



Primary care provider attitudes, experiences and practices about cannabidiol (CBD) and barriers to patient-provider communication about CBD use: A qualitative study

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ARTICLE INFO

Keywords:

CBD
Cannabinoid
Hemp
Patient-provider communication
Primary care
PCP

ABSTRACT

Objectives: Federal hemp legalization and ongoing shifts in US marijuana laws have led to increased population-wide use of cannabidiol (CBD) supplements, often without the knowledge of primary healthcare providers (PCPs). Given the potential risks related to CBD use, especially in vulnerable subgroups, improved communication is warranted. This study aimed to examine PCP attitudes, experiences, and practice behaviors related to CBD and provider-reported barriers to communication with patients about CBD use.

Methods: Fourteen PCPs were recruited and participated in semi-structured interviews. Transcripts were digitally analyzed using inductive thematic analysis.

Results: Analyses identified that most PCPs had neutral views about CBD use by their patients. The study found that discussions about CBD use were initiated by patients. Most PCPs cited lack of time, discomfort, low-quality evidence, and low prioritization as reasons for not discussing CBD with patients.

Conclusion: PCPs rarely screen for or discuss CBD use with their patients and most of them had neutral views about CBD use by their patients. A number of barriers exist to open dialogue about CBD.

Innovation: Our study is the first in-depth report on PCP attitudes, experiences, and practice behaviors related to CBD. The findings of our study have the potential to significantly impact future PCP practice behaviors. These results can inform healthcare system policies around screening for CBD use and PCP communication training. In doing so, these efforts may mitigate risk and optimize benefits related to the expanding CBD market.

1. Introduction

Cannabidiol (CBD), a compound present in cannabis and hemp plants, has received significant attention on its potential promise as a treatment for medical and psychiatric conditions [1]. The United States (US) federal legalization of hemp via the 2018 Farm Bill, along with ongoing shifts in state-level marijuana laws, has led to a mass expansion of CBD-containing products being marketed as dietary/health supplements [2]. To date, the US Federal Drug Agency has approved one CBD-based medication, Epidiolex, to treat rare forms of epilepsy with a US population prevalence of <1% [3]. In the dietary supplement space, CBD has been used much more broadly than for this indication, with a 2018 Gallup poll showing that 14% of American adults reported current use of CBD [4] for self-treatment of pain, anxiety, and sleep problems [5]. Evidence supporting

the use of CBD to treat these medical and psychiatric conditions is limited, but multiple active randomized clinical trials are ongoing [6].

Despite its widespread use, emerging data indicate that CBD is not risk-free [7], long-term safety data are lacking, especially in vulnerable populations such as pregnant [8] and pediatric [9] patients. Some individuals who take CBD experience side effects, including drowsiness, diarrhea, and abnormal liver function. Drug-to-drug interactions between CBD and prescribed medications are not uncommon, and many individuals who take CBD require dose adjustments of their prescribed medications [7]. Additionally, there have been concerns about the purity and legality of CBD sold over the counter (OTC) as dietary supplements [10]. Many individuals, unaware of these risks and believing CBD to be safe and harmless, consume themselves or administer it to their children [11].

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Patients who use CBD rarely disclose their use to their healthcare providers [12,13]. Therefore, patients commonly choose product type, administration method, and brand based on what they hear from friends and read from the internet, and decide about dose and emergent side effects via trial-and-error [4,5]. While studies characterizing patient and provider attitudes and belief on medical cannabis exist [14-17], studies examining physician attitudes and practice behaviors related to CBD use and patient-provider communication around CBD use are lacking. This represents a major knowledge gap that, if better understood, could inform practice procedures, interventions, and recommendations relating to the risks and benefits of CBD. As such, we aimed to explore PCP attitudes, experiences, and practice behaviors related to CBD and provider-reported barriers to communication with patients about CBD use. Considering communication and counseling might differ in pediatric versus adult patient clinical settings [18,19], a secondary aim was to explore differences in these characteristics among PCPs providing medical care for pediatric compared to adult patients. Given the dearth of evidence in this area, we sought to gather preliminary, in-depth information that could be used by researchers to inform future studies and/or interventions.

