

Research Report

Cannabis use in gynecologic cancer patients in a Canadian cancer center

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ABSTRACT

Objective: The primary objective of this study was to estimate the prevalence of cannabis use in patients with gynecologic malignancies and to describe patterns of cannabis use. Secondary objectives included identifying sources of cannabis information used by patients.

Methods: This is a single institution cross sectional survey conducted in Calgary, Alberta. Patients with a current or prior gynecologic cancer diagnosis were considered for inclusion. Planned analysis included descriptive statistics of patient demographics, and the patterns of cannabis use were described using frequencies and proportions.

Results: Forty-six patients participated in the survey. The most common disease sites were ovarian cancer and uterine cancer, with the majority of patients receiving chemotherapy as part of their treatment (n = 35). Seventeen participants were current cannabis users (37%). The most common symptoms participants used cannabis for were pain (9/17), anxiety (9/17), and insomnia (9/17).

Most patients using cannabis did not have a prescription and obtained their cannabis from a recreational dispensary (11/17). Many participants using cannabis had not talked to their doctor about cannabis (9/17). Instead, the most common sources of information about cannabis were cannabis retailers (20/46), and friends/family (20/46). Over 50% of patients would be interested in discussing cannabis if their physician broached the subject (26/46).

Conclusions: The results from this survey indicate that patients would like to talk to their oncologist about cannabis. Further research is needed to inform physician training and direct patient education to ensure that patients have access to unbiased, evidence-based information to make decisions about cannabis use.

1. Introduction

Cannabis is a psychoactive substance obtained from the *Cannabis* plant and can be consumed for recreational or medicinal purposes. Cannabis contains many phytocannabinoids which are active in the human endocannabinoid system resulting in its various physiologic effects. The most well-studied phytocannabinoids are delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD) (Health Canada, 2018; ElSohly and Slade, 2005). Cannabis can be dried and consumed through various methods such as smoking, vaporization, or ingested orally. Pharmaceutical synthetic cannabinoids that are available in Canada include nabilone and nabixmols (Health Canada, 2018).

Research regarding the use and efficacy of cannabis has largely been hindered by its status as an illegal substance in many countries including the United States (Whitcomb et al., 2020). In Canada, cannabis is legal

for both recreational and medical use. Medical cannabis use was first legalized in 1999 as an exemption to the Controlled Drugs and Substances Act (Canada, 2016). Recreational cannabis use has been legal in Canada since 2018 when the Cannabis Act was introduced (Canada, 2021). Patients who have a prescription can purchase cannabis through a licensed producer or grow their own cannabis¹, while anyone can purchase cannabis from a recreational dispensary without requiring a prescription (Canada, 2016; Canada, 2021). As a result of this legislation, the present-day landscape use in Canada differs from the United States, where cannabis remains illegal except where individual states have legalized medical and/or recreational use. Cannabis use is common; the 2022 Canadian Cannabis Survey estimates that at least 19% of Canadians over the age of 16 have used cannabis in the past 30 days, and these numbers are increasing over time (Survey, 2022). Prior studies have estimated that 25–40% of patients with cancer use cannabis

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¹ Except in Quebec, where it remains illegal for patients to grow their own cannabis under the Cannabis Regulation Act.

(Pergam et al., 2017; Tringale et al., 2005).

Studies have demonstrated that cannabis has clinical effectiveness for chronic pain, neuropathy, and chemotherapy-induced nausea and vomiting (Whiting et al., 2015; Smith et al., 2015; Grimison et al., 2020; Wang et al., 2021; Groce, 2018; Bell et al., 2023); however, there is limited evidence specific to gynecologic cancer patients. Furthermore, few studies have evaluated the perspectives of gynecologic cancer patients using recreational or medical cannabis (Blake et al., 2019; Webster et al., 2020; Fehniger et al., 2021). These prior studies have been based in the United States and it is uncertain how applicable these results are in the Canadian context. It is essential to consider the patient perspective to identify if cannabis is acceptable to patients, and to identify barriers to accessing treatment. The purpose of this study is to describe the landscape of cannabis use by gynecologic cancer patients at a Canadian tertiary cancer center.

2. Methods

This is a single institution cross sectional survey conducted at the Tom Baker Cancer Centre in Calgary, Alberta. Patients were considered for inclusion if they were being treated for a current or prior gynecologic malignancy and were over age 18. Patients were excluded if they had benign disease, or submitted incomplete survey data. The primary outcome of interest was the proportion of patients reporting cannabis use and the patterns of cannabis use (type, duration, prescription use, etc.). Secondary outcomes included patient reported indication for cannabis use, sources of information about medical cannabis, and barriers to discussing cannabis with their physician.

