Title Trends and Correlates of Cannabis Use in Canada: A Repeated Cross-Sectional Analysis of

National Surveys From 2004 to 2017

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ABSTRACT

Background: Cannabis was the most widely used illicit drug in Canada before legalization in 2018. Current time trends in cannabis use by demographic factors are not well known. We provide estimates of cannabis consumption by sex, age group, and geographic region for 2004-2017.

Methods: Data originated in the Canadian Tobacco Use Monitoring Survey and the Canadian Tobacco, Alcohol and Drugs Survey, and respondents were aged 15 years and older. The rate of cannabis use in 12 months before the survey was analyzed using logistic regression.

Results: 226,145 respondents (50.7% female) between 2004-2017 were analyzed. Between 2004 and 2017, the overall rate of cannabis use increased from 9.4% (95% CI, 8.7-10.1) to 14.8% (95% CI, 13.3-16.5) (P-trend <0.001). Male respondents reported consistently higher cannabis use compared to females. Cannabis use among ages 15-19 years decreased from 24.0% (95% CI, 22.0-26.2) in 2004 to 19.4% (95% CI, 17.5-21.5) in 2017 (P-trend <0.001). Across all age groups, those aged 20-24 years reported the highest prevalence of past-year cannabis consumption (28.2%, 95% CI, 27.4-29.0). The overall prevalence of cannabis use was highest in British Columbia (12.6%, 95% CI, 11.9-13.5), although rates among respondents aged 15-19 years and 20-24 years were highest in Quebec (26.6% [95% CI, 25.3-28.0] and 31.2% [95% CI, 29.6-32.8]), respectively.

Interpretation: Cannabis consumption in Canada has increased from 2004 to 2017 and varies based on sex, age and geographic region. Despite a general increase, adolescent cannabis consumption has decreased. Further studies are warranted that include post-legalization data and other sociodemographic factors.

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INTRODUCTION

As of October 2018, the Government of Canada legalized the recreational use of cannabis (marijuana) on a national level.[1] Before legalization, cannabis was the most widely used illicit drug in Canada,[2] and consumption has increased post-legislation according to the recently released National Cannabis Survey (NCS).[3] Data from the NCS suggests that a national increase of 3%, from 14% to 17%, in cannabis consumption has occurred within only two years following legalization.[3] The rise in the overall cannabis use may be due to increases in cannabis availability and circulation and decreases in the perception of harm,[4, 5] all of which influence drug consumption. Indeed, along with overall increases in cannabis consumption, studies indicate that social acceptability and cannabis accessibility increase while the perception of harm decreases in US states that have legalized the recreational use of cannabis.[6, 7] Also, survey data from the United States suggest sex, age, ethnicity and socioeconomic status dependent trends in cannabis consumption that may be influenced by changing social norms and new legislation.[4, 8, 9] Currently, no studies exist assessing the influence of different demographic factors on the trends in cannabis consumption across Canada. Cross-sectional studies evaluating the trends in cannabis use are essential to inform legislation and create public health policies that are appropriate to the current Canadian population. This study evaluated trends in cannabis use among Canadians between 2004 and 2017 and identified differences in prevalence according to sociodemographic factors.

METHODS

Data source

Data are from 12 nationally representative surveys carried out in Canada between 2004 and 2017. Questions regarding cannabis consumption were included in national surveys

beginning in 2004. The final dataset included two surveys: the Canadian Tobacco Use

Monitoring Survey (CTUMS) (years 2004-2012) and the Canadian Tobacco, Alcohol and Drugs

Survey (CTADS) (years 2013, 2015 and 2017). Statistics Canada conducted both surveys.

CTUMS was conducted on an annual basis in two cycles (February to June and July to

December) to monitor changes in smoking prevalence in the Canadian population. CTADS is an

ongoing biennial survey that monitors the use of tobacco, alcohol and drugs across the Canadian

population. Both surveys used a repeated cross-sectional design, a two-phase stratified random

sample procedure, and collected data via random digit dialling telephone interviews with

computer-assisted technology. The two-phase design was implemented to increase the number of

respondents aged 15-19 years and 20-24 years. Both CTUMS and CTADS included individuals

15 years and older in the ten provinces in Canada and excluded residents of the three territories,

residents without a telephone and institutionalized individuals. The sample size for each CTUMS

was approximately 20-21,000 respondents and approximately 14-16,000 respondents for each

CTADS.

