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Cannabis Perceptions and Patterns of Use Among Older Adult Cancer Survivors

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Abstract

Objectives: To descriptively assess cannabis perceptions and patterns of use among older adult cancer survivors in a state without a legal cannabis marketplace.

Methods: This study used weighted prevalence estimates to cross-sectionally describe cannabis perceptions and patterns of use among older (65+) adults ($N = 524$) in a National Cancer Institute-designated center in a state without legal cannabis access.

Results: Half (46%) had ever used cannabis (18% following diagnosis and 10% currently). Only 8% had discussed cannabis with their provider. For those using post-diagnosis, the most common reason was for pain (44%), followed by insomnia (43%), with smoking being the most common (40%) mode of use. Few (<3%) reported that cannabis had worsened any of their symptoms.

Discussion: Even within a state without a legal cannabis marketplace, older cancer survivors might commonly use cannabis to alleviate health concerns but unlikely to discuss this with their providers.

Keywords

cannabis; oncology; older cancer survivors

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Author Contributions

M.C.F. contributed to study conceptualization and conducted the literature review, statistical analysis, and drafting of the original manuscript draft. K. J. W. contributed to study conceptualization, conducted statistical analysis, and edited the manuscript. A.M.B. contributed to study conceptualization and edited the manuscript. R.L.T. contributed to study conceptualization and edited the manuscript. B.A.K. contributed to study conceptualization and edited the manuscript. E.A.M. acquired study funding, oversaw all study procedures, contributed to study conceptualization, and provided edits to the manuscript.

Declaration of Conflicting Interests

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Introduction

The prevalence of cannabis use in older age (65+ years) has increased dramatically (75% between 2015 and 2018), with 4.2% of U.S. older adults reporting past year use in 2018 (Han & Palamar, 2020). Older adults in the general population most frequently report health concerns (e.g., pain, insomnia), followed by anxiety and depression, as reasons for using cannabis (Kaufmann et al., 2022; Reynolds et al., 2018; Tumati et al., 2022; Yang et al., 2021). Rates and patterns of cannabis use can vary depending on numerous factors, including co-occurring medical diagnoses such as cancer (Arora et al., 2021; Choi et al., 2016; Han et al., 2017; Javanbakht et al., 2022; Kaskie et al., 2021; Maxwell et al., 2021; Subbaraman & Kerr, 2021).

The likelihood of a cancer diagnosis increases with advancing age (National Cancer Institute, 2021) and recent evidence suggests that older adult cancer survivors use cannabis at higher rates than older adults in the general population (Han & Palamar, 2020; Rajasekhara et al., 2022). In a study conducted within a state with a medical cannabis program (Rajasekhara et al., 2022), 8% of older cancer survivors completing routine urine drug testing tested positive for tetrahydrocannabinol (THC). This rate is twice as high as the 4.2% reported in the general population (Han & Palamar, 2020). Emerging research does indicate that medical cannabis use for adult oncology patients is safe (Aviram et al., 2020, 2022) and that patients perceive cannabis as beneficial for their symptom management (Pergam et al., 2017; Rosa et al., 2020; Vinette et al., 2022; Wegier et al., 2020). However, efficacy data on the medicinal use of cannabis is minimal, particularly among older adults (Minerbi, 2019). Older adulthood is a distinct developmental period, with increased risk of potential negative side effects from cannabis use (Choi et al., 2018; Cigolle et al., 2007; Han et al., 2023; Han et al., 2021; Hedrickson et al., 2020 Minerbi et al., 2019). For example, sedation and dizziness from cannabis can increase fall risk (Minerbi et al., 2019). In fact, there are increasing rates of cannabis-related emergency room visits among older adults (Han et al., 2023). Further, cardiac infarctions can be a side effect of cannabis use among those with unstable cardiac disease, a condition that is more prevalent in older adulthood (Minerbi et al., 2019). Therefore, a patient's age is an important factor in evaluating the risks and benefits of cannabis use within the context of oncology care.

Despite unique aging-related considerations, there is limited research evaluating patterns of cannabis use among older adult cancer survivors. To our knowledge, no study has evaluated cannabis use patterns among older adult cancer survivors in a state without a legal cannabis marketplace. This information is relevant for oncology care, given that there remain 12 U.S. states with no medical or recreational cannabis programs (State Medical Cannabis Laws, 2022). Thus, this cross-sectional study used weighted prevalence estimates to describe cannabis perceptions and patterns of use, as well as rate of discussing cannabis with their provider, among older (65+) adults receiving care in a National Cancer Institute (NCI)-designated center in South Carolina. Cannabis is unregulated in South Carolina; however, low THC [the psychoactive cannabinoid in cannabis] and high CBD [cannabidiol, non-psychoactive cannabinoid], and CBD-only products are widely available. In addition, delta-8 THC (which functions similarly to delta-9 THC, the primary psychoactive cannabinoid in cannabis) is available over the counter in various forms (e.g., vapes, edibles) (Babalonis

et al., 2021). As a secondary aim, we explored age-group differences within older age (65–74 vs. 75+ years) in relation to cannabis outcomes given a potential cohort effect and developmental distinction between these age groups (Lachman, 2001; Orimo et al., 2006). We hypothesized that prevalence among this sample would be lower than in oncology settings with medical cannabis programs (Rajasekhara et al., 2022) and discussions with providers would be uncommon (given no legal access to cannabis). We expected the most common reasons for using cannabis would be for pain and insomnia, patterns of use would be varied (e.g., modes of ingestion), and that this population would commonly perceive cannabis as beneficial for their symptoms.