Patients attending the gynecologic oncology clinic were invited to participate in an electronic survey at the time of their appointment during an initial pilot phase in February 2022, and then from August to December 2022. Posters advertising the survey were displayed in the clinic and waiting rooms, and patients were informed of the survey by the clinic nurse during recruitment. The survey consisted of 23 questions written in English language and was self-administered electronically. Data were collected and stored anonymously using the University of Calgary REDCap database. Statistical analysis included descriptive statistics of patient demographics (age, site of disease, stage, etc.). Prevalence of cannabis use was estimated from responses. For participants who use cannabis, the type and patterns of use were described using frequencies and proportions. This study was reviewed and approved by the University of Calgary Health Ethics Research Board (HREBA.CC-21-0366), with informed consent obtained from participants per institutional protocol.

3. Results

Forty-six patients participated in the survey. Participant demographics are listed in Table 1. The most common disease sites were ovarian cancer ($n = 23$, 50%) and uterine cancer ($n = 15$, 32.6%). There were patients of all stages who responded to the survey, with the most common response being stage III ($n = 13$, 28.2%) and stage IV ($n = 8$, 17.4%). Most respondents had received some form of systemic therapy with 35 (76.1%) receiving chemotherapy or immunotherapy. Of those patients, 16 (45.7%) were actively receiving chemotherapy or immunotherapy, and the remaining 19 patients had received systemic treatment in the past. Seventeen participants (37.0%) endorsed currently using cannabis (Table 2). Of the 29 participants not currently using cannabis, 7 had used cannabis in the past. The most cited reason for discontinuation was past recreational use only ($n = 3$). Five of the 16 patients currently receiving chemotherapy or immunotherapy reported using cannabis (31.3%).

For current cannabis users, the most common forms of cannabis were cannabis oils ($n = 8$, 47.1%), dried cannabis products (smoking, vaporizer, etc. $n = 6$, 35.3%), and edibles ($n = 2$, 11.8%). One patient reported using a synthetic cannabinoid. The most common symptoms

Table 1
Participant demographic information.

	Patients, n (%)
<i>Cancer Type</i>	
Ovarian	23 (50%)
Uterine	15 (32.6%)
Cervix	7 (15.2%)
Vulvar	1 (2.2%)
<i>Stage</i>	
I	6 (13.0%)
II	7 (15.2%)
III	13 (28.3%)
IV	8 (17.4%)
Unknown	12 (26.1%)
<i>Chemotherapy</i>	
Yes	35 (76.1%)
No	11 (23.9%)
<i>Radiation Therapy</i>	
Yes	13 (28.3%)
No	33 (71.7%)

Table 2
Patterns of cannabis use among respondents. Current cannabis use is presented as a percentage of the total patient cohort, while past cannabis use is presented as a percentage of the 29 patients not currently using cannabis. Method of administration, cannabis preparations, prescription use, where they obtain cannabis from, and duration of cannabis use are presented as a percentage of the 17 patients currently using cannabis.

	Patients, n (%)
<i>Current Cannabis Use</i>	
Yes	17 (37.0%)
No	29 (63.0%)
<i>Past Cannabis Use</i>	
Yes	7 (24.1%)
No	22 (78.9%)
<i>Method of Cannabis Administration</i>	
Oils	8 (47.1%)
Dried cannabis	6 (35.3%)
Edibles	2 (11.8%)
Capsules/tablets	1 (5.9%)
<i>Cannabis Preparations</i>	
CBD only	6 (35.3%)
CBD + THC	12 (70.6%)
Synthetic Preparations	1 (5.9%)
<i>Prescription Use</i>	
Yes	4 (23.5%)
No	13 (76.5%)
<i>Obtaining Cannabis</i>	
Recreational dispensary	11 (64.7%)
Licensed producer	5 (29.4%)
Private seller	2 (11.8%)
Home grow	0 (0%)
<i>Duration of Cannabis Use</i>	
< 3 months	2 (11.8%)
3–6 months	3 (17.6%)
6–12 months	2 (11.8%)
>12 months	10 (58.8%)

patients reported using cannabis for were pain (n = 9), anxiety (n = 9), and insomnia (n = 9) (Fig. 1). No respondents reported that cannabis was ineffective for their symptoms, or that they had experienced any side effects.

When asked about where they obtained cannabis and cannabis products, 11 participants (64.7%) reported acquiring their cannabis from a recreational dispensary, 5 (29.4%) from a licensed producer, and 2 participants (11.8%) reported acquiring their cannabis from a private seller. No participants reported growing their own cannabis. These methods of acquiring cannabis were not mutually exclusive and one participant endorsed using both a recreational dispensary and a private seller. Most participants who used cannabis had done so for greater than 12 months (n = 10, 58.8%).

