Association Between Loneliness and Cannabis Consumption Among Older Adults: Insights from a Nationwide Canadian Survey Amid the COVID-19 Pandemic

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Abstract

In Canada, cannabis consumption has been growing among older adults, particularly throughout the COVID-19 pandemic. This study investigates how loneliness relates to cannabis use in older Canadians during this time. The analysis utilized quantitative data from 2,020 individuals aged 55 and older, gathered through the Canadian Perspectives Survey Series 6, 2021: Substance Use and Stigma During the Pandemic. After accounting for socio-demographic characteristics, social engagement, and pandemic-specific factors, findings indicated that those who had used cannabis within the past 30 days reported markedly greater loneliness levels than those who never used cannabis. Furthermore, participants who maintained cannabis use throughout the pandemic experienced significantly higher loneliness scores compared to non-users. The observed link between cannabis consumption and elevated loneliness provides valuable evidence contributing to ongoing conversations about the possible negative impacts of cannabis use on the health and wellbeing of older adults.

Introduction

Since the onset of the COVID-19 pandemic in early 2020, the sharp rise in loneliness among older adults has emerged as a significant public health issue in Canada and globally [1, 2]. Compared to younger individuals, older adults face a higher risk of loneliness, largely due to factors like reduced mobility associated with aging, a shrinking social network, and chronic health conditions that limit their ability to engage socially [3, 4]. Throughout the pandemic, measures such as physical distancing, limited access to public services, and the disproportionate burden of COVID-19 on older populations have negatively impacted the daily lives of older Canadians. Numerous studies conducted during this period have documented increased loneliness in this demographic along with its associated risk factors [1]. Nevertheless, the connection between loneliness and cannabis use among older adults has received less attention than other subjects like multimorbidity or gender, both in Canada and in other regions where cannabis is legalized, including some U.S. states.

Cannabis use among older adults has become a critical public health concern for two primary reasons: older adults have shown the largest rise in cannabis consumption, and they are particularly susceptible to the potential negative health and wellbeing consequences of cannabis use [5]. In Canada, cannabis use among older adults increased notably during the pandemic [6]. However, many cannabis-related studies tend to focus on specific

populations—such as young adults, people with post-traumatic stress disorder (PTSD) or other chronic illnesses, or the general population—without specifically including or highlighting older adults [7]. This gap restricts the applicability of findings to the aging population. Furthermore, research on cannabis use predominantly concentrates on its physical and mental health impacts, while social wellbeing outcomes like loneliness remain less explored [8]. Thus, it is important to investigate the link between loneliness and cannabis use among older adults during the COVID-19 pandemic.

Loneliness among older adults
Loneliness describes the distress or uncomfortable feelings people experience when their social needs are unmet or when there is a mismatch between the social relationships they desire and those they currently have [3, 9]. Unlike social isolation, which is objectively measured by factors such as the size of one's social network or level of social participation, loneliness focuses on subjective perceptions of social connection [10]. It is a common issue among older adults, with research indicating that between one-fifth and two-fifths of this population experience loneliness ranging from occasional to severe [11]. For example, findings from the Canadian Longitudinal Study on Aging (CLSA) by Raina *et al.* (2018) revealed that approximately 25% of older women and 20% of older men reported feelings of loneliness at least some of the time [4]. Certain groups of older adults, including those residing in isolated regions, caregivers, and individuals managing multiple chronic conditions, report even greater levels of loneliness [1]. Loneliness represents a critical factor affecting healthy aging, as it is linked to faster biological aging, increased illness and mortality rates, cognitive decline, poorer mental health, and reduced quality of life [9, 12]. Therefore, understanding and addressing its risk factors in older adults is essential.

