Trials (as this is normally what physicians use to base their decision) which are hampered from technical and economic barriers related to medical cannabis (Fortin and Massin, 2020). This should be clearly explained in the text.

- About the lack of knowledge from physicians, Hagani et al. (2021) should be included as it studied the gaps in perceptions toward MC between patients and health professionals.

- In the literature, Fortin (2022) should be added as it models the competition between healthcare system and illicit market for medical cannabis and provide some additional solutions to reduce the number of patients who buy their treatment in the illicit market.

- When talking about the issue of low availability, Wadsworth et al. (2021) should be added as they show that retail availability was associated with last purchasing dried flower legally among past-year dried flower purchasers.

Other points to be considered below:

- In the second paragraph, they mention the first type of product saying “registered drugs per the new Narcotics Act”. I don’t think that the wording “per the” is grammatically correct.

- Instead of using the term “users”, the author should use the term “patients” given that we assume they are using cannabis for medical purposes.

- I think this sentence should be rephrased to be more easily understood :“The perception of medical cannabis as the last resort for those with terminal illness under limited access to modern healthcare systems determined a lack of concern.”

References

1. Wadsworth E, Driezen P, Hammond D: Retail availability and legal purchases of dried flower in Canada post-legalization.*Drug Alcohol Depend*. 2021; **225**: 108794 PubMed Abstract | Publisher Full Text
2. HaGani N, Sznitman S, Dor M, Bar-Sela G, et al.: Attitudes Toward the Use of Medical Cannabis and the Perceived Efficacy, Side-effects and Risks: A Survey of Patients, Nurses and Physicians.*J Psychoactive Drugs*. 2022; **54** (5): 393-402 PubMed Abstract | Publisher Full Text
3. Ng JY, Chang N: A bibliometric analysis of the cannabis and cannabinoid research literature.*J Cannabis Res*. 2022; **4** (1): 25 PubMed Abstract | Publisher Full Text
4. Fortin D: CSC + 2. 2022. 133-154 Publisher Full Text
5. Fortin D, Massin S: Medical cannabis: thinking out of the box of the healthcare system. *Journal de gestion et d'economie de la sante*. 2020; **2** (2): 110-118

Is the work clearly and accurately presented and does it cite the current literature?
Partly

Is the study design appropriate and is the work technically sound?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Not applicable

Are all the source data underlying the results available to ensure full reproducibility?
No source data required

Are the conclusions drawn adequately supported by the results?
Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Cannabis Policy and Economics, Health Economics, Industrial Organization, Cost-Effectiveness Analysis, Patient-Reported Outcomes

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 12 Oct 2023

Sawitri Assanangkornchai

Thank you for your valuable comments and suggestions.

As suggested, we will add more information in the introduction part of the manuscript on the timing of the study and how it affected the health system, the availability of cannabis-based products, and physician prescription practice. A list of medical conditions approved by the Thai Ministry of Public Health for cannabis treatment and those with supported evidence of efficacy from randomized clinical trials will be added. We will also explain if cannabis flowers and resins were included in the prescribed and unlicensed medical cannabis products in the introduction and discussion parts. Furthermore, the references suggested by the reviewer will be cited to support the explanation and discussion of the related issues. Lastly, we will check the grammatical correctness and rephrase the unclear sentence.

Competing Interests: No competing interests were disclosed.