

# Prevalence of problematic cannabis use in Canada: Cross-sectional findings from the 2013 Canadian Tobacco, Alcohol and Drugs Survey

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## ABSTRACT

**OBJECTIVES:** Cannabis is the most widely used illicit substance in Canada. There exist a variety of tools to measure problematic characteristics of cannabis use; however, there is no consensus on the operational definition of “problematic use”. The current study sought to estimate the prevalence of problematic cannabis use in Canada, in terms of the kinds of problems Canadians report due to their cannabis use, the levels of harm associated with cannabis consumption, and potential differences among socio-demographic groups.

**METHODS:** Cross-sectional, nationally representative data for Canadians were obtained from the publicly available Statistics Canada’s 2013 Canadian Tobacco, Alcohol and Drugs Survey (CTADS) ( $n = 13\ 635$ ). Binary logistic regression analyses were conducted to examine subgroup differences in patterns of cannabis use and problematic outcomes defined by the World Health Organization’s Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) tool embedded in CTADS.

**RESULTS:** The findings indicate that, while 1 in 10 Canadians reported using cannabis in the past 3 months, only 2% of the sample of Canadians who reported using cannabis in the past 3 months were characterized as having a “high risk” of severe health or other problems. Canadian male respondents were more likely to report social problems than females and to be categorized as high risk. Youth and young adults between the ages of 15 and 29 consistently reported a greater prevalence of problems associated with their cannabis consumption than their older counterparts.

**CONCLUSION:** A very small proportion of Canadians report using cannabis to a degree that is problematic. Approximately one in two young people reported using cannabis at some point in their lives, of concern given the negative health outcomes of early cannabis use. This study highlights the need for the development of more sensitive instruments to detect problematic cannabis use.

**KEY WORDS:** Cannabis; marijuana; ASSIST; problematic use; dependence; men’s health; youth; surveillance

La traduction du résumé se trouve à la fin de l’article.

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Cannabis is the most widely used illicit substance in the world, though rates of use have stabilized according to global estimates.<sup>1</sup> In 2013, approximately 10% of Canadians 15 years and older reported using cannabis in the past year.<sup>2</sup> Cannabis use is characterized by marked differences among age groups: whereas 8% of Canadians over the age of 25 reported past-year use of cannabis, approximately one quarter (26%) of those younger than 25 years of age reported using cannabis in the past year.<sup>2</sup> Data from the Canadian Alcohol and Drug Use Monitoring Survey (CADUMS), a nationally representative annual survey of alcohol and illicit drug use among Canadians, and the Canadian Addiction Survey in 2004, indicated a modest decrease in the prevalence of self-reported cannabis use between 2004 and 2012.<sup>3</sup>

In addition to its therapeutic effects, cannabis use has several adverse health effects. In particular, frequent cannabis use increases the risk of poor respiratory health (from chronic smoking), schizophrenia and other psychoses, low birth weight when used during pregnancy, and motor vehicle crashes from driving after use.<sup>4</sup> In addition, chronic use of cannabis in adolescence is associated with neuroanatomical developmental harm itself associated with a number of mental and physical health concerns, including cognitive

and motor function impairment, decline in motivation, as well as negative academic and social outcomes and decreased IQ scores that may take the form of reduced school performance or school leaving.<sup>5–7</sup> Most of the adverse health effects from cannabis are associated with frequent, heavy use; therefore, the majority of cannabis users do not experience negative social or clinical repercussions.<sup>7–9</sup> Overall, approximately 5%–9% of all cannabis users will develop dependence at some point in their lives.<sup>10,11</sup> Early age of initiation is a risk factor to the likelihood of cannabis dependence among users.<sup>4</sup> Nearly 17% of individuals who initiate cannabis consumption in adolescence have been observed to experience a cannabis-related dependence syndrome, and the proportion increases to 25%–50% with greater frequency of use.<sup>11</sup>

