

Original quantitative research

Applying a gendered lens to understanding self-reported changes in alcohol and cannabis consumption during the second wave of the COVID-19 pandemic in Canada, September to December 2020

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Abstract

Introduction: Increased alcohol and cannabis consumption and related harms have been reported since the beginning of the COVID-19 pandemic. Existing evidence shows that substance use and related harms differ by gender. Yet, no Canadian study has applied a gendered lens to alcohol and cannabis consumption use during this time. Our objectives were to (1) provide gender-specific prevalence estimates of self-reported increased alcohol and cannabis use; and (2) examine gender-specific associations between sociodemographic and mental health variables and alcohol and cannabis use.

Methods: Using data from the Survey on COVID-19 and Mental Health, we calculated nationally representative, gender-specific prevalence estimates and disaggregated them by sociodemographic and mental health variables. Four logistic regression models were used to assess the likelihood of self-reported increased alcohol and cannabis use.

Results: The prevalence of self-reported increase in alcohol use (16.2% women; 15.2% men) and cannabis use (4.9% women; 5.8% men) did not differ by gender. For both genders, income, racialized group membership, working in the past week, being a parent/legal guardian of a child aged under 18 and screening positive for depression and anxiety were associated with increased alcohol use. Men and women who were between the ages of 18 to 44, screened positive for depression, or both, were more likely to report increased cannabis use. For women, education was significantly associated with increased alcohol use. For men, being a parent/legal guardian was significantly associated with lower odds of increased cannabis use.

Conclusion: Sociodemographic factors, as well as depression and anxiety, were similarly associated with increased alcohol and cannabis use for both men and women in the second wave of the pandemic.

Keywords: *substance use, alcohol, cannabis, gender, mental health, anxiety, depression*

Introduction

The COVID-19 pandemic has brought unprecedented changes to daily life across the globe. From the first detected case of COVID-19 in January of 2020 to May 2021,

Canada has reported over 1.3 million cases and over 25 000 deaths.¹ Evidence suggests that the ongoing pandemic is affecting members of the population, with some in Canada reporting worsening mental health,² economic challenges and

Highlights

- Between September and December 2020, 16.2% of women and 15.2% of men self-reported an increase in their alcohol consumption. During the same period, 4.9% of women and 5.8% of men self-reported an increase in their cannabis consumption.
- Overall, the factors associated with alcohol and cannabis use in gender-specific regression models were similar.
- For women, higher education was significantly associated with self-reported increased alcohol use.
- Men who were parents/legal guardians were significantly less likely to report increased cannabis use.
- For men and women, screening positive for symptoms of depression was significantly associated with higher odds of increased alcohol and cannabis use.

increases in substance use behaviour.³ Use of regulated substances, such as cannabis and alcohol, has increased across the first and second waves of the pandemic.³ Such increases could lead to risky patterns of use or substance-related harms.⁴⁻⁶ To develop effective policy, programming and targeting of harm reduction strategies, there is a need to understand the socio-demographic factors that may contribute to changes in alcohol and cannabis

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consumption. This includes applying a gendered lens to self-reported changes in alcohol and cannabis consumption during the second wave of the pandemic in Canada (September to December 2020).

The mental health consequences of COVID-19 in Canada are becoming apparent. Recent findings from a series of nationally weighted polls showed the prevalence of anxiety and depression to be at the highest levels in February 2021 compared to the first wave of data collection, which coincided with the beginning of the pandemic in Canada.⁷ According to Mental Health Research Canada, the proportion of Canadians reporting high anxiety was four times higher in February 2021 than before the pandemic.⁷ In addition, the proportion of participants who reported high levels of depression in February 2021 was 13% higher than before the pandemic (17% compared to 4%).⁷ Data from this nationally representative poll showed that the proportion reporting high anxiety was similar across the provinces but was greater among women (31% compared to 19% of men).⁷

