Cannabis Therapy Knowledge Study: Toward Establishing a Pedagogical

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ABSTRACT

Upcoming legalization of cannabis calls for physicians to increase knowledge on medical and recreational cannabis use. We analyzed physician knowledge and opinions on i) mechanism of the endocannabinoid system, ii) current training with cannabis, iii) risks associated with cannabis use, iv) creating effective treatment plans using cannabis and v) future training needs. Physician knowledge and opinions on cannabis are limited and divided. Physicians support integration of cannabis training through webinars, in person training, peer reviewed literature and clinical guidelines. A curriculum must be developed for current and future physicians to create a standard of care as it relates to cannabis.

RÉSUMÉ

La légalisation imminente du cannabis fait appel aux médecins à augmenter leurs connaissances de l'usage médicinal et récréatif du cannabis. Nous avons analysé les connaissances et les opinions des médecins sur i) le mécanisme du système endocannabinoïde, ii) l'entrainement actuel avec le cannabis, iii) les risques associés à l'usage du cannabis, iv) la création de plans de traitement efficaces par le cannabis et v) les besoins futurs d'entrainement. Les connaissances et opinions des médecins sur le cannabis sont limitées et divisées. Les médecins appuient l'entrainement sur le cannabis par des webinaires, par l'entrainement face à face, par littérature révisée par les pairs ou par lignes directrices cliniques. Un programme doit être développé pour les médecins actuels et futurs pour créer une norme de soins pour le cannabis.

The legalization of recreational cannabis remains a popular topic of conversation in Canada. The Liberal Party of Canada has set Fall 2018 as the tentative deadline for the legalization of recreational cannabis. Although the implications of the increased access to cannabis are yet to be determined, the move towards legalization represents a shift in public attitude and increase in the tolerance of cannabis use (1). From the physician's perspective, this shift requires an increase in awareness regarding the laws, health risks and safety factors, training on medical indications, and an eventual modification of clinical practice as it relates to cannabis.

Under the Access to Cannabis for Medical Purposes Regulations (ACMPR), Health Canada designates physicians as decision makers in the prescription of medical cannabis (2). Following this decision, physician groups such as the Canadian Medical Association expressed concern at the lack of education and scientific literature to help decision-making around cannabis (3). These concerns are justified, as physicians report using news media, patients, friends/family and dispensary owners as sources of education regarding cannabis (4). This lack of education has led to highly variable physician opinions regarding cannabis. Some physicians do not believe it has any medical indications due to perceived variability in dosing, lack of evidence of efficacy, concerns about potency and methods of administration (5). Others are excited by new research showing therapeutic evidence for cannabis in neuropathic pain, nausea and vomiting secondary to chemotherapy, spasticity, and anorexia associated with Acquired Immunodeficiency Syndrome (AIDS) (6). Lastly, some physicians admit that they lack a clear understanding on the indication for cannabis and are open to being educated (6). Regardless of whether cannabis is indicated for medical therapy or not, it is critical to educate physicians in the hope of unifying opinions and creating a standard of care as it relates to cannabis.

METHOD

A search was conducted on EMBASE, Medline and PubMed databases to identify 210 articles using the terms "physician", "knowledge" and "cannabis". Of the identified studies, 206 were

Keywords: Cannabis; Medical education; Physician education; Knowledge Study

excluded using the following criteria: i) duplicate articles, ii) irrelevant to topic of interest, iii) studies outside of North America, iv) studies that did not collect primary data and v) studies that did not survey physicians. Four studies that conducted anonymous surveys of physician knowledge and opinions regarding medical cannabis were selected. These were the only North American studies, to our knowledge, that collected primary data from the physicians on prescription of medical cannabis. Three of these studies were conducted in the United States and one was a national needs assessment in Canada. Independently, each of these studies identified a gap among physicians' current understanding and comfort level in various topics related to medical cannabis (7-10). However, the discussions of each study recognized that sample size, variation by location and physician demographics make it difficult to draw any conclusive evidence based on their respective results (7-10). The number of participants, location, mean age of respondents, mean number of years in practice and field of practice for each study are reported in **Table 1**. The findings of these studies must be collectively analyzed to draw evidence that can be used to develop an educational tool for both current and future physicians.

Questions with similar themes were identified across the four chosen studies, and their combined results were analyzed by taking weighted averages of physicians' responses and presenting them as percentages. All of the studies used similar, Likert type scales, to gather data. The combined sample size from the four studies was 1542 physicians, but not all studies included each of the questions that were analyzed. **Table 2** represents the statements that can be further categorized as: i) physician knowledge and current training on cannabis, ii) physician comfort in discussing and prescribing cannabis to patients, iii) physician opinions on integration of medical cannabis training at various levels of education.

DISCUSSION

Physician knowledge on cannabis

Based on the results, respondents indicated a lack of current knowledge and training with medical cannabis (**Table 2**). This was because only 46.5% of respondents indicated feeling trained about medical cannabis and 56% were aware of the mechanism of action of the endocannabinoid system. Further, only 68.5% of respondents felt knowledgeable when asked about the risks associated with cannabis use. The lack of knowledge can be attributed to the absence of high-quality literature on medical cannabis and relating health measures (7). In addition, since some physician organizations (e.g., Canadian Medical Association) have taken a stance against medical cannabis, independent practitioners may be less likely to seek out information. Regardless of individual opinions on the use of medical cannabis, physicians must be educated to avoid the risk of misleading patients. To ensure consistency in education, a resource outlining the known medical indications, risks associated with short-term and long-term use of cannabis (e.g., second hand smoke) and safety concerns (e.g., driving while

Table 1. Demographics of survey respondents.