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To date, there is no consensus on how to define problematic cannabis use.<sup>11</sup> A recent systematic review highlighted the range of different measures that have been used to assess cannabis dependence and its problematic use, including the DSM-5, the Severity of Dependence Scale (SDS), the Cannabis Abuse Screening Test (CAST), the Cannabis Use Disorders Identification Test (CUDIT), and the Problematic Use of Marijuana (PUM).<sup>12–14</sup> Each of these measures assesses some element of dependence, with respect to compulsive use and a loss of individual control. However, the measures differ in the extent to which they assess other aspects of problematic use. The most commonly used criteria include frequency of use and consumption levels; however, the measures used to assess frequency of use and “dose” or consumption amount vary widely.<sup>12,14</sup> National health organizations such as the Canadian Centre on Substance Abuse (CCSA) and the Centre for Addiction and Mental Health (CAMH) also use different definitions of problematic cannabis use or do not operationalize the concept at all.<sup>7,15</sup> CCSA defines harmful use as “a pattern of psychoactive use that causes physical or mental damage”, while CAMH does not have a definition per se, opting instead for listing potential effects of cannabis use.<sup>7,16</sup>

The Alcohol Smoking and Substance Involvement Screening Test (ASSIST) was developed in 1997 as a screening instrument used to detect and manage substance use and risky behaviours in an effort to improve surveillance of problematic substance use.<sup>17–19</sup> ASSIST has been adapted to alcohol, cannabis and a variety of drugs of interest. The widespread implementation of ASSIST has the potential to provide an objective, standardized and systematic way of reporting problematic cannabis consumption in Canada, as well as international comparisons with other countries in which ASSIST has been implemented. In 2013, the Canadian Tobacco, Alcohol and Drugs Survey (CTADS) incorporated the ASSIST measures, along with a number of other self-reported measures on problematic cannabis use among a nationally representative sample of Canadian adults. The current study used CTADS data to estimate the prevalence of problematic cannabis use in Canada in terms of the kinds of problems Canadians report due to their cannabis use defined in ASSIST, the levels of harm associated with cannabis consumption in terms of the likelihood of developing health or other problems, and potential differences among socio-demographic groups.

## METHODS

This article used the public use version of CTADS, a biennial survey conducted by Statistics Canada on behalf of Health Canada that was first implemented in 2013 and incorporates many of the items previously assessed in the Canadian Alcohol and Drug Use Monitoring Survey.<sup>20</sup> The primary objective of CTADS is to provide national estimates of tobacco, alcohol and drug use, with a primary focus on 15–24 year olds.<sup>21</sup>

### Design

Cross-sectional data were obtained from the 2013 CTADS which was administered as a random digit dialing (RDD) survey; telephone numbers were generated using the Household Survey Frame Service and interviews took place over the telephone. In order to ensure that the survey was nationally representative, each

of the 10 provinces was divided into strata and a random sample was produced, consisting of census metropolitan areas (CMAs, defined by the census and corresponding to cities with populations of 100 000 or more) and non-CMAs. The main objective of CTADS is to produce reliable estimates for all of the 10 provinces, so an equal number of respondents from each province were targeted. A two-phase design was used given that the primary focus of the survey are youth aged 15–24. In the first phase, households were selected using RDD; in the second phase, one or two individuals were selected based on household composition. Participation was voluntary and the data were collected directly from participants. Detailed information on the sample design, method and survey response rates are available in the Statistics Canada CTADS website.<sup>22</sup>

### Participants

Eligible participants included individuals over the age of 14 living in a Canadian province.<sup>22</sup> Individuals living in the Northwest Territories, Nunavut and Yukon were excluded from the survey, as were individuals living as full-time residents of institutions, and individuals without telephone land lines. Approximately 22% of the target population lived without land lines, but the survey estimates are weighted to reflect this group.<sup>22</sup>

### Measures

#### *Socio-demographics*

The 2013 CTADS collected information on sex, age, region of residence, and population density of residence. Provinces of residence were recoded into five regions: Atlantic provinces (Newfoundland & Labrador, Prince Edward Island, Nova Scotia, New Brunswick), Quebec, Ontario, Prairie provinces (Manitoba, Saskatchewan, Alberta), and British Columbia. The derived variable that described urban or rural character of participants' region of residence was calculated from respondents' postal codes, unavailable in the Public Use Microdata File and thus provided by Statistics Canada.