There is evidence to suggest that individuals are turning to substance use as a means to cope with the pandemic.^{8,9} For example, the Canadian Mental Health Association reported that 17% of participants in a nationally representative survey had increased their substance use as a way to cope during the pandemic in Canada.³ Consistent with these findings, a few studies in Canada have shown an increase in alcohol and cannabis consumption during the first and second waves of COVID-19.^{3,10,11} Overall, existing Canadian evidence from April 2020 to March 2021 suggests that the prevalence of increased alcohol consumption ranged from 18% to 32%, while the range for increased cannabis consumption was between 6% and 34%.^{3,10-12} The variability of estimates is likely due to sample characteristics, with lower estimates based on an entire survey sample and higher estimates based on a subset of participants who identified as using alcohol and cannabis. Taken together, the evidence points to an increase in alcohol and cannabis use for some Canadian adults.

Very few studies have reported on gender differences in alcohol and cannabis consumption during the pandemic, and no Canadian studies have provided nationally

representative consumption estimates by gender. Based on Canadian data collected before COVID-19, more men than women reported consuming cannabis¹³ and alcohol.^{14,15} Furthermore, in Canada, rates of alcohol-related and cannabis-related hospitalizations and deaths were higher among males than females, suggesting a greater burden on men.¹⁶

However, studies have shown that consumption of alcohol¹⁴ and cannabis¹⁷ has been on the rise for women in Canada. Relatedly, a trend analysis of Ontario emergency department visits from 2003 to 2016 found that alcohol-attributable hospitalizations increased for women at an age-adjusted rate that was 1.63 times greater than the rate for men.¹⁸ Furthermore, according to a report by the Canadian Institute for Health Information, from 2001 to 2017, alcohol-attributable deaths increased by 26% for women compared to a 5% increase for men.¹⁶ Given these trends, as well as the increases in alcohol and cannabis consumption during the pandemic, understanding consumption behaviour by gender is important for informing harm reduction strategies.

The purpose of this study was to report gender-specific prevalence estimates of self-reported changes in alcohol and cannabis consumption by sociodemographic factors and to evaluate gender-specific associations between sociodemographic factors and self-reported changes in alcohol and cannabis consumption.

Methods

Study design and sample size

Data were obtained from the Survey on COVID-19 and Mental Health (SCMH). This was a cross-sectional, nationally representative, rapid response survey led by Statistics Canada with the purpose of assessing the impacts of COVID-19 on the mental health and well-being of the Canadian population. The survey was administered from 11 September 2020 to 4 December 2020 to 30 000 dwellings in the 10 provinces and capital cities of the three territories in Canada, which resulted in a sample of 14 689 participants aged 18 years and older. Of the initial sample, 84% agreed to share their data with the Public Health Agency of Canada, which resulted in a sample size of 12 344 for our analyses. Those excluded from survey coverage included individuals living on reserves or

other Indigenous settlements, full-time members of the Canadian Armed Forces and individuals in institutions. Additional information about the SCMH can be found on the Statistics Canada website.¹⁹

Measures

Sociodemographic variables

The following sociodemographic characteristics were explored: gender, age, level of education, total household income quintile, working in the previous week, being a parent/legal guardian of a child or children under the age of 18 years, and visible minority (yes/no). The SCMH used the term “visible minority” to identify respondents other than Indigenous who are non-Caucasian in ethnicity or non-White in culture. For the purposes of this paper, we will refer to this variable as “member of a racialized group” (yes/no). Note that the survey collected gender and not sex assigned at birth. Gender is a social construct and refers to the characteristics, behaviours and roles that a society has attributed to women and men.²⁰ Participants were asked the question, “What is your gender?” and asked to select “male”, “female” or “gender diverse”. The gender diverse category represented 0.2% of the sample, limiting the ability to obtain reliable estimates for this group. As such, this category was not included in the analyses.