2. Methods

2.1. Study procedures

We recruited a purposive sample of primary care providers, stratified by whether the provider primarily cared for pediatric versus adult patients to facilitate comparison by patient population served. Eligibility criteria included (1) practicing clinical medicine in a community primary care setting, and (2) providing direct outpatient clinical services to pediatric, young adult, and/or adult patient populations within the past 12 months. We emailed the department chairs of community primary care who disseminated the information about our study. Those who responded to the invitation to participate in the study were screened for eligibility and scheduled for an interview if qualified. Based on the existing literature [20], we estimated that we would need to recruit 12-16 participants, however, we planned participant number could be adjusted if thematic saturation was reached with fewer or more participants. Fourteen participants were interviewed, and active recruitment was stopped based upon the study team's determination that thematic saturation had been achieved. No study compensation was provided to participants. Authors PS, RP, and CH are all pediatric psychiatrists, and PS and CH are substance use researchers and have clinical and research familiarity with cannabinoids. This study was approved by institutional IRB (ID: 20-010287).

2.2. Semi-structured interviews

A semi-structured interview guide was developed by study team members (PS, RP, CH) and pre-tested with outpatient psychiatry physician staff to ensure that interview length, flow, and content were appropriate. Interview questions fell into three core domains 1) Provider opinions, perceptions, and attitudes about patient CBD use; 2) Perceived facilitators and barriers to communication with patients and their families about CBD use; 3) Reflections about any prior patient-provider communication regarding CBD use [see eMethods S1 in supplement]. Each interview was conducted via Zoom audio-only by study team members (PS or AH) and lasted 30-45 minutes. While structured questions were used, the interviews were flexible, driven, in part, by participants' responses, with probes and prompts used for elaboration and clarification. The recruitment, enrollment, and completed virtual semi-structured interviews occurred between December 2020 and October 2021.

2.3. Qualitative analysis

Interviews were audio recorded and digitally transcribed. Transcripts were analyzed using thematic analysis [21] to identify patterns in the data through data familiarization, coding and development, and refinement

of themes. Analysis was conducted by PS, TS, RP and CH. First, each analysis team member independently reviewed three transcripts line-by-line to generate a preliminary list of codes or important concepts emerging from the transcripts. The entire analysis team subsequently met to discuss and consolidate preliminary codes, where applicable, and to develop a preliminary codebook, including code names, definitions, and examples [22]. The codebook included *a priori* codes based on the research question (e.g., barriers to communication about CBD) and emerging concepts from the interviews. Transcripts were subsequently uploaded to Dedoose qualitative analysis software [23] to facilitate further coding and analysis. After the development of the preliminary codebook, each analytic team member subsequently applied the codebook to the same transcript (one which had not been used to generate the preliminary codebook). The team subsequently met to discuss, compare and finalize codes, and to assess intercoder agreement.

Once the final codebook and definitions were agreed upon, two study team members (PS and TS) independently applied codes to each of the transcripts in Dedoose and simultaneously met to review code applications. Any coding discrepancies discussed until reaching consensus, consulting a third study member (CH) when necessary. CH, TS, and PS subsequently met to discuss and review patterns in the codes and data (including patterns of responses across provider type) and to organize codes into overarching themes [21].

3. Results

3.1. Participant characteristics (see eTable S1 in supplement)

The final study sample was composed of N = 14 PCPs, including five who reported providing clinical care for young adults and/or adults and nine who reported providing clinical care for children, adolescents, and young adults. The sample consisted of 50% female and 78% White participants, and most participants practiced medicine for greater than 20 years.

3.2. Overarching themes

Codes were organized into four overarching themes, which included reasons for CBD conversation, attitudes and beliefs, barriers to initiating conversation, and communication style/approach

3.2.1. Reasons for CBD conversations

Most participants indicated that CBD-related questions were common during clinical encounters and almost always initiated by patients or parents. The participants reported that most patients and their families inquired about CBD use for the management of chronic pain or/and psychiatric symptoms (e.g., stress, anxiety, ADHD, autism spectrum disorder). However, a few pediatrician participants noted that families would also inquire about the role of CBD in the management of non-FDA-approved seizure conditions. All participants who cared for adults said that CBD discussion with their patients was mostly focused on treating chronic pain in their clinical practice.