Methods

Parent Study Setting and Sampling Methods

The NCI Cannabis Supplement was awarded to 12 NCI cancer centers across the US, including the Hollings Cancer Center (HCC) at the Medical University of South Carolina (MUSC) (National Cancer Institute, 2021) in South Carolina. Inclusion criteria to the parent study included being 18+ years of age, able to speak English, and having received a cancer diagnosis or treatment from January 2018 to December 2020 at HCC. Using probability sampling methods, the MUSC Biomedical Informatics Center randomly selected a total of 8000 patients from the HCC cancer registry diagnosed between January 2018 and December 2020. Of those eligible, there was a 13.4% survey response rate. Non-response analysis found differences by age category, sex, and race, based on electronic medical record (EMR) information. The parent study sample was weighted to HCC population totals by these demographic categories to account for potential non-response bias. Final HCC sample included 1036 survey completers. More detailed information about parent study procedures, weighing and primary outcomes from the entire sample can be found elsewhere (McClure et al., 2023).

Current Study Sample

This study is a subgroup analysis of older adults (65+ years) ($N = 524$; 51%) from the parent study ($N = 1036$) (McClure et al., 2023).

Procedures

After agreeing to participate in the survey (waiver of signed informed consent was approved for procedures) online or via phone, participants were directed to a one-time survey (10–30 minutes) and received a \$20 Amazon gift code for completion. Cannabis was defined as: *marijuana, cannabis concentrates, edibles, lotions, ointments, tinctures containing cannabis, CBD-only products, pharmaceutical or prescription cannabinoids (e.g., Dronabinol, Nabilone, Marion, Syndros, Cessamet), and other products made with cannabis*. Given this inclusive definition of cannabis, this study was not able to differentiate outcomes among THC-dominant products compared to others (e.g., CBD-dominant, delta-8). All procedures were approved by MUSC Institutional Review Board.

Measures

The survey instrument was developed collaboratively between 12 NCI centers for potential harmonization of data across settings (National Cancer Institute, 2021).

Demographics and Cancer Type/Treatment.—Demographics (i.e., age, sex at birth, race, and ethnicity) were extracted from the MUSC EMR to inform non-responder analysis and to weight the sample. At baseline, participants also reported education, healthcare coverage, employment, marital status, primary cancer site, and cancer treatment status.

Cannabis Risks and Benefits.—All participants (regardless of cannabis use) selected (check all that apply) from a list of potential risks and benefits of cannabis use. The list included 15 benefits and 20 risks, with *other* as an option for both (see Tables and Figures for the full list of items for all measures).

Cannabis Education and Instructions.—All participants were asked if they had discussed using cannabis for their cancer symptoms with a healthcare provider (*yes* vs. *no*) and how comfortable they would feel talking with their provider about cannabis on a 4-point Likert scale (*extremely comfortable* to *extremely uncomfortable*). Those who endorsed cannabis use following diagnosis were asked, “Who is the main person that gives you instructions on how to use cannabis and how much to take?” (8 options including *other* and *no one*).

Patterns of Cannabis Use.—All were asked if they had ever used cannabis any time before their diagnosis (*yes* vs. *no*) and since diagnosis (*yes* vs. *no*). Those endorsing use since diagnosis reported if they had used during their cancer treatment (*yes* vs. *no*), and if they were currently using cannabis (*yes* vs. *no*). Those endorsing post-diagnosis use were asked their primary mode of using cannabis (8 options including *other*).

Reasons for Use.—Participants who used cannabis since diagnosis were asked to identify (check all that apply) 13 different reasons for their cannabis use.

Symptom Management.—Those endorsing cannabis use since diagnosis reported how cannabis improved or worsened 9 different symptoms using a 5-point Likert scale. Participants could also respond, “*I do not have this symptom.*”

Data Analysis

Weighting Procedures

Sample weights were based on selection probabilities, non-response adjustment (age, sex, and race), and post-stratification via raking to match the sample to known subgroup populations in the target population. Sample proportions are similar to population proportions, with the exception of the 75+ years age group, who were under sampled in comparison to the population. Weighted prevalence estimates in this study are therefore more representative of the older adult population (65+ years) receiving a diagnosis or cancer care at MUSC (2018–2020).

Descriptive Estimates

Unweighted (*N*'s) and weighted descriptive statistics were estimated for demographic characteristics, cancer type, and treatment status among the older adult (65+ years) sample, and specific to age groups (65–74 years, 75+ years). Weighted descriptive analyses were conducted using the *svyset* function in Stata 15.1 (StataCorp, 2017). This function specifies design characteristics using sampling units and weights. Because the sample was large relative to the population (i.e., >5%), the finite population correction was used to estimate standard errors. Weighted descriptives assessed perceptions of cannabis (risks and benefits), cannabis education/instruction (i.e., discussion with provider, comfort talking to provider, source of instructions), and rates of use (ever use, post-diagnosis use, current use) among the entire older adult sample. For those who reported cannabis use since diagnosis, weighted prevalence estimates were provided for primary mode of use, reasons for use, and self-reported impact of cannabis on symptoms.

Age-Group Comparisons

Weighted chi-square analyses examined age-group differences (65–74 years vs. 75+) in relation to belief in any cannabis benefits, any cannabis risks, cannabis education/instruction variables (discussion with a provider, comfort talking to provider, source of instructions) and patterns of use (ever use, post-diagnosis use, current use, primary mode of use). Significance was defined as $p < .05$.