The COVID-19 pandemic has exacerbated feelings of loneliness in older adults due to fears of contracting the virus and the implementation of preventive measures like physical distancing [2]. For instance, a Canadian survey conducted in May 2020 found that over 43% of older adults experienced loneliness at least some of the time [13]. Similarly, a study from the UK reported that 51% of older adults felt lonely early in the pandemic [14]. Moreover, a comprehensive review of 33 studies highlighted a significant increase in loneliness throughout the pandemic period [15]. The detrimental effects of loneliness on the health and wellbeing of older adults have been observed both before and during the pandemic. Research by Wister *et al.* (2022) showed that loneliness prior to the pandemic, as well as its increase during the pandemic, significantly predicted depressive symptoms among older Canadians [16]. Additional studies also found

that loneliness during the pandemic was linked to problems such as insomnia [17] and alcohol misuse [18] in older populations.

Cannabis use and wellbeing among older adults
Since the 2018 legalization of cannabis in Canada, usage rates among older Canadians have steadily climbed. Data from The Commonwealth Fund's 2020 International Health Policy survey show that nearly 18% of Canadians aged 50 to 64 and 8% of those aged 65 and over reported cannabis consumption in the previous year [19]. Notably, older adults have emerged as the fastest-growing demographic for cannabis use in both Canada and the U.S. [20, 21]. This upward trend has been linked to the legalization itself, shifting social attitudes—especially among baby boomers—greater availability, and the expanding use of cannabis for medical purposes among seniors [8]. Following the outbreak of COVID-19, cannabis consumption rose considerably among older adults, albeit less dramatically than among younger populations [21, 22]. According to Statistics Canada (2022), around 20% of cannabis users aged 50 to 64, and 22% of users aged 65 and above, reported increasing their use during the pandemic, compared to a 34% rise in cannabis use among previous users overall [6].

The effects of cannabis use on older adults' wellbeing are complex and multifaceted. On the positive side, cannabis has been shown to help relieve chronic pain and ease symptoms of stress, anxiety, and depression [23–25]. For instance, during the pandemic, cancer survivors used cannabis to manage anxiety and improve sleep [26], while some older adults reported using it to boost mood or calm anxiety [27]. Nonetheless, these benefits appear to be mostly short-term, highlighting the necessity to further study the potential long-term consequences. Research increasingly links cannabis use in older adults with multimorbidity, harmful behaviors such as heavy alcohol use, a higher risk of falls and injuries, and increased visits to emergency departments [23, 28]. Evidence from the pandemic period reinforces concerns about cannabis's negative impact, particularly for long-term users. For example, a study by Murkar *et al.* (2022) showed that increased cannabis use during the pandemic correlated with elevated depressive symptoms in people with PTSD [7]. Additionally, cannabis users tend to experience more COVID-19 hospitalizations and higher mortality rates related to the virus [29]. The established association between cannabis use and respiratory conditions such as Chronic obstructive pulmonary disease further aggravates risks for older adults infected with COVID-19 [30, 31]. Overall, cannabis use contributes to heightened health risks among older adults, both before and throughout the pandemic. The conflicting evidence concerning its

advantages and dangers underlines the urgent need for further research in this area.

Loneliness and cannabis use

Compared to other aspects of health and wellbeing, the relationship between loneliness and cannabis use has been less thoroughly explored. Previous research does support a link between these two factors. Although there is a possibility that cannabis use and various health or wellbeing conditions—including loneliness—may influence each other in both directions, most studies emphasize identifying common reasons why people use cannabis [25]. From this viewpoint, cannabis use is often considered a coping mechanism for loneliness. During the COVID-19 pandemic, loneliness was one of the primary drivers behind increased cannabis consumption among Canadians, along with other motives such as stress, boredom, relaxation, and managing emotions like tension, anger, or sadness [6, 32]. For example, a study focusing on young adults who used cannabis in the U.S. found that loneliness was the leading factor for their increased use during the pandemic [33]. Additionally, social isolation and living alone—conditions closely linked to loneliness—have also been associated with greater cannabis use throughout the pandemic [34]. Nonetheless, some longitudinal studies in the U.S., including one that collected data across four waves between 2020 and 2021 [35] and another among American veterans during the pandemic [36], did not find conclusive evidence that feeling lonelier directly caused an increase in cannabis use. These mixed findings illustrate a complex and sometimes contradictory relationship between cannabis use and loneliness both before and during the pandemic.