3.2.2. Attitudes and beliefs

Most providers had neutral or negative views about CBD, with more reporting neutral than negative views about CBD use by their patients. None reported a positive view about CBD use as a treatment option for medical and psychiatric conditions. Providers who expressed a neutral view towards CBD described focusing on a discussion about potential risks versus benefits and current evidence related to the efficacy of CBD with patients. If, following this discussion, their patient still chose to try CBD as an alternative treatment for one of their medical conditions, the provider would not discourage use. All PCPs who reported caring for adult patients in their practice reported a neutral view of CBDs. Several other explanations for not initiating discussions about CBD were also given by providers. One adult PCP participant noted, "I'm happy to use it as a tool when patients want to self-manage their pain... Sometimes patients come in having mentioned

that they're using it... "I don't think it's effective." I mean, all that really matters at the end of the day is whether the patient thinks it's effective. It's not whether I know it's effective or not. It's whether they think it's effective." Most pediatric PCPs held negative beliefs about CBD as a treatment of medical conditions. For example, one pediatrician noted "At this time, I am not comfortable recommending this when it's something that is not FDA recommended. I don't feel saying that it's benign enough that go ahead and use it. I do not recommend." Further, most pediatric providers cited concerns that CBD is unregulated and that these products may adversely affect the younger population. Participants commonly expressed concerns about the safety of CBDs, citing the presence of intoxicants, impurities, and THC, along with concerns about drug-drug interactions with the medications they prescribed. For instance, one pediatrician mentioned, "You get CBD at the grocery stores, and you're taking your chances that your kid could be taking some THC along with it or something else [referring to contaminants] in there that we don't know."

Another recurrent property associated with this theme that emerged was the absence of trusted information or medical guidelines about how to prescribe and monitor CBD and what doses are safe and effective for certain conditions. For example, one pediatrician noted, "...We don't have an FDA approved form that we can give where we know the exact dose that we are giving and that there are no other things in there."

3.2.3. Barriers to initiating conversation

All the study participants reported having busy practices, lack of time, and commented that discussions about CBD use were not a priority relative to other topics. Providers also gave several other explanations for not initiating discussions about CBD. For example, one participant described avoiding discussions about CBD product use due to the lack of evidence for the efficacy of CBDs, "I don't bring up CBD over-the-counter products because of my concerns about efficacy. In general, it's not a high priority." Another provider described the range of other topics that needed to be discussed during a well-child visit, "We've got other issues that we're typically talking about... I don't think it's [CBD] one of my top priorities."

All providers who participated in the interviews were asked about specific barriers to initiating a conversation and having an open dialogue about CBD use with their patients. Three recurring properties were identified across participants in response to this question and associated with the theme of barrier 1) lack of available medical guidelines (e.g., dosage and forms), 2) lack of time to initiate discussions about CBD use, and 3) lack of personal knowledge (by the provider) about the current evidence-base for CBD in general. Lack of available medical guidelines was the most cited barrier and was reported by almost all participants. For example, one participant who cited a lack of available medical guidelines said—"Some of that might be because of the dosing. I don't think we've dosed it right. I don't think there is any data about clinical trials of CBD-only products that we know about. A participant that cited lack of time to initiate the discussion in a clinical setting said—"As a primary care physician, I have so many things to deal with otherwise, and I feel like there's never enough time in a day to adequately address topics that my patients bring up primarily without adding another factor into my visit such as CBD, that may or may not lead me down a rabbit hole, that takes time away from other things that may be more important for the patient." The participant who found lack of personal knowledge as a barrier to initiating CBD conversation stated—"I do not bring it up at all, to be honest with you... As I said, we have very limited knowledge of its [CBD] use apart from reading on the literature that it is used for certain conditions. I do not bring it up at all."