#### *Patterns of Cannabis Use*

Patterns of cannabis use were assessed with the questions: “During your life time, have you ever used or tried marijuana?” to detect “Never Users”; “During the past 12 months have you used marijuana?” to detect “Former Users” and “Past 12-Month Users”; and “During the past 3 months have you used marijuana?” to detect “Current Users”.

#### *Problems Associated With Cannabis Use*

CTADS included five questions about possible problems encountered by cannabis users: 1) “During the past 3 months how often have you ever had a strong desire or urge to use marijuana?”; 2) “During the past 3 months how often has your use of marijuana led to health, social, legal or financial problems?”; 3) “During the past 3 months how often have you found you could not do what was normally expected of you because of your use of marijuana?”; 4) “Was this concern [cannabis use] expressed in the past 3 months?”, and 5) “Have you tried to do this [control, cut down or stop using marijuana] during the past 3 months?”

*ASSIST Binary Risk Categories*

A binary variable was also derived for ranking individuals along risk levels for problematic cannabis consumption using the WHO ASSIST tool embedded in CTADS. The two categories were “Low risk for developing health and other problems” and “Moderate or high risk of developing health and other problems”. The ASSIST risk assessment for cannabis has a range of 0–39. Respondents’ scores increase as they respond positively to increasing frequency of consumption and the different problems previously mentioned associated with cannabis use. An individual in the range of 0–3 is considered at low risk for developing health and other problems, a score of 4–26 indicates moderate risk, and a score greater than 26 suggests that a respondent is at high risk of dependence and is likely experiencing problematic use due to reported consequences.<sup>17</sup>

**Analysis**

SAS Software for Windows Version 9.4 (Cary, NC: SAS Institute Inc.) was used for all analyses. Survey weights were applied to all analyses to ensure that estimates were representative of the survey population and bootstrap weights were used in the modelling to produce confidence intervals and *p*-values that are appropriate for the complex survey design; a description of the bootstrap weighting and the Fay adjustment factor is available in the 2013 CTADS User Guide.<sup>22</sup> Separate binary logistic regression models were fitted to examine correlates of seven primary outcomes: cannabis use in the past 3 months, each of the five possible problems associated with past 3-month cannabis use, as well as the derived WHO ASSIST binary risk variable. Four variables were included in each model: sex, age, region, and rural/urban character of participants’ residence. A threshold of *p* < 0.05 was used to detect statistical significance and a Bonferroni Correction was applied to account for the risk of a Type I error.

**RESULTS**

**Sample characteristics**

Unweighted sample characteristics are shown in Table 1. The majority of respondents reported never having used cannabis. Approximately one quarter reported having used cannabis, but not in the past 12 months. Close to 1 in 10 people reported using cannabis in the past 12 or 3 months.

A logistic regression analysis was conducted to examine factors associated with cannabis consumption in the past 3 months. Males were more than twice as likely (OR = 2.42, 95% CI = 1.88–3.10; *p* < 0.001) as females to report having used cannabis in the past 3 months. Adults aged 30 years and older were less likely to report past 3-month cannabis use than youth aged 15–19 (OR = 0.27, 95% CI = 0.20–0.37; *p* < 0.001) and young adults aged 20–29 (OR = 0.26, 95% CI = 0.17–0.39; *p* < 0.001). Respondents from British Columbia (BC) (OR = 1.99, 95% CI = 1.20–3.32; *p* = 0.001), Atlantic provinces (OR = 1.62, 95% CI = 1.15–2.27; *p* < 0.001) and Quebec (OR = 1.64, 95% CI = 1.08–2.48; *p* = 0.009) were more likely to have reported using cannabis in the past 3 months than their counterparts in the Prairies. No significant difference was observed in past 3-month cannabis consumption between individuals living in rural and urban settings.