On the other hand, some research argues that cannabis use may actually increase loneliness. Several explanations support this perspective. One is that cannabis users, like other substance users, often face stigma linked to their substance use, which can significantly contribute to feelings of loneliness [37]. For instance, among people with substance use disorders, stigma related to drug addiction is a major predictor of loneliness [38]. Frank *et al.* (2013) noted that regular cannabis users sometimes avoid consuming cannabis in the presence of family or at social gatherings, conscious of potential judgment and social distancing between users and non-users [39]. While this does not necessarily prevent them from engaging socially altogether, it may reduce their participation in many social opportunities. Furthermore, individuals who use cannabis regularly or have cannabis use disorder often experience difficulties regulating their emotions, which can extend the duration of loneliness beyond typical levels [40]. According to Cadigan *et al*. (2023), young adults with higher patterns of loneliness during the pandemic were more likely to have used cannabis in the month before being surveyed, compared to those with lower loneliness trajectories [40]. Moreover, loneliness may be a key mechanism explaining how cannabis use elevates the risk of mental health disorders such as depression or increases suicide risk [41]. Therefore, a deeper understanding of how cannabis use influences loneliness could improve insight into the negative health consequences associated with cannabis.

Overall, cannabis use among older adults remains understudied, particularly in terms of how it affects loneliness. This study therefore aims to explore the connection between cannabis use and loneliness among older Canadians during the pandemic.

Materials and Methods

This research used data from the Canadian Perspectives Survey Series (CPSS) 6 conducted in 2021, titled Substance Use and Stigma During the Pandemic [42]. The CPSS, initiated in early 2020, is a collection of surveys aimed at capturing information on the knowledge, attitudes, and behaviors of Canadians living in all ten provinces. Specifically, Series 6 focused on gathering data about alcohol and drug use, lifestyle habits, social activities, and COVID-19's impact among Canadians aged 15 and older. In January 2021, a total of 3,941 respondents completed this survey, accounting for approximately 54.4% of the original CPSS panel. For this analysis, a subgroup of 2,020 individuals aged 55 years or older was selected as the study sample.

Dependent variable

The primary outcome measured was loneliness, assessed through an adapted version of the 3-item UCLA loneliness scale [43]. This scale asks participants to rate their experiences related to: (1) feeling a lack of companionship, (2) feeling excluded, and (3) feeling isolated from others. While the original instrument employs a 3-point Likert scale (Hardly ever, Some of the time, Often) and has demonstrated reliability and validity for older adult populations in Canada and internationally [16, 44], the CPSS 6 utilized a 5-point Likert scale ranging from 1 (never) to 5 (always) for these same items. The internal consistency of the scale in this sample was strong, as reflected by a Cronbach's Alpha of 0.826. Loneliness scores were computed by summing responses to the three items, yielding a range from 5 to 15, where higher values correspond to greater feelings of loneliness.

Independent variables

Two key independent variables were examined: cannabis use frequency and changes in cannabis use. Participants reported their cannabis use frequency over the past thirty days by choosing from seven response options, including

never used, no use in the past thirty days, use on one day, 2–3 days, or daily use. These responses were later grouped into three categories for analysis: Never used cannabis, No use in the past 30 days, and Used cannabis in the past thirty days. Additionally, cannabis users were asked to compare their current use to their habits before the COVID-19 pandemic, indicating whether their use had increased, decreased, or remained stable. To include non-users, this variable was recoded into four categories: Never used, Increased use, Decreased or stable use (due to the small number reporting decreased use), and Not stated, the latter capturing about 7% of missing responses.