To examine rates of cannabis use in pregnancy, we use data from the Canadian Alcohol

and Drug Monitoring Survey (CADUMS) between 2008-2010. To our knowledge, the

CADUMS was the only survey that included questions about whether respondents were pregnant

in the past year, along with past 12-month cannabis use. The CADUMS provides continuous

information on alcohol and drug use habits across 10 Canadian provinces and is conducted by

the Controlled Substances and Tobacco Directorate, Health Canada. The survey is a two-stage

random sampling survey conducted using randomized digit dialling via computer-assisted

telephone interviewing. Within the selected households, the individual (over 15 years of age)

celebrating his/her birthday next would be chosen to complete the interview. Institutionalized

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individuals and full-time members of the Canadian Forces were excluded from the sample

population. The sample size for CADUMS varies between 10,000 and 16,000 respondents.

Outcome

The primary outcome was past-year cannabis use, defined as a dichotomous variable

(yes/no). The question regarding 12-month cannabis use in CTUMS and CTADS was,

respectively: "Have you used it (i.e. marijuana) in the past 12 months?" and "During the past 12

months have you used marijuana?".

Covariates

The independent variables included were age, sex (self-reported) and geographic region.

Age was stratified into six groups: 15-19, 20-24, 25-29, 30-44, 45-64 and 65+. Geographic

region was defined as Atlantic (Nova Scotia, New Brunswick, Newfoundland and Labrador and

Prince Edward Island), Quebec, Ontario, Prairies (Manitoba, Saskatchewan and Alberta) and

British Columbia. The pregnancy sub-analyses included two additional independent variables:

childbearing age (defined as 18-44; yes/no) and pregnancy within the past 12-months (yes/no).

Statistical Analysis

A weighted estimate for cannabis consumption prevalence was calculated in each survey

for subgroups defined by age, sex and geographic region using sampling weights provided with

each survey. Logistic regression models were used to assess linear and quadratic trends in past-

year cannabis use by age, sex and geographic region. Models were first specified with linear

terms for year, and a second model was fit which included linear and quadratic terms. We

present trends as the weighted prevalence with a 95% confidence interval (CI). The criterion for

statistical significance was alpha = 0.05. All analyses were performed using R statistical

software.

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RESULTS

The total sample size across all surveys from 2004-2017 was 230,553 respondents. Of these respondents, we excluded 4,408 (1.9%) due to missing data on cannabis consumption, leaving a total analytical sample of 226,145, and 122,299 were female (weighted frequency 51%). The response rates by survey varied between 70.4% and 87.6% (**sTable 1**). The weighted pooled estimates for past 12-month cannabis consumption in 2004-2017 appear in **Table 1** by sex, age and geographic region. Across the study period, males of all ages were more likely to use cannabis compared to females (13.2%, 95% CI, 12.7-13.6 vs 7.3%, 95% CI, 7.0-7.6). Combining males and females, British Columbia had the highest rate of cannabis use (12.7%), and Ontario had the lowest (9.5%). The rates of use were similar in the Atlantic (10.1%), Quebec (10.1%), and Prairie (10.1%) provinces. The relationship between cannabis use and age was non-linear and peaked at 33.7% among males and 22.5% among females aged 20-24 years (**Figure 2**). It was less than 1% among those aged 65 years and older.

Overall, cannabis consumption increased in Canada between 2004 and 2017 from 9.4% (95% confidence interval [CI], 8.7, 10.1) to 14.8% (95% CI, 13.3, 16.5, p-trend<0.001) (**Figure 1**). This trend indicated a statistically significant quadratic (p<0.001) effect, with a more rapid increase in prevalence after 2011 (**Table 2**).

Trends by Sex

In 2004 the prevalence in cannabis consumption across Canada was 12.2% (95% CI, 10.9-13.4) in males and 6.6% (95% CI, 5.9-7.4) in females. By 2017, prevalence of cannabis use increased by 6.5% to 18.7% (95% CI, 16-21.4) in males and nearly doubled in females (to 11.1% [95% CI, 9.3-12.9]). Across all age groups and regions, males consistently reported greater past 12-month cannabis consumption compared to females (**Figure 3**), with the greatest overall

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prevalence reported (in 2017) by males aged 25-29 at 45.8% (95% CI, 32.0-60.4). Increases were demonstrated between 2004 and 2017 for male and female respondents aged 20-24 years, 25-29 years, 30-44 years, and 45-64 years. In these age groups, the prevalence of 12-month cannabis consumption remained relatively stable between 2004 and 2011 and generally increased from 2012-2017.

Trends by Age

Recently, individuals aged 25-29 years reported a significant increase in past 12-month cannabis consumption (**Table 2**). In 2013, 19.2% (95% CI, 12.8-27.7) of individuals aged 25-29 years reported consuming cannabis in the past year; this increased to 30.4% (95% CI, 23.9-37.7) in 2015 and 34.6% (95% CI, 25.2-45.4) in 2017. Among the youngest age group, 15-19 years, there was a significant linear (p=0.001) and quadratic (p<0.001) declining trend in past-year cannabis use, from 24.0% in 2004 to 19.4% in 2017.