**Table 1.** 2013 Canadian Tobacco, Alcohol and Drugs survey sample characteristics, cannabis use in Canada (N = 13 635)

Characteristic	Never users	Former users	Past 12 months use*	Past 3 months use
Overall	61.2%	25.5%	13.3%	9.4%
Sex				
Male	55.8%	27.3%	16.9%	12.7%
Female	65.7%	24.0%	10.3%	6.7%
Age (years)				
15–19	69.9%	9.3%	20.8%	14.0%
20–29	47.3%	26.6%	26.1%	18.7%
30–45	49.7%	40.0%	10.3%	7.8%
46–65	54.6%	39.8%	5.6%	4.2%
65+	88.2%	11.2%	0.6%	0.4%
Region				
Atlantic	61.0%	25.2%	13.8%	9.8%
Quebec	58.8%	26.9%	14.3%	10.3%
Ontario	62.8%	23.3%	13.9%	9.8%
Prairies	62.3%	26.0%	11.7%	8.3%
British Columbia	60.3%	25.8%	13.9%	9.6%
Population density				
Population centre	60.3%	26.0%	13.8%	9.8%
Rural	63.6%	24.4%	12.1%	8.4%

\* Includes past 3-month use; data presented are unweighted.

*Strong Desire or Urge to Use*

Overall, 19.7% of current users reported a strong desire or urge to use cannabis. As Table 2 indicates, men were more than twice as likely as women to report a strong desire or urge to use cannabis. It should be noted that these odds are controlled for age, region, as well as population density. Youth and young adults aged 15–29 were more likely to report this issue than adults aged 30 years and older. Individuals living in BC were three times more likely than their Prairie neighbours to report a strong desire or urge to use cannabis.

*Health, Social, Legal or Financial Problems*

Figure 1 demonstrates that <5% of current cannabis users reported health, social, legal or financial problems. Men were almost three times as likely as women to report health, social, legal or financial problems. Individuals aged 30 and above were much less likely than youth aged 15–19 to report issues in this domain of problems related to cannabis use.

*Failure to Complete Normal Tasks*

Approximately 1 in 10 current cannabis users reported failing to complete normal tasks due to their use. Men were more than five times as likely to report failing to complete normal tasks due to their cannabis consumption. Again, respondents aged 30 and above were much less likely than youth aged 15–19 and young adults aged 20–29 to report problems completing normal tasks. Respondents from BC and the Atlantic provinces were 3–6 times more likely to report failing task completion than their Prairie counterparts.

*Relatives/Friends Expressing Concern*

One quarter of current cannabis users reported relatives and friends expressing concern about their use of cannabis. Men were almost

**Table 2.** Factors associated with problematic use of cannabis among respondents who report having used in the past 3 months