Control variables

To adjust for confounding factors, a range of socio-demographic and social variables were included in the analysis [1]. Age was categorized into three groups: 55–64 years, 65–74 years, and 75 years or older. Sex was recorded as Male or Female based on sex at birth. Marital status was originally measured with 5 categories but was simplified into Married/partnered and Single (including those not married, separated, or widowed). Education levels were grouped into four tiers: less than high school, high school diploma, some post-secondary education, and university diploma or degree. Employment status was dichotomized as either working or not working. Geographic location was classified by population density into Rural or Urban. Birthplace was categorized as Canada or Other countries. Additionally, three social interaction variables closely tied to loneliness were controlled for: household size, number of close friends and relatives, and social participation. Household size was divided into living alone, living with one other person, or living with three or more individuals. The number of close relatives and friends was measured using five categories: none, one to two, three to five, six to nine, and ten or more. Social participation was indicated by whether respondents were members of any group or association (yes/no).

Additionally, three variables related to substance use were incorporated into the analysis: attitudes toward substance use, alcohol consumption status, and opioid use status. Attitudes toward substance use were measured by combining scores from four statements: "People who have a problem with alcohol or drugs should feel embarrassed or uncomfortable telling friends or family," "Society should be more accepting of people with alcohol or drug problems," "People with alcohol or drug problems should feel embarrassed or uncomfortable seeking help or treatment," and "I have sympathy for people who misuse alcohol or drugs" (with the second and fourth items reverse scored). The total attitude score was calculated by summing these four responses, yielding a Cronbach's Alpha of 0.640, where higher scores reflect more positive attitudes toward substance use. Alcohol consumption was categorized into three groups: never drank alcohol, drank alcohol in the past 30 days, and did not drink in the past 30 days. Similarly, participants reported their opioid use status (prescribed or non-prescribed) within three categories: never used opioids, used opioids in the past 30 days, and no opioid use in the past 30 days.

Data analytic procedure

Data analysis was conducted using SPSS version 28. Initially, descriptive statistics were calculated to summarize the characteristics of the selected sample, as presented in **Table 1**. Subsequently, group comparisons were made based on participants' frequency of cannabis use, examining differences in socio-demographic factors, social interaction variables, and attitudes toward substance use, alcohol, and opioid use; these results are shown in **Table 2**. Lastly, linear regression models were applied to explore the relationships between loneliness and both cannabis use and changes in cannabis use. In **Table 3**, Model 1 includes all control variables alongside cannabis use status, whereas Model 2 incorporates all controls with the variable reflecting changes in cannabis use. Following Statistics Canada's guidelines, all analyses were weighted using both sampling and standardized weights.

Table 1. Profile of Participants (N = 2,020)	
Measured Factors	**Average (SD) / Percentage**
Age Categories	
55–64 years	43.87%
65–74 years	40.39%
75 years and above	15.74%
Gender	
Men	47.82%
Women	52.18%
Relationship Status	
Currently married or living with a partner	70.23%
Not married / no partner	29.77%

Educational Background	
Below high school level	11.66%
Completed high school	28.46%
Attended some college or technical programs	33.11%
Earned a university diploma or degree	26.77%
Employment Situation	
Employed	33.21%
Not employed	66.79%
Type of Residential Area	
Residing in rural settings	17.36%
Living in urban locations	82.64%
Place of Birth	
Born in Canada	78.66%
Born outside Canada	21.34%
Number of Household Members	
Lives alone	20.88%
Two individuals in household	60.78%
Three or more household members	18.34%
Count of Close Friends or Relatives	
None	3.39%
One or two	34.20%
Three to five	35.40%
Between six and nine	17.67%
Ten or more	9.33%
Involvement in Groups or Community Organizations	
Not involved	49.46%
Participates in at least one group or organization	50.54%
Viewpoints on Substance Use	13.39 (SD = 1.95)
Alcohol Consumption	
Consumed alcohol in the last 30 days	69.28%
Did not drink in the last 30 days	15.30%
Has never consumed alcohol	15.41%
Use of Opioid-containing Medications	
Used within the last 30 days	6.63%
Not used in the last 30 days	16.28%
Never used such medications	77.09%
Cannabis Use Frequency	
Never consumed cannabis	80.34%
Stopped use before the last 30 days	10.14%
Consumed cannabis within the past 30 days	9.53%
Change in Cannabis Use During the Pandemic	
Never used at any point	80.28%
Reported an increase in cannabis use	2.83%
Reported same or reduced usage	9.71%
No information provided	7.18%
Loneliness Level (Scale Score)	7.83 (SD = 2.72)

Notes: SD = standard deviation.

