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BREIF REPORT



## Cancer patient's attitudes of using medicinal cannabis for sleep

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### ABSTRACT

**Purpose:** Poor sleep is one of the most common side effects of cancer treatment. One increasingly popular approach to manage side effects of cancer treatment is use of medicinal cannabis (MC).

**Design:** Cancer patients using MC participated in semi-structured interviews to assess their experiences with MC (n = 24). A multi-stage thematic analysis was applied to interview transcripts. Themes related to use of MC for sleep were extracted.

**Findings:** The majority reported MC use for sleep. These participants reported that MC improved sleep initiation and continuity, resulted in decreased use of sleep medications, and that improved sleep led to better health. No participant reported MC was ineffectual for sleep or caused undesirable side effects when used for sleep.

**Conclusions:** Cancer patients often utilize MC to specifically manage poor sleep. There is a need for rigorous studies assessing prevalence of use for this indication and clinical trials to assess comparative efficacy and safety.

### KEYWORDS

cancer patients;  
complementary therapy;  
medicinal cannabis;  
sleep problems

## Introduction

Poor sleep is among the most common and problematic issues experienced by cancer patients. Even prior to initiating cancer-directed therapy, one in eight such patients already report significant sleep problems.<sup>1</sup> The prevalence of sleep disorders quickly climbs once intensive and sleep-disrupting cancer-directed therapies begin; up to 87% of cancer patients report sleep problems during chemotherapy.<sup>2</sup> While pharmacologic measures to address sleep are frequently used by cancer patients, previous qualitative work suggests that cancer patients and their oncologists may increasingly turn to (medicinal cannabis) MC to manage some of these chemotherapy-related sleep disturbances.<sup>3,4</sup>

Over 3.5 million Americans use MC in compliance with their state law and a cancer diagnosis qualifies for MC certification under almost all state laws.<sup>5</sup> Cannabis is “increasingly being used by cancer patients to mitigate cancer and treatment-related side effects,”<sup>5</sup> both medically and recreationally due to more permissive state legislation. Comprehensive MC laws (which exist in all states from which this study recruited) allow for a wide variety of cannabis products, both with regard to potencies and ratios of active ingredients (e.g., delta-9-tetrahydrocannabinol and cannabidiol), as well as modes of self-administration. In this way, MC is little different from recreational adult use cannabis in terms of composition. The sourcing, however, may be different. Adult use cannabis is frequently sourced from cannabis dispensaries that are not “medicinal” or sourced informally.

Despite how common sleep problems are among cancer patients, the view that MC could improve quality-of-life by providing relief for various symptoms including insomnia,<sup>6</sup> and increasingly permissive MC regulations, literature investigating this relationship is limited.<sup>7</sup> Published literature on the effects of cannabis use on sleep is mixed, with research demonstrating that MC use is associated with alleviation of sleep problems<sup>8,9</sup> in contrast to recreational cannabis use being viewed as a risk factor for sleep problems.<sup>10,11</sup> We sought to address these important literature limitations by speaking with a diverse sample of cancer patients actively using MC. Specifically, we explored their experiences pertaining to MC use for sleep, without a priori hypotheses, with the hope that the informed assertions drawn from these analyses will lead to future investigations to understand the underlying meanings and mechanisms of this phenomenon.

## Methods

The findings presented here are secondary data analyses from a larger study designed to understand the experience of cancer patients using MC.<sup>12</sup> Briefly, we purposefully selected eight geographically- and culturally-diverse states/districts with permissive MC legislation, and approached state-sanctioned MC dispensaries. We asked dispensaries to distribute study flyers at storefronts to all clients, regardless of medical diagnosis and enrolled participants who were over 18 years of age, U.S. residents, English-speaking, and having a physician-verified cancer history and state-authorization to obtain medical cannabis. Eligibility was confirmed using a telephone screener by study staff. We utilized purposeful sampling to capture geographic, demographic, cancer type, and cancer stage diversity by employing strategies such as recruiting a maximum of 5 participants/state and including patients in remission, with data collection ending when meaning saturation for the parent study was achieved.<sup>13</sup> This study was approved by our hospital’s IRB.

The senior investigator (IMB), along with two qualitative methodologists, drafted a semi-structured interview guide that was then reviewed by a multi-disciplinary group at our institution for completeness and comprehension. A single researcher with qualitative interview experience (MMN) conducted semi-structured interviews which were audio-recorded, transcribed, de-identified, and then analyzed. Two study authors (ESZ and MMN) coded and analyzed transcripts using a multi-stage thematic analysis that combined prefigured and emergent codes; our analysis plan included features of grounded theory and applied framework analysis. Established domains from a literature review and interview guide provided the codebook's initial framework. An inductive open coding approach was next applied to transcripts and emergent concepts added to finalize the codebook. NVivo 12 (QSR International) facilitated manual transcript coding. We adhered to the consolidated criteria for reporting qualitative research (COREQ) guidelines to ensure quality standards in data analysis were met.

## **Results and discussion**

Between April 2017 and March 2019, 24 participants enrolled in the study, representing seven states and the District of Columbia. Participants were a median age of 57-years (range 30–71); primarily female (67%); with a range of cancers (breast, prostate, bladder, colon, endometrial, testicular, brain, cervical, and blood) and stages (51% metastatic/incurable, 33% early-stage, 17% in remission). All participants described the application of MC for sleep. [Table 1](#) displays major themes with exemplar quotes.