Results

Demographic and Clinical Characteristics

In this older adult population ($N = 524$), age ranged from 65 to 92 years ($M = 72.3$, $SD = 5.3$). Weighted estimate indicated 59.5% (95% CI: 58.4, 60.6) were between 65 and 74 years ($N = 374$) and 40.5% (95% CI: 39.4, 41.6) ($N = 150$) were 75+ years. The most common primary site for cancer was breast (20.0%; 95% CI: 19.2, 20.9), followed by melanoma and skin (10.8%; 95% CI: 10.2–11.5), head/neck (10.6%; 95% CI: 9.9 – 11.2), and prostate (10.6%; 95% CI: 9.9 – 11.4). The majority (73.4%; 95% CI: 72.4, 74.4) had completed cancer treatment at the time of this survey, 23.0% (95% CI: 22.1, 24.0) were in active treatment, and 3.6% (95% CI: 3.2, 4.0) had not yet begun treatment. Additional unweighted and weighted demographics are presented in Table 1.

Age-Group Comparisons.—Age-group differences were found by sex at birth [$\chi^2(2) = 9.5$, $p = .01$], race [$\chi^2(5) = 20.4$, $p < .001$], employment status [$\chi^2(6) = 21.0$, $p < .001$], and marital status [$\chi^2(6) = 28.8$, $p < .001$] (Table 1). Compared to younger patients (65–74 years), the population of patients 75+ years were more likely to be male (62.3% vs. 51.0%), White (88.9% vs. 74.1%), retired (88.5% vs. 75.5%), and married (70.2% vs. 63.0%). Ethnicity, education, and health insurance status did not differ by age group (p 's > .05).

Cannabis Perceptions

Benefits.—Among older adult cancer patients, 79.8% believed there were benefits to cannabis use (Table 2; Figure 1 for weighted estimates of all benefits). The most endorsed

benefit was pain management (71.0%), followed by relief of stress, anxiety, or depression (61.1%), managing cancer treatment side effects (44.9%), and improving sleep (38.1%).

Risks.—Among older adults, 68.7% believed there were risks related to cannabis use (Table 2; Figure 2). The most common perceived risk was addiction to cannabis (38.4%), followed by legal risks (35.2%), inability to drive (33.7%), and difficulty concentrating (29.7%).

Age-Group Comparisons.—Older patients (75+ years) were more likely to believe there were risks to cannabis use compared to those younger (65–74 years) [$\chi^2(1) = 12.49, p < .001$] (Table 2). No difference was observed in the perception of benefits.

Cannabis Education/Instructions

An estimated 7.9% (95% CI: 7.4, 8.4) ($N = 48$) of the older population ($N = 524$) had discussed using cannabis with their provider. From response options *extremely comfortable* (1) to *extremely uncomfortable* (4), about half said they would feel extremely comfortable talking to their provider about cannabis, while about 10% endorsed feeling extremely uncomfortable. For those who used cannabis since diagnosis ($N = 107$), about half did not receive instructions about using cannabis from anyone, while about 20% received instructions from a friend or family member (Table 2).

Age-Group Comparisons.—Those 65–74 years were more likely to have discussed cannabis with a provider compared to those 75+ (12.2% vs. 1.5%) [$\chi^2(1) = 20.1, p < .001$] (Table 2). Of those endorsing use since diagnosis, source of cannabis instructions differed by age group [$\chi^2(8) = 19.3, p = .01$]. The most common source among those 75+ years was from a friend or family member, yet younger patients (65–74 years) were most likely to receive instructions from no one. Comfort in talking to a provider about cannabis did not differ by age ($\chi^2(3) = 2.57, p = .46$).

Patterns of Cannabis Use

Weighted prevalence estimates of lifetime cannabis use (46.0%), use since diagnosis (18.2%), and current use (9.8%) of the entire older adult population are presented in Table 2, as well as by age group. Among all who used cannabis since diagnosis ($N = 107$), approximately half used *during* their cancer treatment, and 7.0% had not yet started treatment. After diagnosis, weighted estimates indicated that the most common primary mode of use was smoking via a joint, bong, pipe, or blunt (40.4%), followed by eating cannabis in food (brownies, cakes, cookies, and candy) (26.3%).

Age-Group Comparisons.—Younger patients (65–74 years) were more likely to report ever use [$\chi^2(1) = 33.3, p < .001$], use since diagnosis [$\chi^2(1) = 25.7, p < .001$], and current use [$\chi^2(1) = 27.0, p < .001$] (Table 2). There were no age differences in cannabis use during treatment [$\chi^2(1) = 3.69, p = .054$]. Age-group differences were found by primary mode of use [$\chi^2(6) = 18.5, p = .01$]. Older patients (75+ years) had a lower prevalence of smoking compared to younger patients (22.5% vs. 47.2%, respectively), as well as a higher prevalence of consuming via food (46.3% vs. 21.9%, respectively).

Reasons for Cannabis Use

Of those using cannabis post-diagnosis ($N = 107$), the most common reason was for pain (estimated 44.3%; 95% CI: 41.9, 46.7) ($n = 47$). Others (in order of prevalence) were: 43.4% (95% CI: 41.1, 45.8) ($n = 49$) for help with sleeping, 38.1% (95% CI: 3.6, 4.0) ($n = 39$) recreationally/for enjoyment, 37.3% (95% CI: 35.0, 39.7) ($n = 38$) to manage stress, anxiety or depression, 20.5% (95% CI: 18.5, 22.7) ($n = 18$) to increase appetite, 15.0% (95% CI: 13.4, 16.8) ($n = 16$) for digestive problems, 10.7% (95% CI: 9.3, 12.4) ($n = 11$) for neuropathy relief, 8.7% (95% CI: 7.4, 10.2) ($n = 9$) for lack of energy/fatigue, 8.6% (95% CI: 7.3, 10.2) ($n = 8$) for *other* reason, 5.7% (95% CI: 4.6, 7.1) ($n = 5$) as treatment/cure for cancer, 5.4% (95% CI: 4.4, 6.5) ($n = 6$) for lack of sexual interest/activity, 4.8% (95% CI: 3.9, 5.9) ($n = 5$) for another cancer symptom or cancer treatment side effect not listed, 4.3% (95% CI: 3.5, 5.3) ($n = 5$) to help with concentration, 1.6% (95% CI: 1.1, 2.2) ($n = 2$) for skin problems, and 0.9% (95% CI: 0.5, 2.4) ($n = 1$) for sweating symptoms.