Table 2. Comparison of Participant Characteristics by Cannabis Use Status (N = 2,020)

Variables	Never used (n = 1601)	Not in past 30 days (n = 206)	Used in past 30 days (n = 211)	χ^2(df)/t-test
Age				111.35 (4) ***
55 to 64 years	38.48	68.05	63.96	
65 to 74 years	43.70	30.31	23.30	
75 and older	17.81	1.64	12.74	
Sex				37.53 (2) ***
Male	44.58	64.85	57.17	
Female	55.42	35.15	42.83	
Marital status				37.35 (2) ***
Married/partnered	72.91	66.42	52.07	
Not married	27.09	33.58	47.93	
Educational level				16.30 *
Less than high school	12.57	10.58	5.22	
High school	29.40	24.30	24.56	
Some post-secondary	32.10	36.12	38.65	
University degree/diploma	25.93	29.00	31.57	
Employment status				37.26 (2) ***
Employed	30.04	47.81	44.15	
Unemployed	69.96	52.19	55.85	
Residential area				3.27 (2)
Rural	17.63	19.33	13.07	
Urban	82.37	80.67	86.93	
Country of birth				16.30 (2) ***
Born in Canada	76.98	88.74	81.91	
Born elsewhere	23.02	11.26	18.09	
Household size				20.59 (4) ***
1 person	19.39	21.77	32.11	
2 persons	62.24	61.86	47.63	
3 or more persons	18.38	16.37	20.26	
Number of close friends/relatives				27.06 (8) ***
None	2.99	7.30	2.68	
1 to 2	33.46	33.42	41.59	
3 to 5	36.16	29.57	34.85	
6 to 9	17.80	23.14	10.73	
10 or more	9.59	6.57	10.14	
Group/association participation				4.36 (2)
No	50.50	47.93	42.62	
Yes	49.50	52.07	57.38	
Attitudes toward substance use	13.39 (1.98)	13.43 (1.74)	13.39 (1.92)	0.04
Alcohol consumption				38.46 (4) ***
Drank in past 30 days	67.67	72.33	79.36	
Not in past 30 days	14.77	22.70	12.07	
Never drank	17.56	4.97	8.56	
Opioid-containing drug use (prescribed or not)				113.84 (4) ***
Used in past 30 days	6.15	4.79	12.73	
Not in past 30 days	12.43	37.04	26.80	
Never used	81.42	58.18	60.47	
Loneliness score	7.75 (2.76)	7.85 (2.69)	8.41 (2.77)	5.01 **; c > a

Note: *p < .05; **p < .01; ***p < .001.

Table 3. Results of Linear Regression on Loneliness Among Participants (N = 2,020)

Variables	Model 1 (Beta)	Model 2 (Beta)
Frequency of cannabis use (Reference: Never used)		
Not used in the past 30 days	0.01	–
Used in the past 30 days	0.06 *	–
Change in cannabis use (Reference: Never used)	–	
Increased	–	0.06 *
Decreased or remained the same	–	0.05 *
Not reported	–	-0.02
Age group (Reference: 55–64 years)		
65–74 years	-0.05	-0.05
75 years and older	-0.04	-0.04
Gender (Reference: Male)		
Female	0.12 ***	0.12 ***
Marital status (Reference: Married/Partnered)		
Not married	0.05	0.06
Educational level (Reference: Less than high school)		
High school	0.19 ***	0.19 ***
Some post-secondary education	0.02	0.03
University diploma or degree	0.03	0.04
Employment status (Reference: Employed)		
Not employed	0.04	0.04
Residential area (Reference: Rural)		
Urban	0.06 *	0.06 *
Country of birth (Reference: Canada)		
Born outside Canada	-0.02	-0.02
Household composition (Reference: 1 person)		
Two people	-0.01	-0.01
Three or more people	-0.05 *	-0.04 *
Number of close friends or family (Reference: None)		
1–2 individuals	-0.22 ***	-0.22 ***
3–5 individuals	-0.30 ***	-0.29 ***
6–9 individuals	-0.29 ***	-0.28 ***
10 or more individuals	-0.23 ***	-0.23 ***
Group involvement (Reference: No involvement)		
Participates in groups/associations	0.05	0.05
Perception of substance use	-0.08 ***	-0.09 ***
Alcohol consumption (Reference: Never drank alcohol)		
Consumed in past 30 days	0.04	0.04
Not in past 30 days	0.02	0.02
Opioid use (Reference: Never used opioid products)		
Used in past 30 days	0.04 *	0.04 **
Not used in past 30 days	0.05 *	0.05 **