Among respondents aged 20-24 years, only the quadratic trend was statistically significant (p<0.001), driven by more recent increases since 2013. Among respondents aged 25-29, 30-44 years, and 45-64 years, both linear and quadratic trends in past 12-month cannabis consumption were statistically significant (p<0.05), indicating increases in past 12-month cannabis use. A statistically significant linear trend was also observed among respondents 65 years of age and older, with increases mainly occurring since 2012. The prevalence of cannabis use was lower among those aged 65 years and above and increased from 0.23% in 2004 to 3.0% in 2017.

Trends in Cannabis Use by Region

In 2004-2017, Quebec residents aged 15-19 and 20-24 years reported the greatest past-year cannabis consumption (26.6% [95% CI, 25.3-28.0]; 31.2% [95% CI, 29.6-32.8]), whereas

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residents of British Columbia reported the greatest past-year cannabis use among individuals

aged 25-29, 30-44, 45-64 and 65+ (25.1% [95% CI, 19.9-31.3]; 13.7% [95% CI, 12.0-15.7];

7.7% [95% CI, 6.8-8.8]; 2.2% [95% CI, 1.5-3.2]) (**Table 2**). Past-year cannabis consumption in

all regions was relatively stable until 2013 when consumption started to increase, except for

Quebec (11.2% in 2013 vs 11.0% in 2017) (**Figure 4**). In the Atlantic Provinces, the Prairies,

and British Columbia, cannabis consumption increased across both sexes; British Columbia had

the greatest increase in cannabis consumption overall (increasing from 10.8% in 2011 to 23.4%

in 2017). Cannabis consumption in Ontario increased in males (10.3% in 2011 to 14.4% in

2017), but female consumption increased until 2015 and decreased again in 2017 (8.6% in 2015

vs 6.6% in 2017) (**Figure 4**).

Cannabis consumption and pregnancy

We used data from CADUMS between the years 2008 and 2010 to investigate past-12-

month cannabis consumption among women of child-bearing age (ages 15-44) and those that

were pregnant within one year of the survey. Between 2008 and 2010, the prevalence of cannabis

consumption decreased from 14.5% (95% CI, 12.2-17.2) to 11.4% (95% CI, 9.8-13.2) among

women of child-bearing age (p=0.043). However, among women reporting pregnancies in the

past year, the prevalence of past-year cannabis consumption was 9.7% (95% CI, 5.2-17.6) in

2008, 4.4% (95% CI, 1.8-10.3) in 2009, and 7.6% (95% CI, 4.3-13.1) in 2010, and no trend was

identified (p=0.57). Across all years, the prevalence of cannabis use among women who were

recently pregnant was 7.3% (9% CI, 5.0-10.7).

DISCUSSION

Our results indicate the prevalence of past-year cannabis consumption varied by age, sex

and geographic region, whereas time trends of cannabis use varied by age between 2004-2017.

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Overall, Canadian cannabis consumption has increased 5% from 9.4% to 14.8% over 13 years, a 58% relative increase. Despite a general increase in cannabis consumption, we find a decreasing trend in past-year cannabis use among adolescents aged 15-19 years. Compared to females, males consistently reported higher cannabis consumption over time, age and region. Lastly, the overall prevalence of cannabis consumption was highest in British Columbia, although Quebec had the highest reported among young adults under 25 years of age.

National data on cannabis consumption is scarce in Canada; only two studies have evaluated time trends of cannabis use.[3, 10] Using data from Ontario and Alberta secondary school students, Zuckerman et al., reported a steady decrease in past-year adolescent cannabis consumption between 2012 and 2015, followed by a rise in cannabis use between 2016 and 2018. However, the use of a convenience sample makes these results less generalizable to a national population. Secondly, the National Cannabis Survey (NCS), a set of stratified population-based surveys conducted by Statistics Canada and reported quarterly, has demonstrated similar results to the trend trajectory of cannabis consumption outlined in our results.[3] According to the NCS, between January 2018 and September 2019, the prevalence of past 3-month cannabis use increased from 14% to 17.1%, remaining greater in males compared to females.[3] Although the NCS reports an increased prevalence of cannabis consumption among ages 15-24 years, our results suggest this increase may primarily be driven by the 20-24 years age group and may mask a decrease in prevalence among ages 15-19 years.