Some providers endorsed feeling uncomfortable when their patient or a patient's family members asked questions about CBDs—"In a way, it would be kind of awkward to say, you know, 'What kind of medications are you on and are you on CBD oil?'" said one participant. On further inquiry, these participants cited a common source of their discomfort related to having awkward patient-provider discussions about CBD use with patients or family members who had strong, unyielding beliefs in favor of CBD and were unopen to having a dialogue about the risks or evidence. One pediatrician drew a parallel between discussions that he/she would have about CBD use with these patients and discussions he/she would have about

vaccinations with patients who are against vaccination, noting, "There is a potential for confrontation, I mean, it's not comfortable to ask about things when a family might have strongly held beliefs that may or may not have any science behind them. I think anti-vaccination would be in that group too, where there's a group of people that have very strong, non-scientific beliefs. Those are just hard conversations to have repeatedly."

Most providers also pointed to patient avoidance of disclosure of CBD use or intentions to use as a barrier to open dialogue and information exchange. Many of these providers expressed concerns about how certain patients make the active choice not to disclose their use of (or intention to use) CBDs. On further prompting, they also provided hypotheses about why some patients do not disclose this information. One pediatrician noted, "they think that we're not going to recommend it, and especially if they have seen a positive effect in their child because they're receiving information from other sources." More than half of providers cited the association between CBD and cannabis and drug use-related stigma as a barrier to open dialogue about CBD. Further, these providers felt that the patient's fear of being judged by their healthcare provider was one of the main patient-driven barriers to disclosure about use or intention to use CBDs at clinical appointments. One pediatrician noted, "I think, they would think I'd be judgmental and say, 'Why are you taking that?'" "They fear that they feel that I would perceive them like a drug addict or a druggie." Pediatric PCPs, in particular, described concerns from parents and family members about whether they would be reported to law enforcement or child protective services by their provider if they disclosed administering CBDs to their children. "Legality matters a lot. People might feel that using CBD oil may be the same as using marijuana or vice versa", said a pediatric PCP.

3.2.4. Communication style/approach

Many providers commented on the importance of a having trusting relationship with their patients, with this setting the stage for open dialogue about CBD. Further, some of these providers described being thoughtful about how they asked questions (in a safe and non-judgmental way) and inquiring about the patient's experience and perspective. For example, one provider noted, "given the relationship I've had with some of these families for a very long time, they do trust my opinion on it". "Just like when we talk about vaccines that we strongly recommend... if you have a good relationship with them and they trust you, they take that," said another participant. We probed participants to explore which communication style was generally effective when discussing CBDs with patients and their families. Several stated that asking about patients' experiences (if they are using), or perspectives (if they are contemplating the use of CBD) was helpful. One pediatrician noted, "Probably, I'd like to find out why exactly they're using it. How they think it helps them? Kind of learn from them and how they think it helps themselves."

A few participants said that asking open-ended questions was helpful for initiating such conversations especially when they weren't sure if the patient was already using CBD. For example, a participant caring for adult patients with chronic pain said, "I will typically ask, 'What are you doing to manage your pain?' It'll come up then, and then I think it's important, then I think it's important to address." Some PCP participants hesitated to contradict a patient's belief because CBDs are OTC, and patients might become defensive and perceive this as a threat to their autonomy. This could result in patients not sharing any future use of CBD or potential side effects, affecting trust and the patient-physician relationship. A few PCP participants experienced discomfort especially when patients/families had a positive outlook in treatment response of CBDs and commented that this influenced their messaging to the patients.

As part of the current study, we also wanted to understand what CBD-related information is communicated by the providers to their patients. Although all participants communicated safety concerns and a lack of research evidence regarding the efficacy of CBDs, there were differences between adult and pediatric care provider participants. The pediatrician participants reported placing more emphasis on concerns about safety than the lack of efficacy of CBDs during the clinical encounter. Specifically, pediatrician participants discussed the concerns about the risk of contamination by adulterants including THC in the CBD, and the potential for

adverse health effects related to this exposure (due to lack of regulation). For example, a pediatrician who was concerned for the safety of CBD in the market said, *“I counsel parents that when they buy this over the counter, we have no idea of what they’re getting. How pure is it? How, [do] you know, is there no contamination in it? I mean we don’t know what they’re getting when they buy something at a gas station.”* To underscore their message to the patients and their families, some providers described using anecdotes and stories about adverse events that happened to other patients in their clinic and using these as ‘cautionary tales’ to warn their patients about the risks associated with CBD use. One pediatrician reported, *“I tell patients and parents that I’ve had patients [that] had to be hospitalized who’ve gotten into CBD oil, and there’s THC in there by accident.”*