Mental health variables

For the purpose of these analyses, derived dichotomous cut-point variables were used for symptoms of moderate to severe generalized anxiety disorder (GAD) and major depressive disorder (MDD). For GAD, participants were classified as screening positive if they scored 10 or higher on the Generalized Anxiety Disorder scale (GAD-7).²¹ For MDD, participants were classified as screening positive if they scored 10 or higher on the Patient Health Questionnaire (PHQ-9).²²

Self-reported changes in substance use

To obtain a measure of change in substance use, participants were asked, “How has your alcohol consumption changed since before the COVID-19 pandemic?” and “How has your cannabis consumption changed since before the COVID-19 pandemic?” Participant response options were: Increased, Decreased and No change. Self-reported decreased consumption and no change were grouped together to create a dichotomous variable for changes in

substance use with increase and decrease/no change as the two groups. Responses coded as “not stated” were treated as missing and these participants were excluded from the analyses (n = 43).

Analyses

Respondents who reported that they had never used cannabis were grouped into the “no change” category. Sensitivity analyses for self-reported change in cannabis consumption were performed to see whether the patterns in disaggregated variables and associations in logistic regression models were different between the entire sample, which included individuals who had never used cannabis (n = 8843) and a sub-sample, which consisted solely of individuals who had used cannabis in their lifetime (n = 3487). Sensitivity analyses revealed that the patterns in disaggregated variables and associations in logistic models were similar between the entire sample and the sub-sample. Therefore, our estimates herein capture self-reported change in alcohol and cannabis consumption during COVID-19 among the entire Canadian population, which included individuals who have never used cannabis and who do not consume alcohol.

The dataset was stratified by gender for all analyses (n_{women} = 7063; n_{men} = 5255). To obtain gender-specific prevalence estimates, the data were disaggregated by sociodemographic and mental health variables. All prevalence estimates were weighted using survey sampling weights provided by Statistics Canada to generate nationally representative results. Gender-specific logistic regression analyses were conducted to estimate associations between sociodemographic variables and self-reported increase in alcohol and cannabis consumption. For the regression models, total household income was treated as a continuous variable for ease of interpretation. In total, we ran four logistic regression models. Variance was estimated using the bootstrap method and SAS Enterprise Guide version 7.1 (SAS Institute Inc., Cary, NC, USA).

Results

Sample characteristics are presented in Table 1. For both men and women, total household income quintile was evenly distributed. The majority of men and women were between the ages of 25 and

TABLE 1
Sociodemographic characteristics for survey participants who self-reported on changes in alcohol and cannabis use during the COVID-19 pandemic, by gender^a

Variable	Sample characteristics			
	Women		Men	
	Percent	95% CI	Percent	95% CI
Member of racialized group				
Yes	22.27	20.67–23.87	26.36	24.61–28.11
No	77.73	76.13–79.33	73.64	71.89–75.39
Age group (years)				
18–24	7.85	6.68–9.03	11.10	9.68–12.52
25–44	36.19	35.01–37.37	34.71	33.31–36.12
45–64	32.56	32.50–32.61	33.17	33.06–33.28
65+	23.40	23.35–23.46	21.01	20.93–21.10
Education level				
Less than high school	7.74	6.82–8.66	7.45	6.41–8.49
High school graduate	23.01	21.39–24.62	24.21	22.33–26.09
Postsecondary graduate	69.25	67.53–70.98	68.34	66.42–70.26
Total household income quintile				
Q1	22.08	20.65–23.51	20.05	18.41–21.69
Q2	20.33	18.85–21.81	20.03	18.50–21.56
Q3	22.74	21.09–24.38	22.10	20.35–23.85
Q4	17.62	16.08–19.16	18.97	17.29–20.65
Q5	17.23	15.69–18.76	18.85	17.19–20.52
Worked in past week				
Yes	54.75	53.13–56.37	61.71	59.90–63.51
No	45.25	43.63–46.87	38.29	36.49–40.10
Parent/legal guardian of child under 18 years				
Yes	28.14	26.82–29.46	27.12	25.64–28.59
No	71.86	70.54–73.18	72.88	71.41–74.36
Symptoms of GAD				
Yes	16.20	14.80–17.59	9.92	8.65–11.20
No	83.80	82.41–85.20	90.08	88.80–91.35
Symptoms of MDD				
Yes	17.51	16.02–19.00	12.61	11.23–14.00
No	82.49	81.00–83.98	87.39	86.00–88.78

Data source: 2020 Survey on COVID-19 and Mental Health.