Symptom Management

Symptom improvement (i.e., at least somewhat improved) was endorsed for pain (48%), stress, anxiety, depression (49%), insomnia (55%), and loss of appetite (31%; Figure 3). Most common symptoms that participants endorsed *improved quite a bit*, included pain (27.7%), followed by insomnia/difficulty sleeping (27.3%), and stress, anxiety, depression (23.5%).

Discussion

This study provides cross-sectional weighted estimates of cannabis perceptions and patterns of use among an older adult population (65+ years) diagnosed with cancer in an NCI-designated cancer center in a state without a legal cannabis marketplace. Most older adults (80%) believed there were benefits to using cannabis, with pain management, relief from stress, anxiety, or depression, and relief from cancer treatment side effects the most common possible benefits endorsed. Yet, over half of this population (69%) also believed there were risks, with addiction (to cannabis), legal concerns, and driving impairment among the most endorsed negative consequences. Overall, almost half (46%) had ever used cannabis, with 18% using after their diagnosis (i.e., within the past two years) and 10% currently using (i.e., within the past month). Among those using cannabis following their diagnosis, half used *during* treatment. These rates were largely driven by the age group 65–74 years, with patients 75+ years less likely to report lifetime, post-diagnosis, or current use of cannabis. Overall prevalence of current cannabis use was higher than national estimates of self-reported past year use in the general older adult population (4.2%), (Han & Palamar, 2020) and more consistent with a sample of older adults (8%) receiving oncology care within a state with a medical cannabis program (Rajasekhara et al., 2022). Our findings suggest it is not uncommon for older adult cancer survivors (particularly those 65–74 years) to use cannabis, even within a state without recreational or medical cannabis programs. This study underscores the importance of oncology providers assessing and discussing cannabis use with their older patients, regardless of the cannabis legalization status of their state.

Only 8% of this population had discussed the use of cannabis for cancer symptoms with their healthcare provider, although the vast majority (76%) said they would feel comfortable (or extremely comfortable) doing so. These conversations were mostly occurring among the 65–74-year age-group, with only 2% of patients 75+ years reporting provider discussions. Notably, over half (52%) who used cannabis since their diagnosis said they had not received instructions about how to use or how much to take. Given that 18% of this sample used cannabis following their cancer diagnosis, and that there are unique medical concerns when using cannabis in older age (e.g., sedation and dizziness), (Cigolle et al., 2007; Han et al., 2021; Le & Palamar, 2019; Minerbi et al., 2019) it is concerning that few received cannabis education or instructions. This evidence indicates these patients did not initiate conversations about cannabis or engage in conversations with providers and therefore could not be provided with information on possible risks, recommendations for use, and/or harm reduction strategies. For example, combustible cannabis use (e.g., joint, bong) rather than other ingestion sources (e.g., edibles) is associated with risk of negative pulmonary and respiratory outcomes (Ribeiro & Ind, 2016). There are also unique considerations when consuming edible cannabis in older age, such as changes in metabolism (Minerbi et al., 2019). Given lower national rates of cannabis use in older age compared to other age groups, providers might presume older adults are not using cannabis (Han & Palamar, 2020). However, results presented here suggest older adults are indeed using cannabis, and they are comfortable discussing this with their providers. The increasing prevalence rate of cannabis within older adults (Han & Palamar, 2020) further supports the assessment and discussion of cannabis among oncology patients across the lifespan.

Pain and sleeping difficulty were the most common reasons older adults used cannabis following their diagnosis. These reasons could be because pain and insomnia are common medical concerns among both older adults in the general population and cancer survivors of all ages (Cigolle et al., 2007; Slade et al., 2020). However, almost half (43%) of this population who endorsed cannabis use following diagnosis did not use cannabis *during* cancer treatment. Therefore, these symptoms might not be cancer treatment specific. It will also be important for oncology providers to consider that older patients may be managing pain and sleeping difficulty with cannabis, but not disclosing this information for a myriad of stigma or legality-related reasons.

Compared to the larger parent study ($N=1036$; patients aged 18+) (McClure et al., 2023), post-diagnosis (18% vs. 26%, respectively), and current use, (10% vs. 15%) rates were somewhat lower within this older (65+) population. Most common reasons for using post-diagnosis (i.e., pain and sleep) were consistent with the larger sample. Comparisons with this larger sample indicate older cancer survivors use cannabis at comparative (yet lower) rates and for similar reasons as younger ages.

Most older adults believed that cannabis either improved or did not change their treatment symptoms. Very few (3% or less) indicated that cannabis had worsened any of their symptoms. In fact, about half believed that cannabis improved their pain, and more than half (56%) believed it improved their sleep. Yet, these self-reports are retrospective, and symptoms may not have been cancer treatment specific. It is also unknown if evidence-based treatment approaches for pain, difficulty sleeping, and other symptoms were attempted

previously and were unsuccessful. Longitudinal evidence is needed to better understand how cannabis impacts pain and insomnia, as well as other relevant symptoms, in this population.