In contrast to this risk-based information exchange, providers who cared for adults were more likely to provide information on the lack of efficacy of CBDs during their clinical encounters. One PCP who cared for adults noted *“Sometimes patients come in having mentioned that they’re using it, and I would say— “I don’t think it’s effective”.* The participants caring for adults described fewer safety concerns, although they did report educating patients about risks of CBD. For example, one PCP, describing their communication to patients, said, *“I say— “You can try it.” I don’t have any concerns about it. I don’t think there’s any safety signal. I think it’s safe. I just don’t think there’s any efficacy signal for CBD-exclusive products.”*

One provider who cared for adults described talking with his patients about the financial cost-benefit analysis of spending their money on an unproven treatment with limited evidence for efficacy, stating, *“The cost is always a concern for my patients. ... because of that, I’m sensitive to their cost concerns, and so I’m not going to be recommending therapeutics that are expensive but not effective.”*

4. Discussion and conclusion

4.1. Discussion

Using semi-structured interview data from pediatric and adult PCPs and thematic analysis, this qualitative study investigated PCP attitudes, experiences and practices about CBD products and barriers to patient-provider communication about CBD Use. To our knowledge, this is the first study to examine characteristics of provider-patient communication around CBD use. As such, it provides an initial characterization into this clinically relevant area of practice.

Our study identified commonly reported barriers to PCPs initiating provider-patient discussions about CBD which fell into different categories (e.g., provider-related, environment/context-related, patient-related barriers). The most frequently cited provider- and environment-related barriers were time limitations, provider knowledge deficits about CBD effects and safety, and lack of specific data and talking points with which to inform patients and their families. This perceived knowledge deficit reported by providers in combination with multiple competing demands for the time within brief clinical encounters and busy clinical practices were commonly co-endorsed and may interactively contribute to lower screening and communication around CBD. The extent to which these barriers are specific to CBD or represent non-specific barriers common to other health maintenance domains (e.g., substance use, HIV, mental health screening, dietary supplement use) remains unclear and warrants further study. PCPs also reported that many patients and families elect to not disclose CBD use to providers for fear of judgment or legal consequences. These patient fears are amplified in pediatric primary care settings when parents/caregivers are making decisions about whether to use CBD to treat medical or psychiatric conditions in their children. Patient and provider discomfort may interact and reinforce avoidant practice behaviors by providers with regard to patient CBD use, resulting in patients using CBD and possibly experiencing harms related to their CBD use, with these behaviors and outcomes occurring unknown to their PCP. By extension, it is possible that the medical and psychiatric symptoms for which patients and families are using CBD may also not be discussed, leading to both potential undertreatment of these conditions and an elevated risk for adverse outcomes or toxicity secondary to improper dosing of CBD or

exposure to THC or other contaminants in the CBDs. Based upon the above barriers, integrating a systematic approach to screening for and monitoring the use of CBDs into healthcare system workflows and electronic health records (EHR) may improve provider willingness to initiate discussions about CBD and provide anticipatory guidance.