Abbreviations: CI, confidence interval; GAD, generalized anxiety disorder; MDD, major depressive disorder; Q, quintile.

^a Analyses were conducted within gender and not between genders.

64 years (68.8% women; 67.9% men), were postsecondary graduates (69.3% women; 68.3% men) and reported working in the past week (54.8% women; 61.7% men). In addition, the majority of respondents did not identify as members of a racialized group (77.7% women; 73.6% men) and were not parents/legal guardians of a child aged under 18 (71.9% women; 72.9% men). Finally, most individuals in our study sample did not screen positive for moderate to severe symptoms

of GAD (83.8% women; 90.1% men) or MDD (82.5% women; 87.4% men).

Overall, 16.2% of women and 15.2% of men in Canada reported that their alcohol consumption had increased since the beginning of COVID-19. Furthermore, 4.9% of women and 5.8% of men self-reported an increase in cannabis consumption. Among the sub-sample of individuals who have ever used cannabis in their life, 20.1% of men and 20.3% of

women self-reported that their cannabis consumption had increased since COVID-19 began.

Gender-stratified prevalence estimates

Gender-stratified estimates for increased alcohol consumption are presented in Table 2. For both genders, prevalence of self-reported increased alcohol consumption was significantly higher among non-racialized group members (18.5% women,

17.1% men) compared to racialized group members (8.4% women, 10.2% men) and higher in the 25 to 44 age group (20.8% women, 19.0% men) compared to the other age groups (7.3% to 17.2% for women and men, respectively). Prevalence of self-reported increased alcohol consumption increased significantly across each level of education for women (4.1%–19.6%) and from less than high school to high school graduate for men (5.8%–12.5%). Prevalence of self-reported increased

alcohol consumption increased with total household income quintile (7.2%–27.8% for women; 7.9%–26.6% for men).

Furthermore, individuals who worked in the past week (20.4% women; 19.2% men) and parents/legal guardians of a child (or children) under the age of 18 years (23.3% women; 21.7% men) had significantly higher prevalence of self-reported increased alcohol consumption compared to those who did not work in the past week (10.8% women; 8.6% men) and who were not parents/legal guardians of a child aged under 18 (13.4% women; 12.7% men). Lastly, the percentage of self-reported increased alcohol use was approximately two times higher for men and women with symptoms of GAD (26.4% women; 29.8% men) and MDD (26.3% women; 29.5% men) compared to those without symptoms of GAD (14.2% women; 13.6% men) and MDD (13.8% women; 13.1% men).

Prevalence estimates for self-reported increase in cannabis consumption stratified by gender and disaggregated by socio-demographic characteristics and mental health variables are presented in Table 3. For men and women, prevalence of self-reported increased cannabis consumption significantly decreased with age (12.5% to 1.1% for women; 11.1% to 0.8% for men). Among women, estimates were not significantly different but were slightly higher for non-racialized group members (5.2%) and parents/legal guardians of a child or children under the age of 18 (5.1%) compared to racialized group members (4.1%) and women who were not parents/legal guardians (4.9%). For men, prevalence was similar among members of racialized groups (6.0% racialized group members, 5.8% non-racialized group members), and men who were not parents/legal guardians (6.3%) compared to those who were (4.4%).

Prevalence estimates for education, income quintile groups and working in the past week versus not were not significantly different for men and women. However, the percentage of self-reported increased cannabis use was nearly four times higher for men and women with symptoms of GAD (12.6% women; 18.2% men) and MDD (14.2% women; 16.1% men) compared to those without symptoms of GAD (3.5% women; 4.5% men) and MDD (3.0% women; 4.3% men).