Research conducted in the United States has shown similar trends in the prevalence of cannabis use.[3, 4, 8, 9, 11] All previous work has reported a higher prevalence of cannabis consumption, either past 12- or 3-months, in males compared to females. Data from the United States reflect a similar prevalence in cannabis consumption according to age group.[4, 8, 11] In line

with our findings, recent studies using nation-wide surveys indicate an increase in adult (18+ years) cannabis consumption, past 12- or 3-months, and a decrease in cannabis use among adolescents (12-17 years). Of particular interest is work by Anderson *et al.*[12] that garnered substantial controversy over its reports of declining rates in youth cannabis consumption post-legalization of recreational cannabis.[13-17] Addressing key methodological concerns, Anderson *et al.* published additional data suggesting that recreational cannabis laws in the U.S. may be associated with an 8% decrease (OR 0.92; 95% CI, 0.87-0.96) in past-month use and a 9% decrease (OR 0.91; 95% CI, 0.84-0.98) in heavy (over ten days per month) use among U.S. students in grades 9-12.[18] Few states had sufficient post-legalization data, limiting the ability to draw inferences from the data.[16] We find a similar trend in this age-group before legalization, which suggests a possible age effect in addition to any potential effect from the policy change.

Evidence of similar trends in American and Canadian cannabis consumption can aid to inform trends in drug use and the reformation of new and existing legislation. Policies that have shown a public health benefit in some U.S. states, including the introduction of potency laws, increases in tax on cannabis products, and minimum unit pricing, could be considered in the Canadian context.[19] There are currently no Canadian data regarding the accessibility, acceptability and attitudes towards recreational cannabis use. However, evidence from the U.S. suggests that recreational cannabis legalization leads to increases in positive attitudes towards cannabis use that may contribute to the increases in consumption.[4, 6, 20, 21] Importantly, the potential health risks associated with cannabis consumption need to be adequately communicated to the public to ensure that perceptibility of harm does not decrease with legalization, as it has in some U.S. states, and thus encourage cannabis consumption.[7] Also, cannabis legislation should prioritize public health messages of harm to vulnerable populations, including adolescents and

pregnant women, and regarding more harmful modes of consumption, i.e. smoking and risks of

inhaling carcinogens. Indeed, our sub-analyses indicate a substantial number of pregnant women,

up to 7%, may consume perinatally. Recently, up to 2% of pregnant women in an Ontario birth

cohort reported using cannabis while pregnant, and this increased to over 6% among women

aged 15-24 years.[22] Substantial evidence exists to highly discourage the use of cannabis during

pregnancy;[23] however, the current increasing trends in cannabis consumption in pregnancy

indicate that significant challenges remain in informing women and their health care providers

about the potential risks of cannabis in pregnancy.[24]

There are limitations to the present study. First, cannabis consumption was a self-reported

measure. Self-reporting may under or overestimate the true prevalence due to social desirability

or biases. Secondly, we only assessed past 12-month cannabis consumption because it was the

most consistently answered question in both the CTUMS and CTADS. However, other measures

of cannabis consumption in time and frequency (i.e. past 3-months, occasional/daily use) would

be valuable topics of further inquiry. Also, the data presented dates before the legalization of

recreational cannabis use in Canada, and thus cannot assess the influence of the new legislature

on cannabis consumption. Lastly, our study lacks a diversity of sociodemographic factors to

capture contextual differences in cannabis consumption trends. Future studies should consider

education as a covariate to cannabis consumption, considering it is a major socioeconomic factor

influencing cigarette smoking, alcohol and illicit drug consumption.

In conclusion, the prevalence of past 12-month cannabis consumption in Canadians

varied by sex, age and geographic region. Overall, cannabis consumption has increased from

9.4% in 2004 to 14.8% in 2017 and remained more prevalent in males than females. Despite

overall increases in cannabis consumption, our results demonstrated a steady decrease in

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cannabis use among adolescents aged 15-19 years. Further analyses of Canadian cannabis

consumption post-legalization, across other sociodemographic factors (i.e. education and

socioeconomic status), will be essential to advise public health policies and inform future

policies.

TABLES AND FIGURES

Table 1: Prevalence of 12-month Cannabis Consumption by Age, Sex and Province of Residence: CTUMS and CTADS 2004-2017.