Sources of information about cannabis use are outlined in Fig. 2. The most common sources of information were family/friends (n = 9), and cannabis retailers/shops (n = 9), followed by government websites (n = 7). When patients not using cannabis were asked where they would look for information about cannabis, friends/family (n = 20), and cannabis retailers/shops (n = 20) remained the most common responses. Only 8 of the 17 patients currently using cannabis had ever spoken to their oncologist about using cannabis, and only 2 of those 8 felt their doctor was able to address their questions about cannabis. Of the entire cohort, 13 respondents (28.3%) would like to speak to their doctor about cannabis, 9 (19.6%) were unsure, and 11 did not respond. However, of those currently using cannabis, only 1/17 reported they were not interested in discussing cannabis with their doctor. When asked what would make them more likely to talk to their doctor about cannabis, 26 (56.5%) responded if their physician started the conversation, 19 (41.3%) responded if they felt their physician would be able to provide them information that would help them, and 5 (10.9%) if they would talk to them without judgment.

4. Discussion

This survey of gynecologic cancer patients identified that 37% of participants were currently using cannabis, and over 50% had ever used cannabis. The proportion of patients currently using cannabis is higher than the general Canadian population, however this estimate is in keeping with estimates of other oncology populations (Pergam et al., 2017; Grimison et al., 2020). A 2019 study of gynecologic oncology patients reported 26.7% of participants had begun using cannabis since their cancer diagnosis (Blake et al., 2019). The most common symptoms patients in our study reported using cannabis for included pain, anxiety, and insomnia. Cannabinoids have been demonstrated to be effective in the management of chronic pain (Whiting et al., 2015; Wang et al., 2021); however, many of these studies have included chronic non-cancer pain, and the effectiveness in the gynecologic cancer

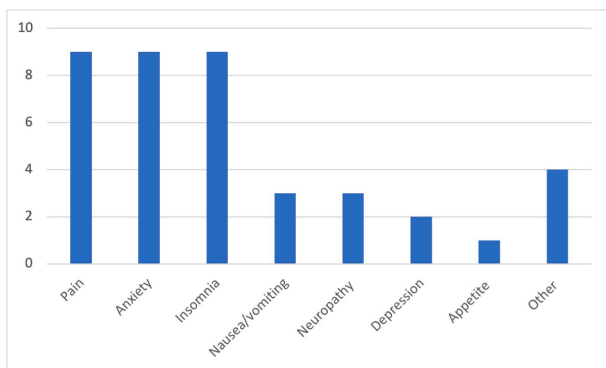
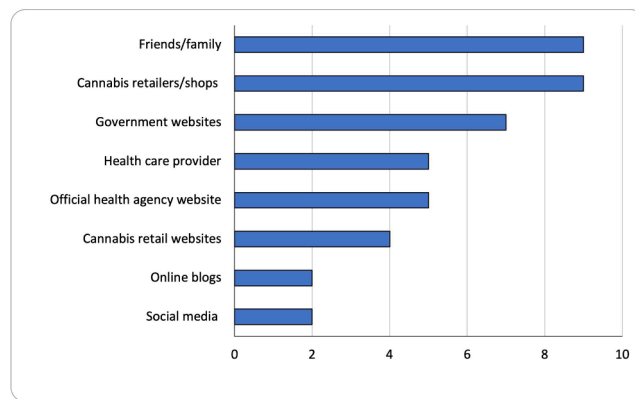
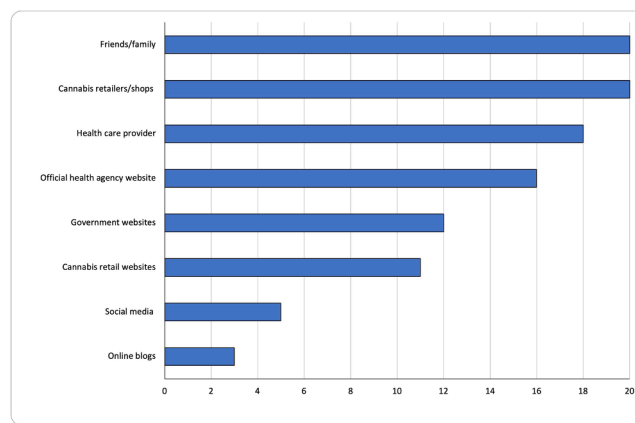


Fig. 1. Patient-reported symptoms for cannabis use. Patients were asked to select all that applied. Of the respondents who selected “other”, 2 reported using cannabis for perceived cancer treating benefits, 1 reported fatigue, and 1 reported recreational use only.