TABLE 2
Prevalence estimates for survey participants who self-reported increased alcohol consumption during the COVID-19 pandemic, by gender^a

Variable	Increase among women		Increase among men	
	Percent	95% CI	Percent	95% CI
Overall	16.18	14.90–17.46	15.19	13.79–16.58
Member of racialized group				
Yes	8.40	5.70–11.11	10.16	7.35–12.96
No	18.51	17.10–19.91	17.05	15.39–18.70
Age group (years)				
18–24	16.76	10.29–23.24	11.92	6.61–17.24
25–44	20.81	18.40–23.21	19.03	16.26–21.79
45–64	17.24	15.09–19.39	17.21	14.81–19.61
65+	7.28	5.64–8.92	7.34	5.38–9.30
Education level				
Less than high school	4.09	1.88–6.29	5.77	3.17–8.38
High school graduate	10.22	7.72–12.71	12.54	9.47–15.62
Postsecondary graduate	19.59	17.95–21.22	17.19	15.48–18.89
Total household income quintile				
Q1	7.22	5.32–9.12	7.93	5.69–10.17
Q2	14.38	11.67–17.09	11.07	8.09–14.05
Q3	15.38	12.71–18.05	16.41	13.11–19.70
Q4	24.71	20.62–28.79	17.97	14.71–21.23
Q5	27.80	23.60–32.00	26.64	22.14–31.14
Worked in past week				
Yes	20.40	18.47–22.32	19.21	17.18–21.24
No	10.85	9.23–12.47	8.64	6.93–10.35
Parent/legal guardian of child under 18 years				
Yes	23.25	20.50–26.00	21.73	18.89–24.58
No	13.41	11.99–14.83	12.73	11.11–14.35
Symptoms of GAD				
Yes	26.42	22.16–30.67	29.81	23.78–35.84
No	14.17	12.90–15.44	13.58	12.17–14.99
Symptoms of MDD				
Yes	26.32	22.43–30.21	29.46	24.07–34.84
No	13.75	12.47–15.02	13.12	11.70–14.54

Data source: 2020 Survey on COVID-19 and Mental Health.

Abbreviations: CI, confidence interval; GAD, generalized anxiety disorder; MDD, major depressive disorder; Q, quintile.

^a Analyses were conducted within gender and not between genders.

TABLE 3
Prevalence estimates for survey participants who self-reported increased cannabis use during the COVID-19 pandemic, by gender^a

Variable	Increase among women		Increase among men	
	Percent	95% CI	Percent	95% CI
Overall	4.94	4.11–5.77	5.81	4.78–6.84
Member of racialized group				
Yes	4.13	1.98–6.28	5.97	3.51–8.44
No	5.16	4.29–6.03	5.80	4.69–6.90
Age group (years)				
18–24	12.48	7.03–17.94	11.14	5.44–16.85
25–44	6.92	5.30–8.53	9.10	6.98–11.23
45–64	3.68	2.61–4.75	3.74	2.68–4.80
65+	1.10	0.45–1.75	0.84	0.21–1.47
Education level				
Less than high school	3.30	0.60–6.01	3.95	0.00–8.82
High school graduate	4.33	2.88–5.78	5.81	3.56–8.06
Postsecondary graduate	5.35	4.32–6.37	6.03	4.85–7.22
Total household income quintile				
Q1	3.84	2.39–5.28	4.57	2.68–6.46
Q2	4.34	2.83–5.86	5.62	3.38–7.87
Q3	6.91	4.41–9.40	5.76	3.53–7.99
Q4	6.70	4.31–9.09	6.23	4.19–8.27
Q5	3.53	2.04–5.01	7.37	4.05–10.68
Worked in past week				
Yes	5.76	4.64–6.88	6.68	5.30–8.05
No	3.89	2.68–5.09	4.44	2.86–6.01
Parent/legal guardian of child under 18 years				
Yes	5.13	3.70–6.57	4.36	3.09–5.62
No	4.87	3.87–5.87	6.31	4.97–7.65
Symptoms of GAD				
Yes	12.61	9.52–15.69	18.18	12.50–23.87
No	3.49	2.70–4.28	4.55	3.56–5.54
Symptoms of MDD				
Yes	14.20	10.74–17.65	16.13	11.64–20.61
No	3.04	2.40–3.69	4.28	3.28–5.29

Data source: 2020 Survey on COVID-19 and Mental Health.