Older patients (75+ years) were more likely to believe there were risks to using cannabis, less likely to have used cannabis, and more likely to have ingested cannabis in food rather than via smoking. Findings highlight developmental differences in cannabis patterns of use even within older age. As legalization of cannabis continues to increase in the U.S. (Hartman, 2022), acceptability and prevalence of cannabis might also grow in this oldest age group. Those currently 75+ years of age might be more influenced by long-term stigma and concerns for using cannabis. It is also possible that once oncology patients reach 75 years, they believe the risks of cannabis outweigh the potential benefits of personal use. Regardless, it will be important for researchers and providers to consider differential patterns of cannabis use across these two distinct age groups.

Limitations of the current study include the cross-sectional design and reliance on retrospective self-report. Future studies would benefit from assessing cannabis use with objective measurements and biochemical verification, as well as clinical outcomes and other measures obtained through the medical record. Early survey invitations included reference to cannabis, which might have elicited greater response rates among those with more positive cannabis perceptions. After study start, invitations removed cannabis language and described the study as a survey about health behavior. Further, given the definition of cannabis, this study was not able to differentiate outcomes among THC versus CBD-dominant products. Although this study was a smaller, subgroup population of the larger parent study, this sample was weighted to account for selection probabilities, non-response adjustment, and to match the sample to the target population of older adults receiving a diagnosis or cancer care at this NCI-designated cancer center. Regardless, it will be important for future studies to examine larger, diverse samples of older adult cancer patients, particularly for those 75+ years.

Conclusions

Most older adults (65+ years) at an NCI-designated cancer center in a state without a legal cannabis marketplace believed there were benefits to cannabis use, with pain and managing mental health the most common. About 18% had used cannabis since their cancer diagnosis, with pain and insomnia the most common reasons for use, though were not necessarily symptoms attributed to cancer treatment. Prevalence rates were largely driven by older adults aged 65–74 years, with those 75+ less likely to have used cannabis during all time frames assessed. Overall, among those using cannabis since diagnosis, most indicated that cannabis either improved or had no effect on their symptoms. Findings indicate that older oncology patients might commonly use cannabis to alleviate or manage health symptoms but might not initiate conversations with providers. Healthcare systems and oncology care teams require evidence-based recommendations and guidance to inform shared decision-making about cannabis with their older patients and the unique concerns faced by older adults.

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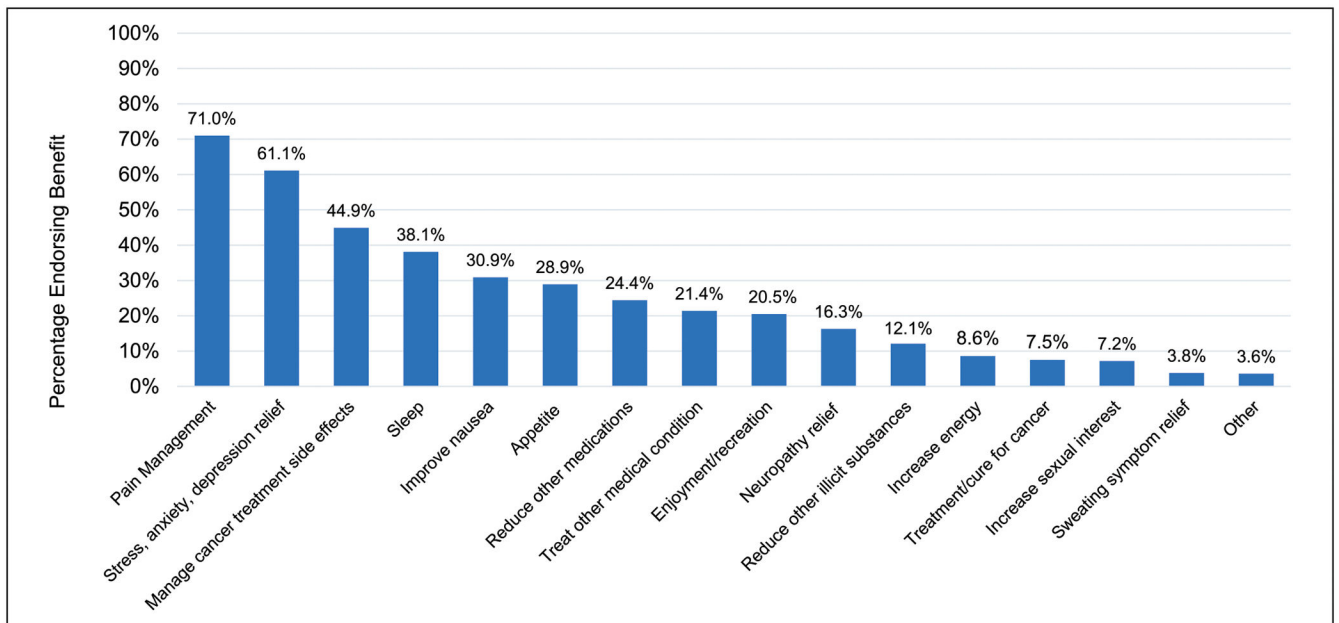


Figure 1. Weighted Estimates of Perceived Benefits of Cannabis Among Older Adult Cancer Patients ($N = 524$). Note: Asked of all older adults, regardless of self-reported cannabis use. Survey item instructed “check all that apply.”