Note: Reference categories are listed in parentheses.
* $p < .05$, ** $p < .01$, *** $p < .001$

Results and Discussion

Table 1 summarizes the background characteristics of the sample. The largest age group was 55–64 years (44%), with women comprising just over half (52%) of the participants. A substantial majority were either married or living with a partner (70%), held a post-secondary qualification (60%), were retired (67%), lived in urban

settings (83%), and were born in Canada (79%). Roughly 61% reported cohabiting with at least one other individual. Most participants (70%) indicated they had between one and five close relatives or friends. Group or association membership was almost evenly divided, with close to half belonging to such networks. On a scale assessing attitudes toward substance use (maximum score: 20), the average score was 13.39 (SD = 1.95). Within the past 30 days, 69% reported alcohol consumption, and 77% had never taken any opioid-based drugs. Loneliness, measured by the UCLA 3-item scale, showed a mean score of 7.83 (SD = 2.72).

With respect to cannabis, 80% had never used it. Of the 20% who had tried cannabis, usage in the past month was evenly split—half had used it, and half had not. Additionally, 3% of the participants reported an increase in cannabis consumption during the pandemic, while around 10% noted either a decrease or no change. Approximately 7% did not provide an answer to this item. As indicated in **Table 2**, loneliness scores were significantly higher among recent cannabis users compared to those who had never used cannabis (8.41 vs. 7.75). These recent users also showed a higher tendency to consume alcohol (79% vs. 72% and 68%) and to have used opioids (13% vs. 5% and 6%) than non-users or those who had not recently used cannabis. Cannabis use frequency was also linked to numerous other variables, such as age, gender, relationship status, education, work status, place of birth, number of household members, and size of personal social networks. Further specifics are outlined in **Table 2**.

Table 3 presents the findings from the regression analysis, which explored the association between loneliness and cannabis use while adjusting for confounding factors. In Model 1, individuals who reported using cannabis in the past 30 days had significantly higher loneliness scores than those who had never used it ($\beta = 0.06$, $p < .05$). Similarly, participants who reported an increase in cannabis use ($\beta = 0.06$, $p < .05$) or consistent usage during the pandemic ($\beta = 0.05$, $p < .05$) experienced greater loneliness.

Model 1 and Model 2 both showed consistent patterns regarding socio-demographic and social interaction variables. Female respondents had elevated loneliness levels compared to males. Participants with only a high school diploma had higher loneliness scores than those with less formal education. Individuals living in households of three or more people reported significantly less loneliness than those in smaller households. Additionally, those with any degree of close personal relationships reported lower loneliness than those without such social support. More favorable attitudes toward substance use were associated with lower loneliness. In contrast, individuals who had taken opioid-containing substances—either recently or at some point in the past—

reported greater loneliness than those who had never used them.

This research is among the first to explore the relationship between loneliness and cannabis use in older adults during the COVID-19 pandemic, drawing on a nationally representative Canadian dataset. Using data from early 2021 and focusing on a sample of 2,020 individuals aged 55 and older, two main findings emerged: (1) those who reported cannabis use in the 30 days prior to the survey showed significantly higher loneliness scores than individuals who had never used cannabis, and (2) participants who reported an increase in cannabis use during the pandemic also exhibited greater loneliness compared to non-users.