Abbreviations: CI, confidence interval; GAD, generalized anxiety disorder; MDD, major depressive disorder; Q, quintile.

^a Analyses were conducted within gender and not between genders.

Gender-stratified logistic regressions

Gender-specific adjusted odds ratios are presented in Table 4. For men and women, the odds of self-reported increased alcohol consumption increased with income (aOR_{women} = 1.11, 95% CI: 1.07–1.15; aOR_{men} = 1.12, 1.06–1.17). For both genders, non-racialized group members (aOR_{women} = 2.95, 1.95–4.48; aOR_{men} = 2.35, 1.62–3.40), working in the past week (aOR_{women} = 1.32, 1.01–1.72; aOR_{men} = 1.54, 1.08–2.21), being a parent/legal guardian

of a child or children under the age of 18 (aOR_{women} = 1.46, 1.13–1.90; aOR_{men} = 1.38, 1.05–1.82), having symptoms of MDD (aOR_{women} = 1.86, 1.36–2.54; aOR_{men} = 2.35, 1.58–3.50) and GAD (aOR_{women} = 1.65, 1.18–2.32; aOR_{men} = 1.72, 1.14–2.61) were significantly associated with higher odds of self-reported increased alcohol consumption. The odds of self-reported increased alcohol consumption were over three times higher for women who had a postsecondary education (aOR = 3.05, 1.47–6.32)

compared to women with less than a high school education.

For both men and women, being between the ages of 18 to 24 (aOR_{women} = 6.22, 2.09–18.49; aOR_{men} = 7.82, 1.67–36.69) and 25 to 44 (aOR_{women} = 4.73, 1.87–11.93; aOR_{men} = 11.32, 2.69–47.61), and having symptoms of MDD (aOR_{women} = 3.30; 1.76–6.18; aOR_{men} = 2.18, 1.20–3.95) were significantly associated with increased odds of self-reported increased cannabis consumption. Women aged 18 to 24 were 6.22 times (2.09–18.49) more likely to report increased cannabis consumption and women aged 45 to 64 were 2.52 times (1.11–5.70) more likely to report increased cannabis consumption. Men who were parents/legal guardians of a child or children under the age of 18 were less likely to report increased cannabis consumption (aOR = 0.42, 0.26–0.67). Men with symptoms of GAD were over 2 times more likely to report increased cannabis consumption (aOR = 2.44, 1.32–4.54).

Discussion

As the impacts of the COVID-19 pandemic in Canada have stretched beyond the disease itself, a key priority is to assess the short- and long-term effects of COVID-19-related public health measures on population well-being, one aspect of which is substance use. An important part of that strategy is to understand the impacts for specific segments of the population and identify where disproportionate burdens of harm may be experienced. Canadian evidence has shown that men and women are experiencing harms associated with substance use since the beginning of the pandemic.⁶ Specifically, there was an increase in alcohol- and cannabis-related hospitalizations and substance-related deaths (involving alcohol, cannabis and other substances) for both men and women from March to September 2020, compared to the same period in 2019.⁶ Given these increases in harms, and the potential for differential burdens of disease,²³ a gender-specific understanding of patterns of use is essential to informing mitigation strategies.