First author, year (Ref.)	Number of Participants	Location	Mean age of respondents (years)	Mean number of years in practice	Field of Practice
Brooks, 2017 (6)	114	Colorado, United States	(Not specified)	(Not specified)	(Not specified)
Carlini, 2016 (7)	494	Washington, United States	~45	(Not specified)	Family Medicine (267), Other / Not specified (227)
Ziemianski, 2015 (8)	426	Canada	(Not specified)	~17.8	Family Medicine (189), Specialists (219), Other / Not specified (18)
Kondrad, 2013 (9)	508	Colorado, United States	~47.6	(Not specified)	Family Medicine (508)

impaired) must be developed.

Physician comfort in discussing & prescribing cannabis

Respondent comfort in discussing medical cannabis with patients as a therapeutic option and creating an effective treatment plan was similarly low. Only 46% of respondents felt comfortable initiating a conversation regarding medical cannabis with patients and 41.5% indicated that they would be able to create an effective treatment plan (**Table 2**). Physicians may be reluctant to discuss medical cannabis as a therapeutic option, as there is no standardized set of guidelines on which to base their recommendations. Instead, respondents reported using sources such as news media, patient requests, and other non-reliable sources to guide their beliefs on medical cannabis (8). Cannabis prescribing may also be limited due to the stigma that exists against patient groups for whom it may be beneficial (e.g., chronic pain, HIV/AIDS, mental health) (11). Dosing for medical cannabis presents another challenge, as cannabis may be consumed by patients in a variety of different forms (e.g., smoking, edibles, vaping, oils, etc.) and is available in numerous strains, each with different potencies (11). Unclear practice guidelines may compromise patient care through either incorrect prescribing of medical cannabis or withholding a therapeutically beneficial drug. This lack of clarity presents an opportunity to educate physicians on how to correctly prescribe medical cannabis and reduce stigmas that surround the subject.

Physician opinion on integrating cannabis education

There is an agreement amongst respondents that training regarding medical cannabis should be implemented in medical education. Physicians were 90.4%, 90.1%, and 86.2% in agreement that medical cannabis training should be incorporated into ongoing education for physicians, family medicine residency curricula, and medical school curricula, respectively (**Table 2**). The high demand for introduction of a medical cannabis curriculum indicates that if developed, there would be high utility for such resources. **Table 3** presents the preferred formats for receiving education on medical cannabis.

When considering different formats cannabis education may be delivered in, physicians preferred webinars (58.1%), in-person training (56.1%), peer-reviewed literature (55%) and clinical guidelines (53.7%) more than symposia/conferences (44%), scripts to guide patient conversations (43.8%), expert speaker tours (35%) and grand rounds (33%) (**Table 3**). It is important to deliver education in physicians' preferred formats to ensure the highest rate of uptake of knowledge. With the current trend of e-learning in medical education, online training may be a superior method of delivering education on medical cannabis (12). The development of online modules would also be more cost-effective, more accessible to all physicians in Canada and easier to update as evidence and guidelines evolve. However, it is important to recognize that this sample was only limited to 540 physicians. Physician demographics such as age, number

Table 2. Survey statements and mean number of respondents that agreed with each statement.

Statement	Mean number of respondents who agreed (%)	Studies from which this data was obtained
Feel adequately trained regarding cannabis	46.5	6, 7, 8 (N = 1034)
Feel knowledgeable on the mechanism of action of cannabis (ECS)	56.0	8 (N = 426)
Feel knowledgeable about the potential risks associated with cannabis use	68.5	6, 8, 9 (N = 1048)
Feel comfortable initiating a conversation about cannabis use with a patient	46.0	6, 7 (N = 608)
Feel comfortable creating an effective dosing and treatment plan for patients using cannabis	41.5	7, 8 (N = 920)
Training about medical cannabis should be incorporated into medical school curricula	86.2	7, 9 (N = 1002)
Training about medical cannabis should be incorporated into family medicine residency curricula	90.1	7, 9 (N = 1002)
Clinicians should receive training prior to recommending cannabis	90.4	7, 9 (N = 1002)

Table 3. Preferred formats of cannabis education.

Format	*Mean number of respondents who agreed (%)
Webinar	58.1
Small Group Sessions	56.1
Peer reviewed literature	55.0
Clinical guidelines	53.7
Symposia/conferences	44.0
Scripts to guide patient conversations	43.8
Expert speaker tours	35.0
Grand rounds	33.0

*Data was obtained from reference 10 and 11 (N = 540)

of years in practice, location and previous experience with cannabis may all influence the preferred format of education. Moreover, there was only a minor difference between preferences for webinars, in-person training, peer-reviewed literature and clinical guidelines. As a result, all of these options should be considered while developing an educational tool.

Family physicians and psychiatrists would provide an excellent starting point for education on cannabis. Both of these specialties are centered around continuity of care and developing longitudinal relationships with patients. Patients may feel more open to speaking with these physicians regarding the use of medical cannabis or potential implications of recreational cannabis use. Many of the diagnoses for which cannabis is indicated are also managed by these two specialties. As a result, these clinicians may carry less bias against patients seeking medical cannabis.

CONCLUSION

An in-depth review of the literature has highlighted the gaps in physicians' knowledge and comfort in working with medical cannabis. It has also been identified that most physicians agree with the integration of education around medical cannabis at various stages of medical education. The preferred formats of education were webinars, in-person training, peer-reviewed literature and clinical guidelines. Our commentary highlights that action is required to develop a tool to uniformly educate Canadian physicians on the medical indications, safety concerns, appropriate treatment plans and ongoing monitoring as it relates to cannabis. The development of this tool would greatly increase physicians' ability to inform patients regarding cannabis and act as a step towards establishing a standard of practice as it relates to cannabis.

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