Province/Sex	All ages	15-19	20-24	25-29	30-44	45-64	65+
Canada							
Both	10.2	22.4	28.2	20.8	9.8	5.1	0.81
	(9.9– 10.5)	(21.8 – 23)	(27.4 – 29)	(19 – 22.7)	(9.1 – 10.4)	(4.8 – 5.5)	(0.61 – 1)
Male	13.2	24.9	33.7	26.7	13.2	6.9	1.1
	(12.7 – 13.6)	(24 – 25.8)	(32.5 – 34.9)	(23.8 – 29.6)	(12.2 – 14.3)	(6.4 – 7.5)	(0.78 – 1.5)
Female	7.3	19.8	22.5	15	6.3	3.4	0.5
	(7 – 7.6)	(18.9 – 20.6)	(21.5 – 23.5)	(12.9 – 17.1)	(5.6 – 7)	(3 – 3.8)	(0.33 – 0.73)
Atlantic							
Both	10.1	21.4	27.8	20.9	10.4	6.0	0.9
	(9.6 – 10.7)	(20 – 22.8)	(26 – 29.5)	(16.9 – 24.9)	(9 – 11.8)	(5.3 – 6.7)	(0.5 – 1.3)
Male	13.2	23.7	34.1	24.9	14.6	8.0	1.4
	(12.3 – 14.1)	(21.9 – 25.5)	(31.3 – 36.9)	(19.1 – 30.7)	(12.2 – 16.9)	(6.9 – 9.3)	(0.7 – 2.2)
Female	7.2	19	21.1	17	6.5	4.0	0.5
	(6.5 – 7.9)	(16.8 – 21.8)	(19.2 – 22.9)	(11.2 – 22.9)	(5 – 8)	(3.2 – 5.0)	(0.1 – 0.8)
Quebec							
Both	10.1	26.6	31.2	21.3	9.7	4.2	0.6
	(9.6 – 10.7)	(25.2 – 28)	(29.6 – 32.8)	(18 – 24.6)	(8.4 – 11)	(3.6 – 4.9)	(0.1 – 1.1)
Male	13.2	30.2	38.7	27.5	13.3	5.6	1.0
	(12.3 – 14.2)	(28.3 – 32.2)	(36.3 – 41.1)	(22.2 – 32.8)	(11.1 – 15.6)	(4.5 – 6.8)	(0.3 – 2.7)
Female	7.1	22.9	23.4	15.2	5.9	2.9	0.3
	(6.5 – 7.3)	(21.0 – 24.7)	(21.3 – 25.4)	(11.3 – 19)	(4.7 – 7.1)	(2.1 – 3.6)	(0.1 – 0.9)
Ontario							
Both	9.5	20.8	27.7	20.5	8.3	4.5	0.52
	(8.9 – 10)	(19.5 – 22.1)	(26 – 29.3)	(16.7 – 24.3)	(7.1 – 9.5)	(3.9 – 5.1)	(0.23 – 0.81)
Male	12.3	23.4	31.6	28.6	11.4	6.0	0.93
	(11.4 – 13.2)	(21.5 – 25.3)	(29.2 – 34)	(22.3 – 35)	(9.4 – 13.5)	(5.0 – 7.2)	(0.32 – 1.5)
Female	6.7	18.1	23.5	12.6	5.3	3.0	0.19
	(6.2 – 7.3)	(16.4 – 19.9)	(21.3 – 25.6)	(8.8 – 16.5)	(4.1 – 6.5)	(2.4 – 3.8)	(0.01 – 0.37)
Prairies							
Both	10.1	20.4	25.8	18.3	9.7	5.2	0.56
	(9.7 – 10.6)	(19.5 – 21.3)	(24.7 – 27)	(15.5 – 21.2)	(8.7 – 10.8)	(4.6 – 5.8)	(0.34 – 0.77)
Male	13.1	22.3	31.4	24	12.9	7.1	0.53
	(12.3 – 13.8)	(21 – 23.6)	(29.7 – 33)	(19.1 – 28.8)	(11.3 – 14.6)	(6.1 – 8.1)	(0.25 – 0.82)
Female	7.2	18.4	20	12.3	6.3	3.3	0.57
	(6.7 – 7.7)	(17.2 – 19.7)	(18.5 – 21.6)	(9.9 – 14.7)	(5.1 – 7.6)	(2.7 – 3.9)	(0.25 – 0.9)
British Columbia							
Both	12.7	23.9	28.9	25.1	13.7	7.7	2.2
	(11.9 – 13.5)	(22.5 – 25.4)	(27.1 – 30.7)	(19.4 – 30.9)	(12.0 – 15.7)	(6.8 – 8.8)	(1.5 – 3.2)
Male	15.6	25.7	34.6	25.7	18.1	10.5	2.4
	(14.8 – 16.9)	(23.6 – 27.8)	(31.8 – 37.3)	(17.6 – 33.8)	(15.2 – 21)	(8.8 – 12.2)	(1.5-3.8)
Female	9.8	22	23	24.6	9.5	5.0	1.9
	(8.7 – 10.9)	(20 – 24.1)	(20.6 – 25.4)	(16.5 – 32.7)	(7.2 – 11.9)	(4.0 – 6.2)	(0.69 – 3.15)

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Table 2: Age-Specific Trends in 12-month Cannabis Consumption in Canadian Adolescents and Adults for 2004-2017: CTUMS and CTADS.