For both men and women, income, racialized group membership, working in the past week, being a parent/legal guardian of a child aged under 18 and screening positive for MDD or GAD increased the odds of self-reporting increased alcohol

TABLE 4
Adjusted odds ratios for survey participants who self-reported increased alcohol and cannabis use during the COVID-19 pandemic, by gender^a

Variable	Alcohol increase		Cannabis increase	
	Women aOR (95% CI)	Men aOR (95% CI)	Women aOR (95% CI)	Men aOR (95% CI)
Member of racialized group				
Yes	Ref	Ref	Ref	Ref
No	2.95 (1.95–4.48)	2.35 (1.62–3.40)	1.57 (0.84–2.94)	1.48 (0.86–2.54)
Age group (years)				
18–24	1.76 (0.92–3.37)	1.34 (0.65–2.79)	6.22 (2.09–18.49)	7.82 (1.67–36.69)
25–44	1.28 (0.86–1.90)	1.67 (1.05–2.66)	4.73 (1.87–11.93)	11.32 (2.69–47.61)
45–64	1.23 (0.86–1.76)	1.46 (0.94–2.26)	2.52 (1.11–5.70)	3.90 (0.97–15.71)
65+	Ref	Ref	Ref	Ref
Education level				
Less than high school	Ref	Ref	Ref	Ref
High school graduate	1.60 (0.75–3.43)	1.42 (0.73–2.79)	1.28 (0.34–4.80)	2.59 (0.30–22.23)
Postsecondary	3.05 (1.47–6.32)	1.71 (0.90–3.25)	1.99 (0.57–6.97)	2.76 (0.32–23.55)
Total household income (continuous)	1.11 (1.07–1.15)	1.12 (1.06–1.17)	1.00 (0.94–1.06)	1.04 (0.97–1.11)
Worked in past week				
Yes	1.32 (1.01–1.72)	1.54 (1.08–2.21)	0.97 (0.58–1.61)	1.23 (0.71–2.11)
No	Ref	Ref	Ref	Ref
Parent/legal guardian of child under 18 years				
Yes	1.46 (1.13–1.90)	1.38 (1.05–1.82)	0.76 (0.46–1.26)	0.42 (0.26–0.67)
No	Ref	Ref	Ref	Ref
Symptoms of GAD				
Yes	1.65 (1.18–2.32)	1.72 (1.14–2.61)	1.38 (0.71–2.68)	2.44 (1.32–4.54)
No	Ref	Ref	Ref	Ref
Symptoms of MDD				
Yes	1.86 (1.36–2.54)	2.35 (1.58–3.50)	3.30 (1.76–6.18)	2.18 (1.20–3.95)
No	Ref	Ref	Ref	Ref

Data source: 2020 Survey on COVID-19 and Mental Health.

Abbreviations: aOR, adjusted odds ratio; CI, confidence interval; GAD, generalized anxiety disorder; MDD, major depressive disorder; Ref, reference.

^a Analyses were conducted within gender and not between genders for each substance.

consumption. Concerning self-reported increased cannabis consumption, being aged 18 to 44 and screening positive for MDD were associated with increased odds for men and women. Similarly, we found that parents/legal guardians of a child or children aged under 18 had a higher prevalence of self-reported increased alcohol consumption compared to others for men and women.

Our findings are consistent with a nationally representative study of 3000 people from the first wave of the pandemic in Canada. Gadermann et al.²⁴ found that 27.7% of parents of children aged under 18 self-reported increased alcohol consumption in May 2020 compared to 16.1% of others. After adjusting for various

factors, we found that being a parent/legal guardian was significantly associated with higher odds of reporting increased alcohol consumption. Future investigations should assess the wider impacts of COVID-19 (including substance use and harms) on parents to enable targeted harm reduction strategies that are tailored to diverse familial needs.

Other important findings that are consistent with the literature are the associations of symptoms of anxiety and depression with increased substance use. Two studies in Canada have shown that experiencing poor mental health during the pandemic is related to increased substance use.^{3,11} Similarly, we found that Canadian adults who screened positive for GAD, MDD, or

both, were significantly more likely to self-report increased alcohol and cannabis use. These findings are concerning and highlight the need to provide Canadians with appropriate supports to cope with various stressors related to or made worse by the pandemic.