The observed link between recent cannabis use, increased consumption, and higher loneliness among older Canadians aligns with prior research, which has shown that frequent cannabis users often report persistently elevated levels of loneliness [40]. Several contributing factors may explain this. For instance, studies conducted during the pandemic in various populations found that greater cannabis use was associated with functional difficulties in adolescents [29], intensification of depressive symptoms in individuals with PTSD [7], and increased alcohol use among general cannabis users [45]. Each of these factors is positively associated with loneliness. Additionally, cannabis use in older adults may lead to side effects such as dizziness or short-term memory impairment, potentially limiting their ability to engage in meaningful social activities and interactions [25]. As a result, consistent or escalated cannabis use may place older adults at higher risk of loneliness.

Another contributing factor is the ongoing stigma surrounding cannabis use in older populations [46, 47]. Although this study did not find a significant difference in attitudes toward substance use between cannabis users and non-users, existing research suggests that many older users choose to conceal their cannabis habits from family, friends, and coworkers to avoid criticism or disappointment [24]. Consequently, many prefer to use cannabis alone or only with a spouse or partner, often remaining at home afterward, which may further isolate them socially. The reluctance to disclose increased use or potential cannabis dependence as a way of coping with pandemic-related stressors may also heighten feelings of isolation and embarrassment [38]. Thus, increased cannabis use may deepen the already challenging circumstances older adults faced during the pandemic.

Furthermore, older Canadians are more likely than younger individuals to use cannabis for medical reasons, such as pain relief, sleep improvement, or mood regulation [21]. Similar trends have been reported in the U.S., where over 60% of medical cannabis users are aged 50 or older [48]. This suggests that many older adults who use

cannabis regularly may also be dealing with multiple chronic health conditions, making it more difficult to sustain social connections. In the current study, a larger portion of participants who used cannabis in the past month were living in smaller households (two or fewer people) and had five or fewer close friends or relatives—indicating limited social networks. This study's finding, supported by previous research [3, 4], confirms that reduced network size is strongly associated with increased loneliness in older adults.

Alongside the observed positive link between cannabis use and loneliness, this study also reveals that certain subgroups of older Canadians experience higher levels of loneliness. The strong associations found between increased loneliness and smaller household sizes, as well as limited social networks, underscore the crucial role of social interactions both within and beyond the home—especially during the pandemic. As older adults often face reductions in their social circles due to declining physical abilities and the loss of peers [9, 10], the pandemic further amplified the need for consistent communication and support from family and friends amid limited access to public services and community events. Although our findings show no significant difference in loneliness between those who are members of groups or associations and those who are not, this likely reflects the unique circumstances during the pandemic. Many formal and informal groups either halted activities or moved them online, formats that many older adults found difficult to participate in or enjoy. Therefore, group membership during this period did not serve as a protective factor against loneliness.

Moreover, having a positive attitude toward substance use was significantly associated with lower loneliness in this sample. Regarding cannabis use, participants with more favorable views may feel more at ease discussing their cannabis consumption with family or friends. Additionally, a positive attitude toward cannabis may reflect greater awareness of both its benefits and risks, leading to more informed and appropriate use. The relationships identified between loneliness and socio-demographic variables such as age, gender, and employment status align with previous research [1] and emphasize the importance of providing targeted support to vulnerable older adult groups, including older women.

Limitations

This study has several important limitations that should be acknowledged. First, because it relies on cross-sectional survey data, it cannot confirm a causal relationship between cannabis use and loneliness. Previous research indicates that these two factors influence each other in both directions [37]. In this investigation, cannabis use was considered the predictor variable and loneliness the

outcome to address a gap in prior studies. While the detected association contributes to the expanding understanding of cannabis use's potentially adverse effects on older adults, future longitudinal research is essential to clarify whether cannabis use acts as a coping mechanism for loneliness or whether it may actually exacerbate feelings of loneliness.