### ***Medical cannabis as a sleep aid***

Most participants reported using MC to assist with sleep. The experiences of those using MC for sleep were positive. Many endorsed that MC resolved difficulties with falling and/or staying asleep at night, and decreased use of prescription medications for insomnia and psychiatric distress (hypnotics, benzodiazepine receptor-agonists, and antidepressants). Other participants cited health benefits attributable to MC-related sleep improvements (less anxiety and pain). No participant reported that MC, when used for sleep, was ineffectual or fraught with side effects. No participant reported that improved sleep due to MC use was secondary to improvements in other symptoms (e.g., anxiety or pain).

**Table 1.** Key themes and exemplar quotes related to medical cannabis use for sleep in cancer patients.

Theme	Sub-theme	Exemplar quotes (age/sex/cancer diagnosis)
Medical cannabis as sleep aid	Improves sleep	<p>"I can lay down and go to sleep whereas I couldn't before." (64/M/lung)</p> <p>"Without the cannabis, I cannot get a night's sleep." (50/F/endometrial)</p> <p>"It solved my sleeping issues. I never used to sleep through the night. My mind would race. I would wake up. I would toss, I would turn. Now, a bomb could go off. I'm not waking up." (45/M/brain)</p> <p>"This thing allowed me to sleep right through to about six, seven hours straight." (63/F/bladder)</p>
	Improvement in health outcomes	<p>"I wasn't so anxious. I wasn't so tense. The pain was lessened. I sleep, my mental attitude became better. It was just like a wonderful circle of events." (57/F/breast)</p> <p>ID164 "Just being able to get some sleep, I get some rest and I can weather the emotional ups and downs better." (50/F/endometrial)</p>
	Reductions in prescription and over-the-counter medication use	<p>"I know that it helps me sleep and in place of the [lorazepam]." (35/F/breast)</p> <p>"It solved my sleeping issues ... I don't take antidepressants anymore, which that was a huge, huge thing for me. And I take nothing! I believe I was taking [bupropion] and it might have been [fluoxetine]." (45/M/brain)</p> <p>"I take less [alprazolam] now ... Now if I get up in the middle of the night I take one puff of my vape pen and I don't take a [alprazolam]." (64/F/lung)</p> <p>"I was taking a sleeping pill every night, [zolpidem], to sleep. And if I just take like a half a gummy or something like that I can sleep and I wake up feeling very refreshed. And I sleep the entire night. With the [zolpidem], I still, sometimes, would wake up and when I'd wake up in the morning I would be very groggy for several hours because of that medicine." (64/F/breast)</p>
Considerations for use of medical cannabis as sleep aid	Cannabis indica preferred	<p>"I would do the indica-based [tetrahydrocannabinol] marijuana to sleep in a vape pen." (64/F/lung)</p> <p>"But when you're treating cancer, you have to have indica. Indica is more sleep-inducing, relaxing; that's the kind you want for cancer, not the sativa." (45/M/brain)</p>
	Bedtime administration	<p>"It takes me about an hour or an hour-and-a-half to feel the full effect ... so I time it with my sleep time ... I would take it before I go to bed." (50/F/endometrial)</p> <p>"I would take it mostly at night. So I could sleep." (61/F/bladder)</p>

### ***Considerations for using MC as a sleep aid***

Most participants discussed specific strains of MC that they believed to be most appropriate when targeting sleep. Participants reported that Cannabis indica (known for its 'full-body' relaxation effects), rather than Cannabis sativa (known for its 'head high' that can be invigorating), was preferred. This is consistent with Cannabis species preferences among sleep-disturbed MC users.<sup>14</sup> Participants also described the importance of timing (use too

early during the day may lead to excessive daytime sleepiness and insomnia) and dosing (a higher dose may lead to somnolence prior to desired bedtime) of MC. Participants reported self-experimentation in titrating both dose and time as the prevailing method to appropriately utilize MC for sleep.

In a qualitative study seeking to broadly understand cancer patients' medical cannabis experiences, a novel emergent theme was of MC used to address sleep. The majority of participants volunteered poor sleep as a symptom for MC use despite no probes on this topic in the initial interview guide. Due to MC-related sleep improvements, participants reported decreased pain, better mental health, and reductions in other medications for these indications. Those who commented on MC strains for sleep favored *Cannabis indica* species taken before bedtime. Strikingly, not a single participant reported having tried MC for sleep without effect or with untoward side-effects. While our study involved cancer patients during treatment, it is worth noting that their sleep problems are likely to persist well into survivorship.<sup>15</sup> Thus, it is important that they learn to effectively manage their poor sleep as early as possible during their cancer journey.

We acknowledge several key limitations of our research. This study involved a sample of patients interested in participating in research, which can be impacted by selection bias. Second, as our interviews were only conducted with cancer patients, these findings are not generalizable to other adult populations who are able to access MC.

## **Conclusion**

Medical cannabis laws do not specify for which indications cancer patients should use. Despite this, our findings suggest that some cancer patients have already turned to MC for sleep, with resultant reductions in their use of other medications, including benzodiazepines and antidepressants. Clinical options currently available to improve sleep are limited by risks (polypharmacy) or are not readily available at cancer centers (cognitive-behavioral therapy for insomnia).<sup>16</sup> Given the high prevalence of poor sleep among cancer patients, and the common use of MC as a treatment, our findings indicate a compelling need to conduct a rigorous study assessing true prevalence of use for this indication, as well as a comparative efficacy/risk trial of *Cannabis indica* for sleep in this patient population. At the provider level, clinicians are encouraged to learn more about the status of MC and recreational adult use cannabis laws in the state where they practice.

## **Disclosure statement**

The authors do not have any disclosures to report.

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## Data availability

The data that support the findings of this study are available from the senior author,(IMB), upon reasonable request.

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