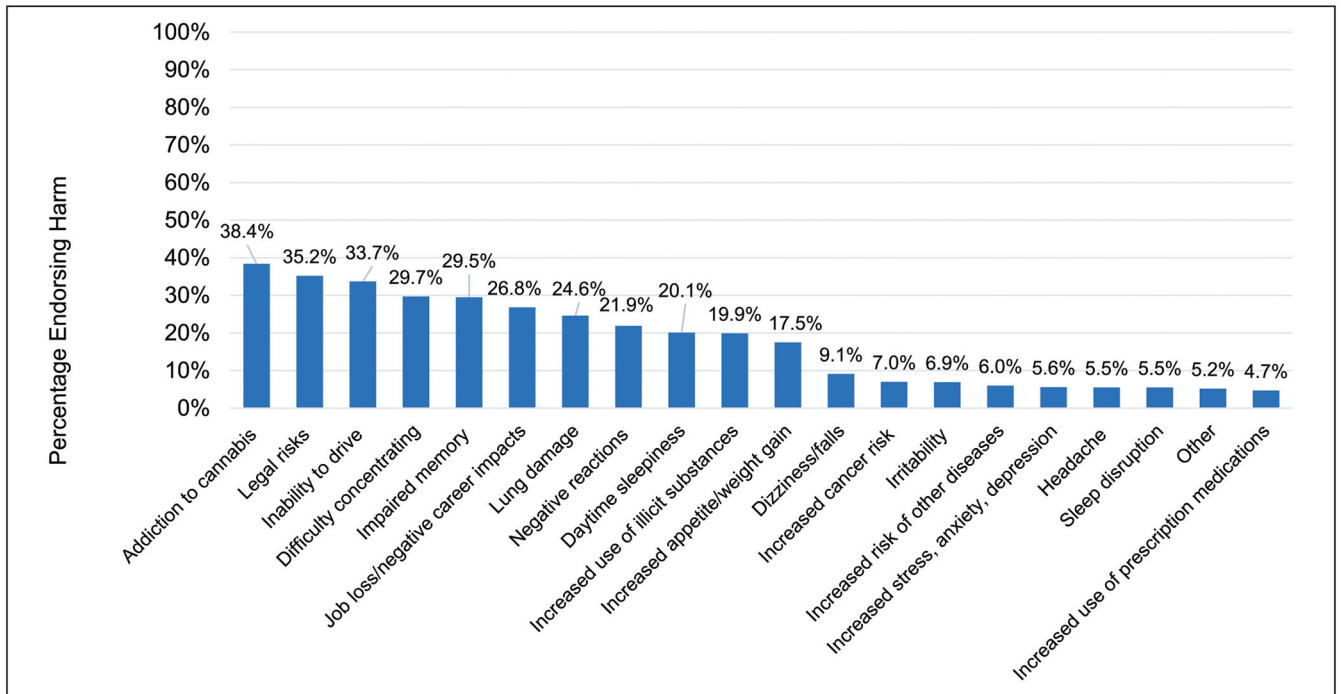


Figure 2. Weighted Estimates of Perceived Harms of Cannabis Among Older Adult Cancer Patients ($N = 524$). Note: Asked of all older adults, regardless of self-reported cannabis use. Survey item instructed “check all that apply.”