(a)



(b)

Fig. 2. Most common sources of cannabis information reported by patients. (A) is restricted to patients currently using cannabis, and (B) included patients not currently using cannabis who were asked where they would look for cannabis information.

population is uncertain. Pain was also the most common symptom reported by gynecologic oncology patients using non-prescription cannabis (Blake et al., 2019), as well as those using prescription cannabis products (Fehniger et al., 2021). Interestingly, the subjective effect of cannabis use on symptoms has conflicting evidence. In a survey of gynecologic oncology patients, 83% of those using medical cannabis endorsed relief of symptoms. Furthermore, 63% of those who were using cannabis for pain were able to decrease their opioids (Webster et al., 2020). There is population-level evidence from the United States suggesting cannabis legalization is correlated with decreased opioid use in cancer patients (Bao et al., 2023). Further research is needed to determine if there is a direct effect of cannabis on reducing opioid use in gynecologic cancer patients with chronic pain.

The majority of patients did not have a prescription for cannabis use, and most obtained their cannabis from a recreational dispensary. This differs from the findings by Blake et al, where most participants using non-prescription cannabis still obtained their cannabis from a medical dispensary (Blake et al., 2019). This finding is likely related to the differences in availability of recreational dispensaries in Canada (and perhaps the province of Alberta specifically). It is also alarming that 2 participants purchase their cannabis products from a black market “private seller”. These products do not have the same regulations in place as cannabis products purchased through a licensed producer or dispensary, and therefore are at higher risk of contamination with other substances (Canada, 2021). As cannabis use grows in popularity, it is necessary to identify barriers to discussing and accessing cannabis with patients to ensure they are using safe products.

The most common sources of information about cannabis were friends/family and the cannabis industry. This is in keeping with prior studies on medical cannabis use (Braun et al., 2021). Patients who gain information directly from the cannabis industry or from friends/family may be less likely to discuss the health-related risks and benefits to cannabis use. A 2021 study by Braun *et al* demonstrated that patients who spoke with their oncologist or primary care provider about cannabis were more likely to have discussed the medical evidence supporting cannabis use. Physicians have the medical knowledge to be able to counsel patients regarding the limitations of evidence for cannabis use, as well as potential risks such as drug interactions, which patients may not be receiving when they seek information from the cannabis industry. Thus, it is essential that physicians providing cancer care have a basic understanding of cannabis, or at minimum, the knowledge of where to refer patients who are interested in integrating cannabis into their care.

A survey of medical oncologists in the United States identified that only 25% of respondents felt sufficiently knowledgeable to make accurate recommendations about cannabis to their patients; but despite this, 80% had discussed medical cannabis with their patients at some point in time (Braun et al., 2018). An unpublished abstract presented at the Society of Gynecologic Oncology meeting in 2020 of 203 gynecologic oncologists reported that 68.2% did not have sufficient knowledge to make recommendations for or against medical cannabis use (Greenwood et al., 2020). This highlights an important gap in care, and education for healthcare providers regarding cannabis use is urgently needed. We are currently participating in the development of cannabis educational modules for the Gynecologic Oncology Society of Canada to address this gap.

Limitations of this study include the small sample size and potential for selection bias. There is the potential that patients using cannabis may have been more likely to respond to the survey favorably, possibly biasing the results. Furthermore, our study was only available in English which may have limited responses from potential participants who were unable to read or write in English and is another source of potential bias. We are unable to report an accurate response rate, as the number of patients approached for participation is unknown due to recruitment strategies including posters placed in waiting rooms and other public areas. Unfortunately, data on whether cannabis use preceded cancer diagnosis was not collected as part of the study and is a limitation. Understanding the temporal relationship between cancer diagnosis, treatment, and when users initiate cannabis use is an area of future research we are exploring. More research is also needed to determine if the results from this study are generalizable to other centers across Canada, or if cannabis perspectives vary regionally.

5. Conclusions

Cannabis use is common in our patient population, and the majority of patients are seeking cannabis information and products from outside the medical field. Further research is needed to understand the evidence for cannabis use in the gynecologic cancer population, and if there are patients who may experience greater benefits from cannabis. There is also an urgent need for physician education to ensure that patients have access to unbiased, evidence-based information to make decisions about cannabis use.

CRedit authorship contribution statement

Kristin A. Black: Conceptualization, Methodology, Investigation, Formal analysis, Writing – original draft, Writing – review & editing, Visualization, Funding acquisition. **Sylvie Bowden:** Investigation, Formal analysis, Writing – original draft, Writing – review & editing, Visualization. **Mary Thompson:** Investigation, Formal analysis, Writing – original draft, Writing – review & editing, Visualization. **Prafull Ghatge:** Conceptualization, Methodology, Investigation, Writing –

review & editing, Funding acquisition, Supervision.

Declaration of Competing Interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: The authors have no conflicts of interest to disclose. This study was funded by the University of Calgary Department of Obstetrics & Gynecology through a Department Education and Research Grant.

Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.gore.2023.101210>.

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