Broadly speaking, sociodemographic factors were similarly associated with increased alcohol consumption for both men and women. However, there were some noteworthy differences. For women, we found that having a postsecondary education was significantly associated with self-reported increased alcohol use. Education and other indices of socioeconomic status (e.g. income) are generally associated with alcohol use,^{25,26} yet this

association was only significant for women, which was unexpected. It may be indicative of an increased burden on women during the pandemic to juggle competing demands related to the family or caregiving and the workplace.²⁷

For men, being a parent/legal guardian of a child aged under 18 was associated with lower odds of increased cannabis consumption. Future research should investigate whether this is indicative of broader gender-specific consumption patterns. For example, in 2020, smoking was the most common mode of cannabis consumption, and prevalence remained stable from 2019 for men. However, this reported mode of consumption decreased from 64.2% to 52.5% for women who used cannabis.²⁸ Given the potential risk of second-hand exposure among children from parental cannabis smoking,^{29,30} men with children in the home may be less likely to smoke cannabis. Evidence on adverse health outcomes among children exposed to second-hand cannabis smoking and potential risk-modifying behaviours among parents who use cannabis is limited, and additional research is needed. Our findings also indicate that men who screened positive for GAD were significantly more likely to self-report increased cannabis consumption. This association may be bidirectional, given that the frequent use of high-potency cannabis products (which is more common among men) may increase the likelihood of developing GAD.³¹

Strengths and limitations

To our knowledge, this is the first Canadian study to apply a gendered lens in the analysis of self-reported increased alcohol and cannabis use during the COVID-19 pandemic with a large, nationally representative survey. In addition, our gender-specific findings corroborate previous research showing an association between mental health and alcohol and cannabis use in the Canadian population.

There are, however, some limitations to acknowledge. Change in substance use was self-reported and the rate of change was not quantified, meaning any degree of change was treated the same, regardless of how those changes may have affected absolute levels of consumption that may or may not have aligned with low-risk substance use guidelines. Future research would benefit from a more nuanced assessment of changes in substance use

patterns, including continued follow-up of respondents to assess change in use over time. Furthermore, findings related to increased cannabis use may not be solely attributable to experiences associated with COVID-19, given the recent legalization of cannabis for recreational use, and subsequent shifts in consumption patterns and societal attitudes towards consumption. Lastly, causality of observed relationships cannot be inferred, given the cross-sectional nature of the survey.

Conclusion

During the second wave of the COVID-19 pandemic, 16.2% of women and 15.2% of men self-reported an increase in their alcohol consumption, while 4.9% of women and 5.8% of men self-reported an increase in their cannabis consumption. Evidence suggests that parents/legal guardians of children under 18 and individuals experiencing symptoms of GAD and MDD may be experiencing challenges during this time, and may opt for initiating or increasing use of alcohol and cannabis as a potential coping mechanism. While overall trends in self-reported increases in alcohol and cannabis consumption were similar for men and women, there is a need for future investigations to qualify the degree of change in use patterns and increase sampling among gender-diverse populations. These findings highlight the potential need for targeted resources and appropriate supports for parents and caregivers, as well as for a focus on low-risk drinking and lower-risk cannabis use guidelines in the context of an ongoing public health emergency.

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Conflicts of interest

The authors have no conflicts of interest to disclose.

Authors' contributions and statement

KHM contributed to the conceptualization of the work, analysis, interpretation of the data and drafting and revising the paper. JV contributed to the conceptualization of the work, analysis, interpretation of the data and drafting and revising the paper. MV contributed to the conceptualization, analysis, interpretation of the data and drafting and revising the paper. MW contributed to the interpretation of data and revising the paper. NH contributed to the drafting and revising of the paper. MMB contributed to the conceptualization of work, interpretation of data and revising of the paper.

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