Characteristic	Ref	Model 2a		Model 2b		Model 2c		Model 2d		Model 2e						
		Strong desire/urge to use	OR (95% CI)	p*	Health, social, legal, financial	OR (95% CI)	p*	Failure to complete normal tasks	OR (95% CI)	p*	Relatives/friends express concern	OR (95% CI)	p*	Failed to control use	OR (95% CI)	p*
Sex																
Male	vs. Female	2.14 (1.10-4.14)	<b>0.024</b>	2.77 (0.80-9.63)	0.109	5.20 (2.19-12.35)	< <b>0.001</b>	4.75 (2.86-7.87)	< <b>0.001</b>	3.45 (1.81-6.58)	< <b>0.001</b>					
Age (years)																
30+	vs. 15-19	0.29 (0.13-0.64)	< <b>0.001</b>	0.17 (0.03-0.87)	<b>0.028</b>	0.09 (0.02-0.42)	< <b>0.001</b>	0.09 (0.04-0.19)	< <b>0.001</b>	0.11 (0.04-0.29)	< <b>0.001</b>					
20-29	vs. 15-19	1.49 (0.71-3.14)	0.605	0.89 (0.26-3.09)	1.000	1.29 (0.43-3.89)	1.000	0.79 (0.44-1.41)	1.000	0.96 (0.43-2.13)	1.000					
30+	vs. 20-29	1.49 (0.08-0.49)	< <b>0.001</b>	0.19 (0.03-1.34)	0.124	0.07 (0.01-0.35)	< <b>0.001</b>	0.11 (0.05-0.25)	< <b>0.001</b>	0.12 (0.04-0.36)	< <b>0.001</b>					
Region																
British Columbia	vs. Atlantic	1.85 (0.71-4.77)	0.703	2.39 (0.40-14.25)	1.000	2.14 (0.40-11.50)	1.000	0.94 (0.25-3.48)	1.000	0.85 (0.23-3.06)	1.000					
	vs. Ontario	2.35 (0.73-7.53)	0.391	2.19 (0.33-14.73)	1.000	2.22 (0.37-13.24)	1.000	1.27 (0.35-4.64)	1.000	0.69 (0.17-2.76)	1.000					
	vs. Quebec	3.78 (0.94-15.28)	0.074	2.55 (0.11-57.02)	1.000	1.84 (0.24-13.93)	1.000	0.53 (0.14-2.06)	1.000	0.28 (0.07-1.21)	0.147					
Atlantic	vs. Prairies	2.99 (1.14-7.80)	<b>0.014</b>	5.52 (0.77-39.52)	0.148	6.76 (1.16-39.21)	0.023	1.74 (0.46-6.56)	1.000	1.16 (0.28-4.80)	1.000					
	vs. Ontario	1.28 (0.52-3.13)	1.000	0.92 (0.20-4.25)	1.000	1.04 (0.30-3.62)	1.000	1.35 (0.68-2.68)	1.000	0.81 (0.31-2.13)	1.000					
	vs. Quebec	2.05 (0.56-7.49)	1.000	1.07 (0.08-13.54)	1.000	0.86 (0.15-4.89)	1.000	0.56 (0.26-1.22)	0.375	0.33 (0.11-1.03)	0.062					
Ontario	vs. Prairies	1.62 (0.79-3.34)	0.610	2.31 (0.44-12.27)	1.000	3.16 (1.05-9.52)	<b>0.034</b>	1.86 (0.98-3.52)	0.065	1.37 (0.51-3.72)	1.000					
	vs. Quebec	1.61 (0.43-6.02)	1.000	1.16 (0.06-21.00)	1.000	0.83 (0.17-4.09)	1.000	0.42 (0.18-0.97)	<b>0.035</b>	0.41 (0.13-1.25)	0.251					
Quebec	vs. Prairies	1.27 (0.51-3.15)	1.000	2.52 (0.44-14.47)	1.000	3.05 (0.86-10.88)	0.138	1.37 (0.69-2.71)	1.000	1.69 (0.52-5.50)	1.000					
	vs. Prairies	0.79 (0.24-2.64)	1.000	2.17 (0.12-39.09)	1.000	3.68 (0.72-18.94)	0.255	3.30 (1.43-7.64)	< <b>0.001</b>	4.13 (1.22-13.94)	<b>0.011</b>					
Population density																
Urban	vs. Rural	1.28 (0.59-2.80)	0.533	1.59 (0.56-4.51)	0.384	0.62 (0.19-2.02)	0.424	1.07 (0.57-2.04)	0.831	0.46 (0.20-1.04)	0.062					

\* Bonferroni correction applied, all estimates have been adjusted using bootstrap weights.

five times more likely than women to report having a friend and/or relative express concern about their cannabis consumption. Respondents aged 30 and above were much less likely than youth aged 15-19 and young adults aged 20-29 to report having kin or friends express concern about their cannabis consumption patterns. Respondents in Quebec were more likely to report having this issue than respondents in the Prairies or Ontario.

*Failure to Control Use*

One in ten current cannabis users reported failing to control the use of the substance. Men were 3.5 times more likely than women to report failure to control cannabis consumption. As in previous models, respondents aged 30 and above were much less likely than youth aged 15-19 and young adults aged 20-29 to report a problem in this domain. Individuals in the Prairies were less likely to report failing to control cannabis use than those living in Quebec.