Survey Year	All ages		15-19		20-24		25-29		30-44		45-64		65+	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
2004	2864	9.4	1125	24.0	1116	27.0	160	18.8	287	7.6	166	4.1	10	0.23
2005	3119	9.7	1281	25.8	1200	30.0	151	16.5	283	8.1	199	4.5	5	0.06
2006	3174	9.5	1280	23.3	1222	28.2	157	17.1	295	8.5	212	4.1	8	0.27
2007	2935	9.4	1169	23.0	1113	26.9	179	18.1	263	8.6	203	4.0	8	0.30
2008	2741	9.0	1058	21.5	1056	29.4	157	14.1	237	7.8	221	4.4	12	0.45
2009	2648	9.3	1106	21.6	956	26.9	123	17.6	259	9.5	199	4.2	5	0.11
2010	2541	8.9	978	20.9	981	26.3	113	19.4	234	7.9	221	3.9	14	0.64
2011	2678	9.3	1063	22.0	1001	25.6	106	20.3	222	7.5	267	5.1	19	0.51
2012	2507	10.2	1002	20.8	930	27.3	93	23.8	229	10.2	223	4.6	30	1.1
2013	1972	10.6	753	22.4	687	26.2	74	19.2	211	12.0	225	6.1	22	0.73
2015	2078	12.3	509	20.6	728	29.7	163	30.4	317	13.4	306	7.0	55	1.6
2017	3505	14.8	1025	19.4	1732	33.2	123	34.6	234	17.4	347	9.4	44	3.0
P value for trend														
Model 1: Linear	<0.001		<0.001		0.239		<0.001		<0.001		<0.001		<0.001	
Model 2: Linear	0.001		<0.001		0.300		0.005		<0.001		0.002		<0.001	
Model 2: Quadratic	<0.001		0.236		<0.001		0.025		0.002		<0.001		0.547	

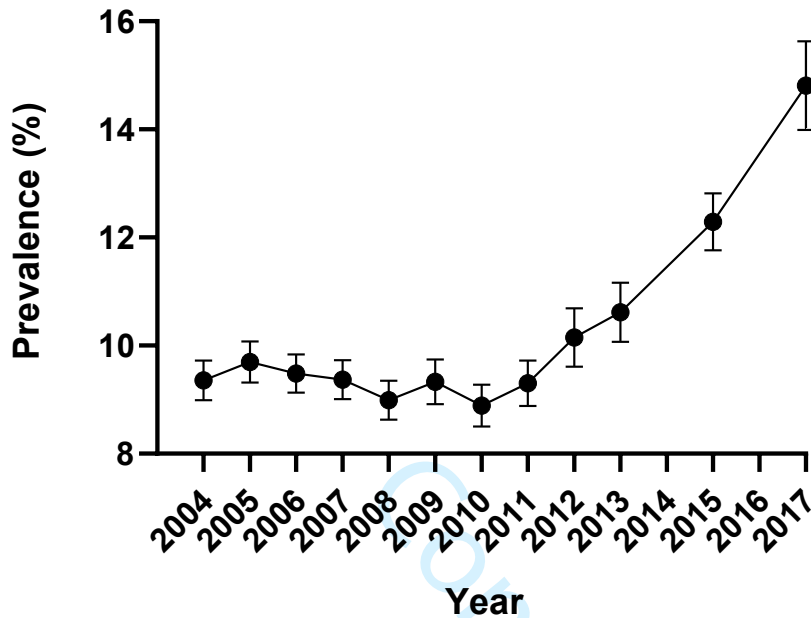*unweighted sample size of past 12-month cannabis use

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Figure 1: Prevalence of 12-month Cannabis Consumption in Canadian Adolescents and Adults Aged 15-65+ for 2004-2017: CTUMS and CTADS.
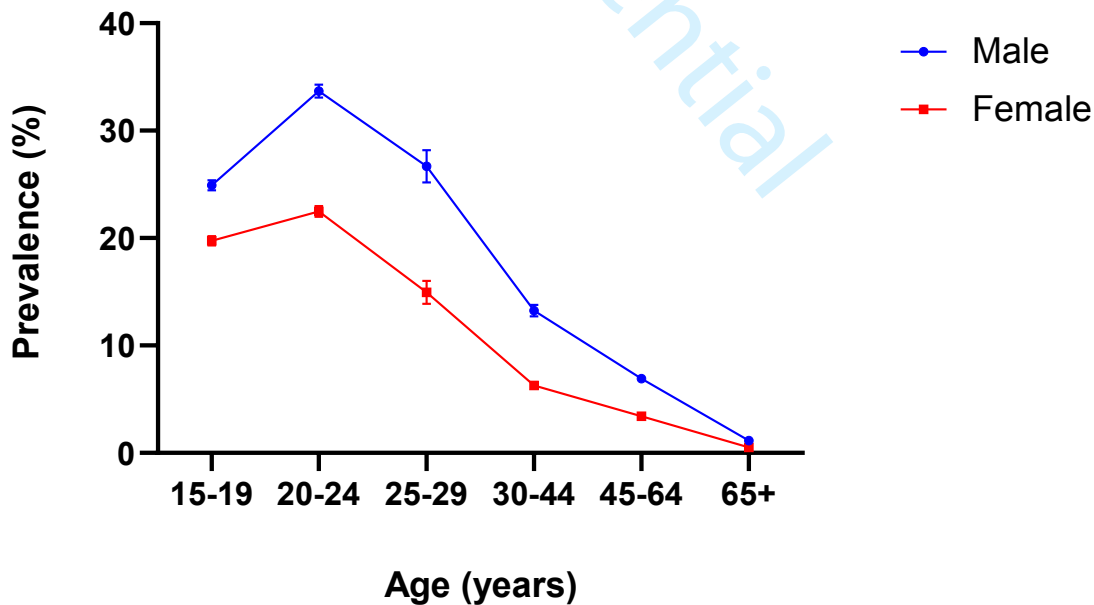