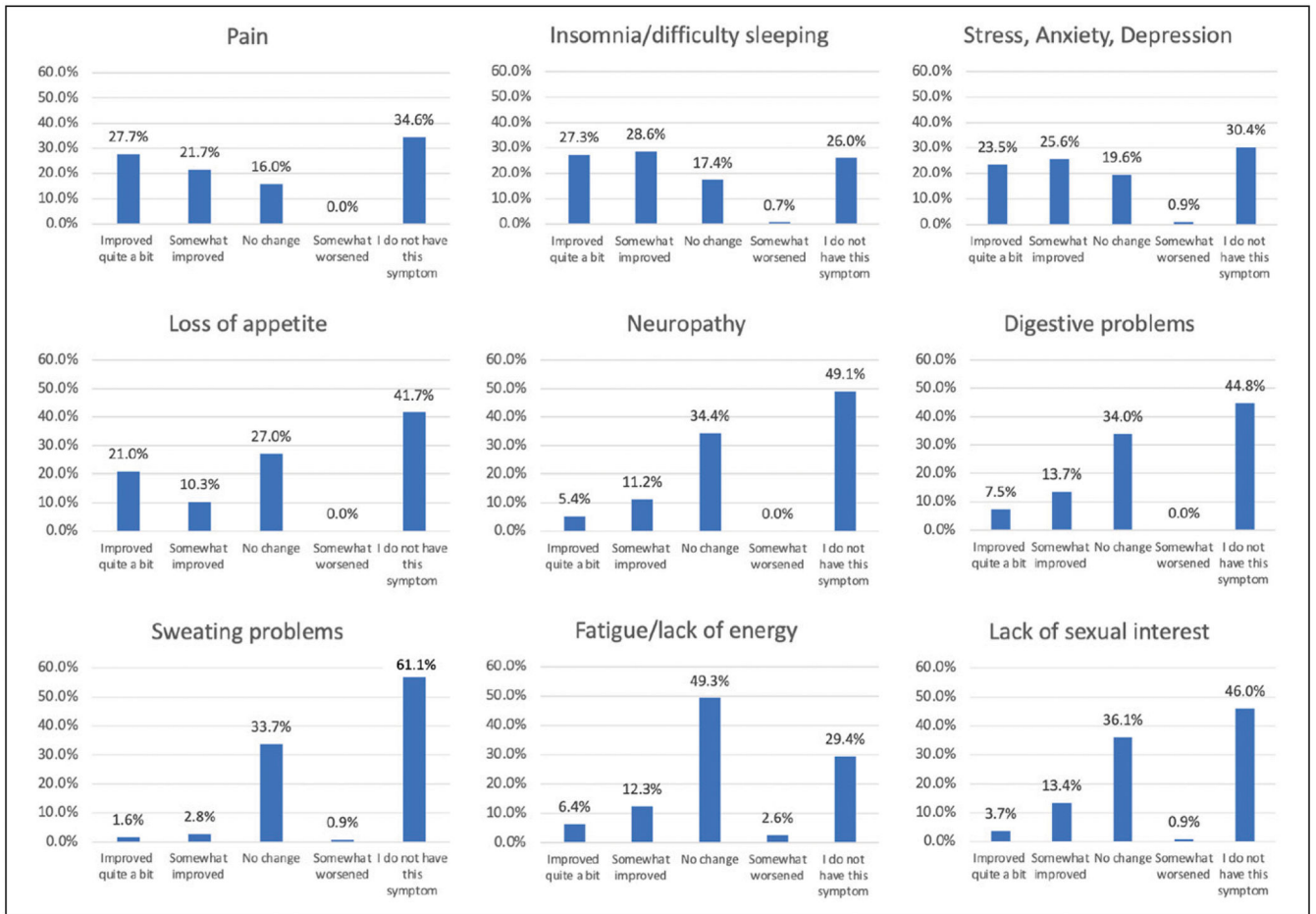


Figure 3. Symptom management following diagnosis among older patients endorsing cannabis use ($N = 107$).

Table 1.

Unweighted and Weighted Demographic Characteristics of Older Adults.

Demographics	Older Adult Sample (N = 524)				65–74 Years (N = 374)		75+ Years (N = 150)	
	N	Weighted % (95% CI)	Weighted % (95% CI)	Weighted % (95% CI)	Weighted % (95% CI)	Weighted % (95% CI)	Weighted % (95% CI)	
Sex at birth ^b								
Female	250	43.3 (42.3, 44.4)	47.1 (45.9, 48.4)	37.8 (35.9, 39.6)				
Male	266	55.5 (54.5, 56.6)	51.0 (49.7, 52.2)	62.3 (60.4, 64.1)				
Missing/unknown	8	1.1 (1.0, 1.4)	1.9 (1.6, 2.3)	-				
Race ^b								
White	454	80.1 (79.0–81.0)	74.1 (72.8, 75.3)	88.9 (87.3, 90.3)				
Black	44	14.3 (13.4–15.2)	19.0 (17.8, 20.2)	7.3 (6.1, 8.8)				
Asian/Pacific Islander	2	.52 (.38–.72)	0.9 (0.6, 1.2)	-				
American Indian	1	.22 (.14–.35)	0.4 (0.2, 0.6)	-				
More than one race	7	1.6 (1.37–1.95)	1.4 (1.1, 1.8)	1.9 (1.5, 2.5)				
Missing/unknown	16	3.3 (2.9–3.8)	4.3 (3.7, 4.9)	1.9 (1.4, 2.7)				
Ethnicity								
Hispanic	6	1.4 (1.13–1.67)	2.3 (1.9, 2.8)	10.7 (9.5, 11.9)				
Non-Hispanic/Unknown	466	88.6 (87.9–89.3)	88.1 (87.2, 88.9)	89.3 (88.1, 90.5)				
Missing/unknown	52	10.0 (9.4–10.7)	9.6 (8.9, 10.4)	-				
Education ^a								
Less than 8 years	1	0.2 (0.0–0.2)	0.3 (0.2, 0.4)	-				
Some high school	10	3.6 (3.1–4.2)	3.0 (2.5, 3.6)	4.6 (3.7, 5.8)				
High school diploma	52	10.9 (10.2–11.6)	12.9 (12.0, 13.8)	8.1 (7.0, 9.2)				
Vocational/technical	27	5.3 (4.78–5.8)	5.0 (4.5, 5.5)	5.7 (4.8, 6.9)				
Some college	116	21.3 (20.5–22.2)	23.2 (22.1, 24.2)	18.7 (17.2, 20.3)				
College degree	149	27.8 (26.8–28.7)	28.3 (27.2, 29.5)	26.9 (25.2, 28.6)				
Postgraduate training	158	29.2 (28.3–30.2)	24.9 (23.9, 26.0)	35.5 (33.7, 37.4)				
Missing/refused	11	1.7 (1.5–2.0)	2.5 (2.1, 2.9)	0.6 (0.4, 0.9)				
Employment ^{d,b}								
Employed	56	10.8 (10.2–11.5)	13.8 (12.9, 14.7)	6.4 (5.4, 7.6)				
Retired	426	80.8 (79.9–81.7)	75.5 (74.4, 76.7)	88.5 (87.0, 89.9)				
Unemployed	10	2.58 (2.2–3.1)	2.1 (1.8, 2.5)	3.3 (2.5, 4.3)				
Disabled	14	3.19 (2.8–3.6)	5.0 (4.4, 5.7)	0.6 (0.4, 0.9)				
Other	4	.68 (.53–.87)	0.7 (0.5, 0.9)	0.7 (0.4, 1.1)				
Homemaker	2	.25 (.18–.34)	0.4 (0.3, 0.6)	-				

Demographics	Older Adult Sample (N = 524)		65–74 Years (N = 374)		75+ Years (N = 150)	
	N	Weighted % (95% CI)	Weighted % (95% CI)	Weighted % (95% CI)	Weighted % (95% CI)	Weighted % (95% CI)
Marital status ^{a,b}						
Divorced	60	11.1 (10.45–11.79)	12.9 (12.1, 13.8)	8.5 (7.4, 9.6)		
Living as married	6	1.0 (0.8–1.12)	1.2 (1.0, 1.5)	0.6 (0.4, 0.9)		
Married	348	65.9 (64.9–66.9)	63.0 (61.7, 64.2)	70.2 (68.4, 72.0)		
Separated	7	1.5 (1.3–1.8)	1.1 (0.9, 1.5)	2.1 (1.6, 2.7)		
Single, never married	26	5.2 (4.8–5.8)	8.8 (8.0, 9.6)	-		
Widowed	68	14.1 (13.3–14.9)	11.3 (10.5, 12.1)	18.2 (16.7, 19.8)		
Missing/refused	9	1.2 (1.0–1.4)	1.7 (1.4, 2.0)	0.6 (0.4, 0.9)		
Health insurance ^a						
Covered	511	97.5 (97.1, 97.9)	97.0 (96.6, 97.5)	98.2 (97.5, 98.8)		
Not covered	3	1.0 (0.7, 1.3)	0.8 (0.6, 1.2)	1.2 (0.8, 1.9)		
Missing/refused	10	1.5 (1.3, 1.7)	2.1 (1.8, 2.5)	0.6 (0.4, 0.9)		

Note. Demographics were patient-reported (optional) and obtained from electronic medical record (EMR). Sample weights were based on selection probabilities, non-response adjustment (age, sex, and race), and post-stratification via raking to match the sample to known subgroup populations in the target population.