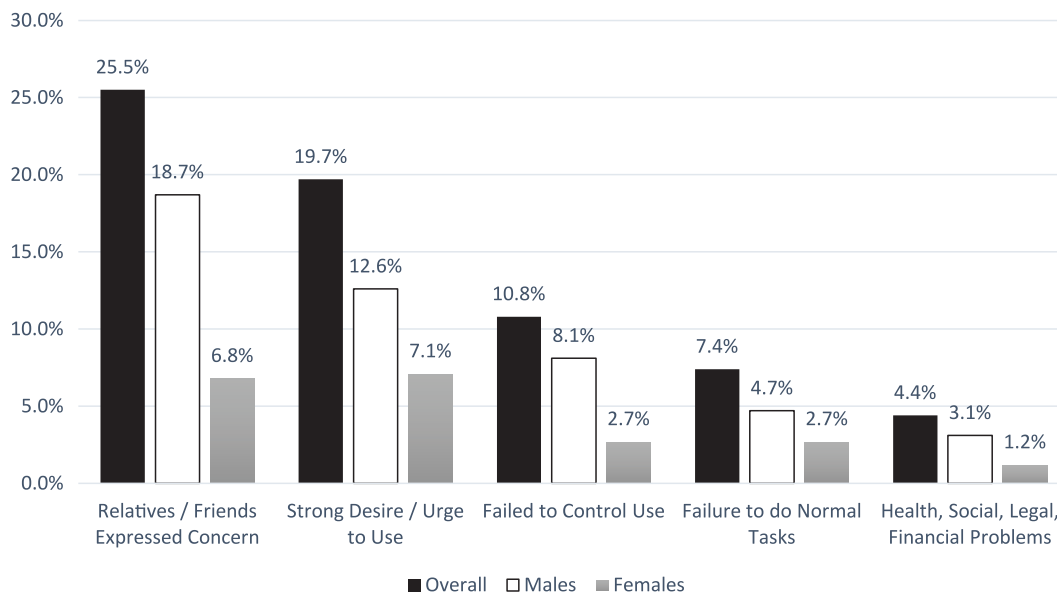
**Risk of developing health and other problems**

Using the WHO ASSIST instrument, Table 3 categorizes past 3-month cannabis users by risk of developing health or other problems due to cannabis consumption. Nearly two thirds of current and past 3-month users were at moderate risk of developing health or other problems, whereas only 1.9% of this subgroup were at high risk of developing health or other problems according to the ASSIST tool.

Table 4 outlines the results of a logistic regression with factors associated with moderate or high risk of developing health or other problems due to cannabis use for those reporting using in the past 3 months. This is the result of the embedded WHO ASSIST tool presented previously. Individuals who were categorized in this moderate to high risk stratum tended to be male (OR = 2.78, 95% CI = 1.97-3.93; *p* < 0.001) and between the ages of 15-29 (*p* < 0.001). Respondents from the Maritimes had a 1.6 times greater likelihood than those reporting living in the Prairies of being included in this heightened risk stratum.

**DISCUSSION**

The current findings provide the most comprehensive evidence of problematic use of cannabis in Canada using measures from the World Health Organization's ASSIST instrument. The findings indicate that, while 1 in 10 Canadians reported using cannabis in the past 3 months, 2% of past 3-month users were characterized as having a high-risk severe health or other problems. Approximately 1 in 5 past 3-month cannabis users in the current study reported a strong desire or urge to use, a well-established criteria for substance-related disorder according to the DSM-V.<sup>23</sup> Fewer past 3-month cannabis users (approximately 1 in 10) reported a failure to control use, while even fewer reported a failure to complete normal tasks, or reported health, social, legal or financial problems due to their recent cannabis use. While the ASSIST tool provides a useful measure of "problematic use" of cannabis, there remains a lack of consensus on how problematic use should be assessed. The lack of consensus reflects the variety of measures that are used, a shortage of longitudinal studies across a range of user profiles to assess problematic outcomes, and the lack of a standardized unit to represent dose or consumption amount, as well as subjective differences in defining one's "problematic" use.<sup>24,25</sup> Future work



**Figure 1.** Types of problems Canadians report due to cannabis use, among users in the past 3 months – by sex (n = 1 283)