Figure 2: Weighted Estimates of 12-month Cannabis Consumption for Canadian Adolescents and Adults for 2004-2017: CTUMS and CTADS.
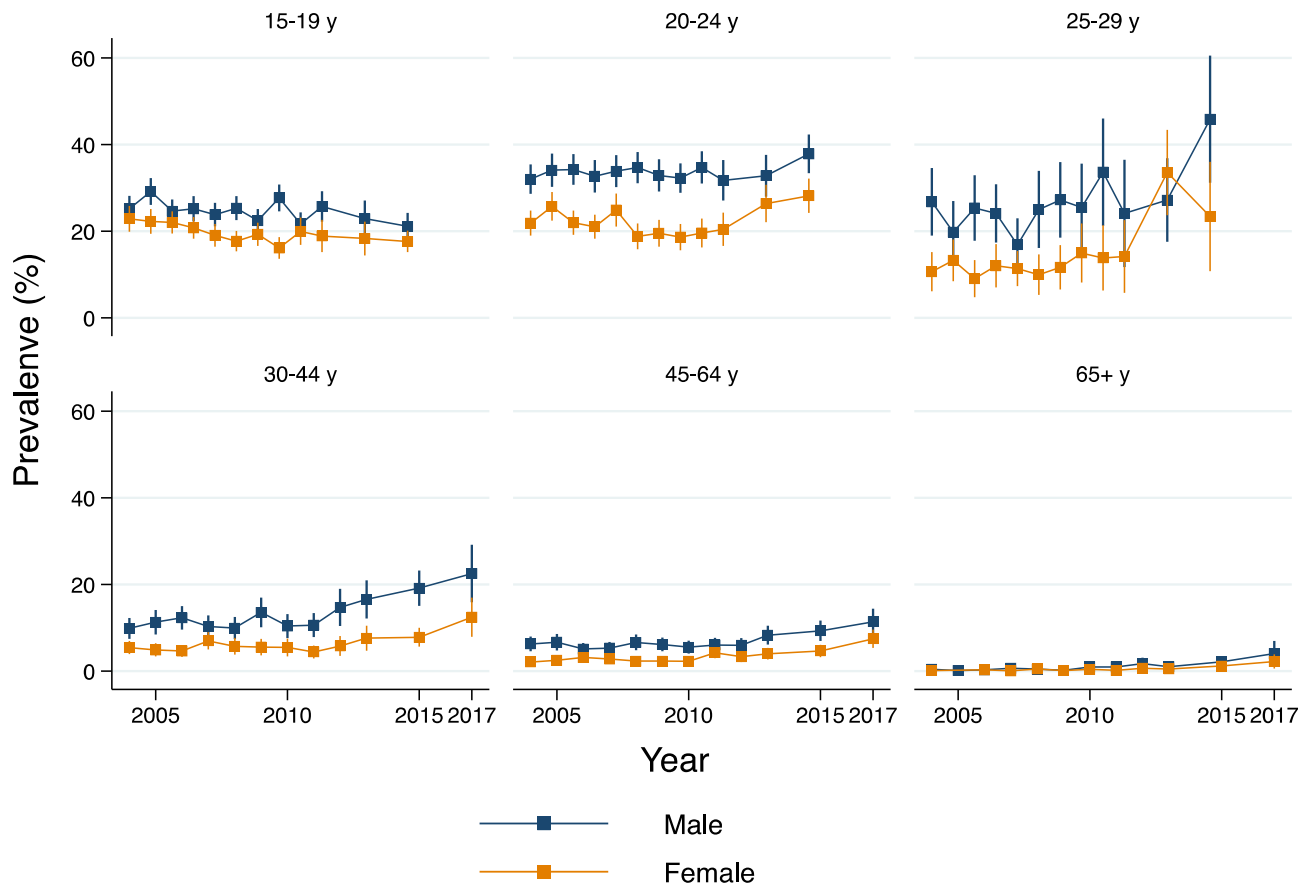
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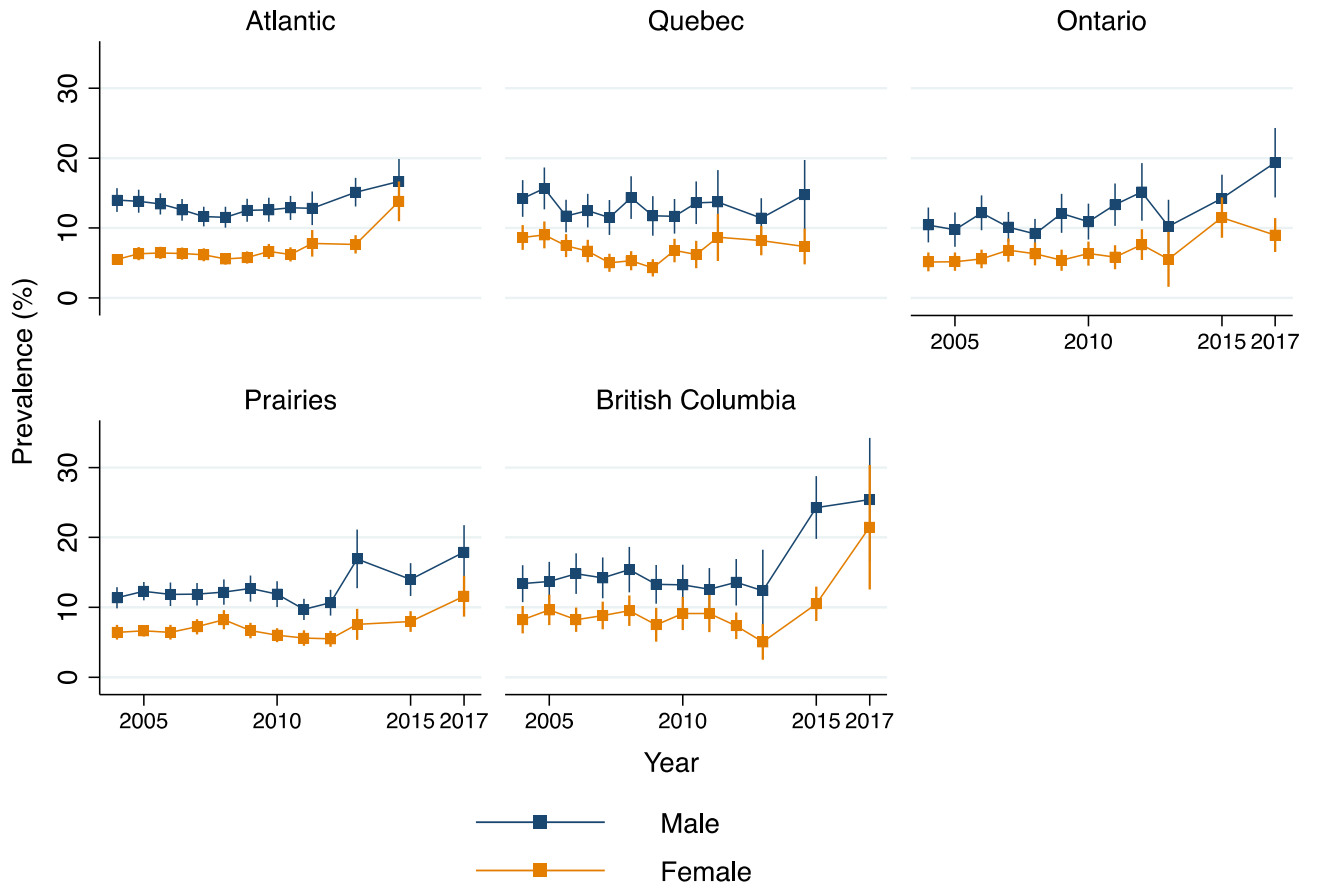**Figure 3** Trends in prevalence of past-year cannabis consumption by respondent sex and age group, Canada 2004-2017

Figure 4 Trends in prevalence of past-year cannabis consumption by respondent sex and geographic region, Canada 2004-2017

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APPENDIX

sTable 1: The response rates for surveys years 2004-2017.

Survey Year	Survey Title	Response Rate (%)
2004	CTUMS	87.6
2005	CTUMS	84.1
2006	CTUMS	86.5
2007	CTUMS	86.5
2008	CTUMS	86.3
2009	CTUMS	85.1
2010	CTUMS	84.2
2011	CTUMS	83.9
2012	CTUMS	83.0
2013	CTADS	81.8
2015	CTADS	79.0
2017	CTADS	70.4

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