^aPatient-reported demographics.

^bSignificant age-group differences found by weighted chi-square analyses.

Table 2.

Cannabis Perceptions and Patterns of Use Overall and by Age Group.

	Full sample of older adults (N = 524)			65–74 Years (N = 374)			75+ years (N = 150)			p-value
	N	Weighted % (95% CI)	N	Weighted % (95% CI)	N	Weighted % (95% CI)	N	Weighted % (95% CI)		
Belief in any benefit of cannabis (Yes)	428	79.8 (78.8, 80.7)	313	82.5 (81.4, 83.4)	115	75.8 (74.0, 77.4)			.06	
Belief in any risk of cannabis (Yes)	358	68.7 (67.7, 69.7)	242	62.8 (61.5, 64.0)	116	77.4 (75.7, 79.0)			<.001	
Discussed with healthcare provider (Yes)	48	7.9 (7.4, 8.4)	45	12.2 (11.4, 13.1)	3	1.5 (1.1, 1.9)			<.001	
Comfort discussing use with provider									.46	
Extremely comfortable	265	49.7 (48.6, 50.8)	192	51.4 (50.2, 52.7)	73	47.2 (45.2, 49.1)				
Somewhat comfortable	141	26.7 (25.6, 27.7)	104	27.0 (25.9, 28.1)	37	26.3 (24.6, 28.1)				
Somewhat uncomfortable	69	13.3 (12.6, 14.1)	45	11.4 (10.7, 12.2)	24	16.1 (14.7, 17.7)				
Extremely uncomfortable	49	10.3 (9.6, 11.0)	33	10.2 (9.4, 11.1)	6	10.4 (9.3, 11.6)				
Cannabis ever use	260	46.0 (45.0, 47.1)	214	56.4 (55.1, 57.6)	46	30.8 (29.1, 32.7)			<.001	
Cannabis current use	60	9.8 (9.2, 10.4)	57	15.3 (14.5, 16.3)	3	1.6 (1.2, 2.1)			<.001	
Cannabis use following diagnosis	107	18.2 (17.5, 19.1)	94	25.3 (24.2, 26.4)	13	7.9 (7.0, 8.9)			<.001	
Cannabis use during treatment ^a	50	50.1 (47.8, 52.5)	45	53.5 (51.0, 56.0)	5	34.3 (27.8, 41.5)			.05	
Primary mode of use ^b									.01	
Smoking (joint, bong, pipe, and blunt)	38	40.4 (38.0, 42.8)	37	47.2 (44.6, 49.9)	1	22.5 (17.0, 29.2)				
Eating in food (brownies, cake)	29	26.3 (24.2, 28.4)	23	21.9 (20.0, 24.0)	6	46.3 (39.0, 53.8)				
Take by mouth (totion, cream)	20	17.6 (16.0, 19.5)	18	18.1 (16.3, 20.1)	2	15.6 (10.9, 21.8)				
Topically (lotion, cream)	13	11.2 (9.9, 12.8)	10	8.8 (7.6, 10.1)	3	22.5 (17.0, 29.2)				
Drinking in a liquid	1	0.9 (0.5, 1.4)	1	1.0 (0.7, 1.7)	-	-				
Vaporizing	3	2.4 (1.8, 3.1)	3	2.9 (2.2, 3.8)	-	-				
Other mode	1	1.2 (0.8, 2.0)	-	-	1	7.0 (4.1, 11.5)				
Source of cannabis instructions									.01	
Another cancer patient	3	2.4 (1.8, 3.1)	3	2.9 (2.2, 3.8)	-	-				
Cannabis store/dispensary worker	14	11.3 (9.9, 12.7)	13	11.8 (10.4, 13.4)	2	8.6 (5.2, 14.4)				
Family or friend	22	20.2 (18.4, 22.2)	17	16.5 (14.8, 18.3)	5	37.7 (30.8, 45.1)				
No one	54	51.9 (49.5, 54.3)	50	56.3 (53.8, 58.8)	4	31.2 (24.7, 38.4)				
Nurse or physician's assistant	1	1.5 (1.0, 2.4)	-	-	1	8.6 (5.2, 14.1)				
Oncologist involved with cancer care	3	3.2 (2.4, 4.2)	3	3.9 (2.9, 5.1)	-	-				

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	Full sample of older adults (N = 524)		65-74 Years (N = 374)		75+ years (N = 150)		p-value
	N	Weighted % (95% CI)	N	Weighted % (95% CI)	N	Weighted % (95% CI)	
Pharmacist	5	4.8 (3.9, 5.9)	3	2.8 (2.2, 3.8)	2	13.9 (9.9, 19.5)	P
Other source	4	4.1 (3.2, 5.2)	4	4.9 (3.9, 6.3)	-	-	

Note. p-values based on weighted chi-square analyses.

^a Assessed among individuals endorsing cannabis use since diagnosis, refused question n=2.

^b Assessed among individuals endorsing cannabis use since diagnosis, refused question n=1.