**Table 3.** Alcohol, Smoking and Substance Involvement Screening Test scored for Canadians reporting cannabis use in the past 3 months (n = 1 283)

Characteristic	Low risk	Moderate risk	High risk
Overall	35.8%	62.4%	1.9%
Sex			
Male	29.1%	68.4%	2.5%
Female	46.4%	52.8%	0.8%
Age (years)			
15–19	33.8%	63.6%	2.6%
20–29	35.4%	62.4%	2.2%
30–45	35.8%	63.6%	0.7%
46–65	41.1%	58.9%	0.0%
65+	66.7%	33.3%	0.0%
Region			
Atlantic	35.0%	63.4%	1.6%
Quebec	43.3%	55.5%	1.2%
Ontario	30.0%	66.2%	3.8%
Prairies	34.3%	63.8%	1.9%
British Columbia	40.2%	57.8%	2.0%
Population density			
Population centre	38.1%	59.7%	38.1%
Rural	29.0%	70.1%	0.9%

**Table 4.** Factors associated with moderate or high risk of developing health/other problems due to cannabis for those who used in the past 3 months

Characteristic	Ref	OR (95% CI)	p*
Sex ( $\chi^2 = 33.6880$ $p < 0.001$ )			
Male vs. Female	Female	2.78 (1.97–3.93)	<0.001
Age ( $\chi^2 = 64.9519$ $p < 0.001$ )			
30+ vs. 15–19	15–19	0.28 (0.19–0.41)	<0.001
20–29 vs. 15–19	15–19	0.98 (0.60–1.58)	1.000
30+ vs. 20–29	20–29	0.28 (0.17–0.48)	<0.001
Region ( $\chi^2 = 14.9058$ $p = 0.0049$ )			
British Columbia vs. Atlantic	Atlantic	1.04 (0.55–1.95)	1.000
vs. Ontario	Ontario	1.08 (0.51–2.32)	1.000
vs. Quebec	Quebec	1.43 (0.68–3.03)	1.000
vs. Prairies	Prairies	1.69 (0.87–3.30)	0.264
Atlantic vs. Ontario	Ontario	1.05 (0.63–1.73)	1.000
vs. Quebec	Quebec	1.38 (0.80–2.40)	0.994
vs. Prairies	Prairies	1.64 (1.11–2.42)	0.004
Ontario vs. Quebec	Quebec	1.32 (0.70–2.50)	1.000
vs. Prairies	Prairies	1.56 (0.91–2.68)	0.205
Quebec vs. Prairies	Prairies	1.18 (0.67–2.10)	1.000
Population density ( $\chi^2 = 0.6561$ $p = 0.4180$ )			
Urban vs. Rural	Rural	1.15 (0.82–1.63)	0.418

should examine the correspondence between different measures of problematic cannabis use, with an emphasis on their predictive validity for adverse outcomes.

In terms of socio-demographic outcomes, the current findings are also consistent with current national and international findings that men are disproportionately affected by cannabis use compared to women.<sup>1,7</sup> Canadian male respondents were more likely to report some social problems than females and to be categorized as high risk. Moreover, youth and young adults between the ages of 15 and 29 consistently reported a greater prevalence of problems associated with their cannabis consumption than their older counterparts. This is of particular importance as consumption of cannabis during adolescence has been associated with a number of deleterious and

possibly irreversible health effects.<sup>7</sup> The findings of this study are consistent with previous, albeit limited, work in the area.<sup>26–28</sup>

Another gap in the existing knowledge base is the economic and indirect social impact due to problematic cannabis use. Canada’s current regulatory frameworks – the Controlled Drugs and Substances Act – impose additional social costs on Canadians who are arrested annually with cannabis-related charges.<sup>29</sup> The economic burden to tax payers alone was estimated to be an annual \$1.2B in cannabis-related public safety measures.<sup>30</sup> Very little is known about lost productivity and projected impact of problematic cannabis use among youth. Future research should examine the extent to which these social costs change following legalization of cannabis for recreational use in Canada.