Second, the observed associations between cannabis use within the past month and loneliness, as well as between increased cannabis consumption during the pandemic and loneliness, were relatively small in magnitude after controlling for multiple covariates. Since key contributors to loneliness—such as social factors and other substance use—were included in the analysis, these modest yet significant correlations highlight a meaningful relationship between cannabis use and loneliness among older adults.

Third, this analysis does not distinguish between medical and recreational cannabis consumption because the CPSS 6 survey questions do not allow for such differentiation. Given that approximately 80% of Canadian medical cannabis users also consume cannabis recreationally [49], treating all cannabis users as a single group is justifiable. Other studies have specifically explored the differences between medical and recreational users [50]. Additionally, the CPSS 6 dataset lacks information on the method of cannabis intake, such as smoking or vaping versus edibles, making it difficult to analyze whether different consumption methods have varying effects on loneliness. This aspect remains an important avenue for future research.

Lastly, this study includes individuals aged 55 years and older rather than limiting the sample to those 65 and above for two reasons. Firstly, many cannabis users aged 65+ initiated use at younger ages [8], and including participants in their 50s is common in related studies to better capture trends emerging in midlife (e.g., 5, 8). Incorporating the 55–64 age group thus enhances comparability with other research. Secondly, considering sample size constraints, the CPSS 6 contains over 3,000 respondents aged 15+, but only around 160 cannabis users aged 65 and over, which limits statistical power. Including participants aged 55 to 64 raises the number of cannabis users in the sample to over 400, helping to avoid potential issues from small subgroup sizes. It is also important to note that the CPSS 6 did not collect data on participants' chronic health conditions. Since older adults often use cannabis medically (for example, to manage chronic pain), the absence of this information limits the ability to examine whether health status influences the relationship between cannabis use and loneliness.

Implications

This study confirms a link between cannabis use and loneliness among older adults in Canada during the COVID-19 pandemic. These findings strengthen the discourse on cannabis's potential harmful effects, highlighting the urgent need for social programs and services to raise awareness about these risks specifically for older populations. Due to age-related physiological changes, older adults face greater vulnerabilities to cannabis-related harms, making it critical they approach cannabis use—whether medical or recreational—with caution. Yet, earlier studies have shown that older cannabis users often underestimate the risks compared to non-users [5]. A gap in formal cannabis education exists in both Canada and the U.S. [51, 52], and informal sources often provide inaccurate or misleading information [21]. Despite the pandemic's end, older adults remain exposed to hardships such as caregiving demands, social isolation, natural disasters, or health deterioration. Without proper guidance, they might initiate or continue cannabis use as a coping mechanism in these situations. Consequently, offering comprehensive educational initiatives tailored to older adults about cannabis and its health and wellbeing impacts is crucial.

Additionally, research into cannabis consumption among older Canadians remains insufficient. Since cannabis was legalized in 2018, there has been a lag in studies addressing the increasing prevalence of cannabis use within this group. Some reports indicate that more than half of first-time cannabis users are older adults [53], emphasizing the growing importance of investigating this demographic. However, current research mainly focuses on younger populations or the general public, whose findings do not fully apply to older adults due to their unique health and wellbeing circumstances. To better understand cause-and-effect relationships between cannabis use and health outcomes—such as loneliness and other mental or physical health indicators—longitudinal studies with multiple data points are needed.

Conclusion

This investigation reveals a notable association between higher loneliness and cannabis use during the pandemic, including recent use in the last 30 days and increased use compared to before the pandemic. The results contribute to expanding evidence of the detrimental effects cannabis can have on older adults' health and wellbeing. Although data were gathered during a specific crisis, the conclusions are relevant to a range of adverse conditions that older adults may face.

Given that Canada is one of the few nations with nationwide cannabis legalization, further research focused on older Canadians will offer valuable guidance. These insights can support aging populations within Canada and provide useful knowledge for other countries where cannabis use among older adults is becoming more common.

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