One of the main findings from our qualitative analysis was that providers rarely initiated discussions about CBDs with patients and their families and commonly described feeling uncomfortable having these discussions. This ‘reactive’ or passive approach represents a missed opportunity for PCPs to start an open dialogue about CBD use and influence patient lifestyle choices and behaviors. Providers having open discussions with patients about CBD is particularly relevant in today’s healthcare climate where the use of CBD among American adults is widespread and done with limited medical oversight. A more detailed understanding of barriers to initiating and engaging in CBD discussions with patients may inform strategic approaches to improve patient-provider communication on this topic. The most frequently reported communication points related to CBD use varied based upon the patient population that PCPs worked with (i.e., pediatric versus adult). Pediatrician PCPs were more likely to bring up safety and risk associated with CBD use as talking points with patients and parents. In contrast, PCPs caring for adults reported primarily communicating about the lack of efficacy of CBDs. Given that a recent evaluation of 102 CBD products by the FDA found that nearly 20% of the products contained less than 80% of the amount of CBD indicated, nearly 40% contained more than 120% of the amount of CBD indicated, and nearly 50% of products tested contained high levels of CBD, such concerns may be warranted [24]. Moreover, several studies in recent years have also reported that contaminants such as THC, and yeast, mold, heavy metals (including copper, nickel, and lead) were found in CBD [10]. Evidence suggests that heavy metals [25] and THC [26,27] have negative consequences on brain development, substantiating the higher perceived risk of harm for children and adolescents among pediatricians. On the other hand, participants who cared for adults generally focused on the lack of efficacy and financial burden associated with CBDs when discussing CBDs with patients. In comparison to pediatrician participants, PCP participants that cared for adults were more open to patient use of CBDs, especially if patients thought that CBD assisted them with non-cancer chronic pain (NCCP). Cross-sectional studies [28-31] have shown that many adult patients have positive attitudes about CBD as a treatment option to control NCCP and that these products allowed them to reduce or substitute their pain medications, including opioids [29]. However, the role of CBD in the treatment of chronic pain (or opiate replacement) is not convincing [32,33]. PCPs who did discuss CBD with patients and families described engaging in experience and perspective-seeking strategies to discuss patients’ needs and reasons for using CBDs. Through this strategy, physicians educated patients about the safety/efficacy associated with CBDs.

There are several relevant limitations and some strengths to the present study. Our study sample was entirely from a single Health System affiliate. Interview participants may have experienced recall bias or social desirability bias giving responses that they perceived to be more acceptable to themselves and the interviewers. Another limitation of the study is the different sizes of the PCP subgroups, which may have biased the results and categories that were coded. Fewer PCPs that provided clinical care for adult patients were enrolled and completed interviews (5 out of 14). Given this, our sample may have been underpowered to examine differences between pediatric and adult PCPs. As a result, our findings differentiating these subgroups should be interpreted cautiously.

4.2. Innovation

Still, in spite of the above limitations, the objective of this pilot study was to obtain preliminary data on provider-patient communication around CBD use among PCPs and to identify themes for further investigation. It was successful in achieving these objectives and the themes identified in the present study are currently being investigated in a larger mixed-methods study by the project team. In addition, our study also has some relevant strengths that

should be noted, which include its focus on a clinically impactful and timely topic (i.e., CBD use) and within this topic a practice-relevant area that has not previously been investigated (i.e., patient-provider communication around CBD use). As such, findings from this pilot study and our larger mixed-method study to follow carry the potential to significantly impact future PCP practice behaviors. The developmental design of the present study with a focus on identifying differences in attitudes and practice behaviors between pediatric and adult PCPs could also be viewed as a strength.

To our knowledge, this is the first study to examine the characteristics of provider-patient communication around CBD. Our findings reinforce that most physicians believe they have to locate an equilibrium between patients' autonomy by being open-minded toward patients' beliefs and concerns for patients' safety by protecting them from harm [34,35]. Studies show that indulging in a respectful, balanced, and patient-centered discussion often eliminates/minimizes pressure and 'awkwardness' of engaging in difficult discussions such as eliciting sexual or substance use history [36,37]. Further, discussions about alternative and complementary medications (CBD in this case) could be viewed as an opportunity to explore the psychosocial and pragmatic needs of the patients. Integrating such innovative yet established clinical care in conventional treatment settings creates trust in physicians and the modern medicine [38].

4.3. Conclusion

This qualitative study characterized PCP attitudes and experiences in relation to CBD by use by their patient and identified common barriers to open dialogue between providers and patients about their decisions to use CBD. Given the rising use of CBD among patients and the potential impacts of this use, strategies to expand training and knowledge dissemination opportunities and facilitate communication are warranted. Such strategies should consider the nature of specialty (adult versus pediatric) and practice. In doing so, these efforts may mitigate the risk for adverse health outcomes related to CBD use in patients.

Declaration of Competing Interest

Authors have no competing interests. Mayo Clinic Health System, Office of Research provided funding support for this study.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.pecinn.2022.100044>.

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