## Limitations

The cross-sectional nature of the study does not allow for causal inferences. Additionally, self-reported data on illicit substance use is subject to social desirability bias. Therefore, CTADS may provide an underestimate of the actual prevalence of cannabis use and associated problems in Canadian society. A strength of the survey is the large sample size and probability-based sampling methods. However, several populations at higher risk for cannabis-related problems were not included in the sampling frame, including individuals who are currently living in institutions as well as those living in Nunavut, Northwest Territories, and Yukon. It should be noted that while the WHO ASSIST instrument is an established measure to assess problematic cannabis use, it is not without limitations. The WHO ASSIST uses different behavioural patterns, such as frequency of use and self-reported problems associated with cannabis use, to forecast an individual's risk of future health and other problems. However, the higher severity end of this scale includes cardiovascular and respiratory problems and carcinomas associated with certain modes of cannabis administration. Several of these health effects are primarily a side-effect of smoking cannabis, and may be less in evidence with other modes of administration, such as vaporizing and consumption in foods, which are becoming increasingly common.

## CONCLUSION

A small proportion of Canadians report using cannabis to a degree that is problematic. Approximately one in two young people reported using cannabis at some point in their lives, which is of concern given the numerous negative health outcomes that have been described in the growing literature. This study highlights the need for the development of more sensitive instruments to detect problematic cannabis use. In particular, monitoring tools should account for the use of medical cannabis, given implications of how "problematic use" is interpreted, as well as different forms of administration. Finally, future research should examine potential changes in the prevalence of problematic use in Canada given the government's commitment to legalizing non-medical cannabis use in 2018.

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## RÉSUMÉ

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**OBJECTIFS :** Le cannabis est la substance illicite la plus largement consommée au Canada. Il existe un éventail d'outils pour mesurer les caractéristiques de la consommation abusive de cannabis, mais la définition opérationnelle de « consommation abusive » ne fait pas consensus. Notre étude visait à estimer la prévalence de la consommation abusive de cannabis au Canada, en fonction des genres de problèmes que les Canadiens disent découler de leur consommation de cannabis, des niveaux de méfaits associés à cette consommation et des différences éventuelles entre les groupes sociodémographiques.

**MÉTHODE :** Des données transversales représentatives des Canadiens à l'échelle nationale ont été tirées de l'Enquête canadienne sur le tabac, l'alcool et les drogues (ECTAD) menée par Statistique Canada en 2013 ( $n = 13\ 635$ ), qui est publiquement disponible. Des analyses de régression logistique binaires ont permis d'examiner les différences entre sous-groupes

dans les habitudes de consommation de cannabis et les issues problématiques définies dans l'outil ASSIST (Alcohol, Smoking and Substance Involvement Screening Test) de l'Organisation mondiale de la santé, intégré dans l'ECTAD.

**RÉSULTATS :** Selon nos constatations, bien qu'un Canadien sur 10 ait déclaré avoir consommé du cannabis au cours des 3 mois antérieurs, seulement 2 % de l'échantillon de Canadiens ayant déclaré avoir consommé du cannabis au cours des 3 mois antérieurs ont été caractérisés comme ayant un « risque élevé » d'éprouver un grave problème (de santé ou autre). Les répondants masculins étaient plus susceptibles de déclarer des problèmes sociaux que les femmes et d'être classés dans la catégorie de « risque élevé ». Les jeunes et les jeunes adultes entre 15 et 29 ans ont systématiquement déclaré une plus forte prévalence de problèmes associés à leur consommation de cannabis que les répondants plus âgés.

**CONCLUSION :** Une très faible proportion de Canadiens déclare consommer du cannabis de façon abusive. Environ un jeune sur deux déclare en avoir déjà consommé dans sa vie, ce qui est préoccupant vu les effets négatifs de la consommation précoce du cannabis sur la santé. L'étude souligne la nécessité d'élaborer des instruments plus sensibles pour détecter la consommation abusive de cannabis.

**MOTS CLÉS :** cannabis; marijuana; ASSIST; consommation abusive; dépendance; santé masculine; jeunes; surveillance