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# Original qualitative research

## Access to mental health for Black youths in Alberta

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### Abstract

**Introduction:** The objective of this study was to examine the barriers that influence access to and use of mental health services by Black youths in Alberta.

**Methods:** We used a youth-led participatory action research (PAR) methodology within a youth empowerment model situated within intersectionality theory to understand access to health care for both Canadian-born and immigrant Black youth in Alberta. The research project was co-led by an advisory committee consisting of 10 youths who provided advice and tangible support to the research. Seven members of the advisory committee also collected data, co-facilitated conversation cafés, analyzed data and helped in the dissemination activities. We conducted in-depth individual interviews and held four conversation café-style focus groups with a total of 129 youth. During the conversation cafés, the youths took the lead in identifying issues of concern and in explaining the impact of these issues on their lives. Through rigorous data coding and thematic analysis as well as reflexivity and member checking we ensured our empirical findings were trustworthy.

**Results:** Our findings highlight key barriers that can limit access to and utilization of mental health services by Black youth, including a lack of cultural inclusion and safety, a lack of knowledge/information on mental health services, the cost of mental health services, geographical barriers, stigma and judgmentalism, and limits of resilience.

**Conclusion:** Findings confirm diverse/intersecting barriers that collectively perpetuate disproportional access to and uptake of mental health services by Black youths. The results of this study suggest health policy and practice stakeholders should consider the following recommendations to break down barriers: diversify the mental health service workforce; increase the availability and quality of mental health services in Black-dominated neighbourhoods; and embed anti-racist practices and intercultural competencies in mental health service delivery.

**Keywords:** *African, Alberta, Black, Caribbean, mental health, youth*

### Introduction

Mental health and substance use disorders account for a significant proportion of the global burden of disease; they are the leading cause of disabilities worldwide.<sup>1,2</sup> This situation is aggravated by a service gap: globally, 70% of individuals in need are unable to access quality mental health services.<sup>2</sup> This disparity is the result of fragmented service delivery models, a global undersupply of trained mental

health providers, limited infrastructure and shortages of human resources.<sup>2</sup> Lack of access is further compounded by social determinants such as poverty, stigma and social deprivation; for example, those with a lower socioeconomic status traditionally face high costs, longer wait times, lower quality services and inadequate care,<sup>3,4</sup> circumstances that strain the reliable access to and uptake of mental health services.

Research into the barriers to health care points towards the need for a balanced

### Highlights

- Black youths face barriers accessing mental health services.
- Factors that limit Black youths access to and use of mental health services include a systemic lack of cultural inclusion and safety; a lack of knowledge about and information on mental health services; the cost of mental health services; geographical and locational barriers; stigma and judgmentalism; and limits of resilience.
- To address existing barriers to mental health services for Black youths, policy makers must diversify the mental health service workforce, increase the availability and quality of mental health services in Black-dominated neighbourhoods, and embed anti-racist practices and intercultural competencies in mental health service delivery.

care model, or primary health care model. In a community-based model, mental health services are provided holistically alongside community services and within the communities, as opposed to within institutionalized settings.<sup>5,6</sup> These models reach beyond diagnosis and treatment frameworks, and position mental health promotion and prevention strategies as equally important. Such models also push for the development of mental health services that cater to the specific needs of the communities and people who access them.<sup>6-9</sup>

Barriers to access and uptake of mental health services are largely systemic and disproportionately affect those with lower socioeconomic status as well as immigrants,

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refugees and racialized minorities. Immigrants new to Canada are twice as likely to have difficulties accessing care as longer-established Canadians.<sup>8</sup> Refugees report lower mental health service utilization than their non-immigrant counterparts, despite the fact that conditions of forced displacement and migration put them most at risk for mental health disorders.<sup>10,11</sup> Individuals living at lower socioeconomic status who experience challenges accessing services are susceptible to lower self-reported mental health and lower life expectancy; they are also vulnerable to critical or chronic illnesses.<sup>4,12</sup> Ethnic minorities are frequently subject to greater health care disparities than their White counterparts; these disparities not only compromise the quality of care people receive, but also reduce their level of trust in the health care system.<sup>13-15</sup>

Challenges in accessing mental health services are heightened for individuals who possess an intersection of these identities.<sup>3,8,12</sup> From a public health perspective, this may justify more concerted attention on these populations.

Colonization, structural racism and systemic injustices and inequities have subjected Black people to adverse socioeconomic conditions, discrimination and restricted access to health care and support systems.<sup>16,17</sup> In the United States, Black youth are less likely to utilize mental health services than their White counterparts<sup>18</sup> despite being at a higher risk of diagnosed major depressive disorder and six times more likely to die by suicide as a result of their depression.<sup>19,20</sup>

In 2016, there were approximately 1.2 million Black people living in Canada, including 198 610 youths aged 15 to 24 years.<sup>21</sup> Relative to the national average, a higher proportion of Black individuals live in low-income environments, face lower levels of employment, achieve lower levels of education and face a distinct wage gap.<sup>22</sup> If unaddressed, these social conditions, coupled with the young age of this demographic—which heightens vulnerability to adverse mental health conditions—leave Black people susceptible to a mental health crisis.<sup>23-25</sup>

Past research into Black immigrants' and refugees' experiences with the Canadian health care system found that stigma, racism/discrimination, lack of knowledge

regarding mental health, cost, lack of culturally appropriate services and inaccessibility posed major barriers to accessing health care.<sup>20,26</sup> Although the province of Alberta has the fastest growing population of Black Canadians, with 129 390 people, including 17 530 youths aged 15 to 24 years,<sup>21</sup> to our knowledge no research has considered the mental health of Black youth in Alberta.

The purpose of this qualitative research study was to identify the barriers and facilitators to mental health care for Black youth in Alberta. Our specific research question was: What are the barriers and facilitators to access and use of mental health services for Black youths in Alberta?

## Methods

### *Youth empowerment model*

We used a youth empowerment model situated within intersectionality theory to understand access to health care for Black youths. In creating a safe and supportive environment and encouraging meaningful participation, we acknowledged the different histories and impacts of social, economic and political marginalization experienced by Black communities.<sup>27,28</sup> Using the empowerment model also equalizes power dynamics between adults and youth, provides opportunities for personal and community development, and encourages critical reflection on broader processes and structures that shape youths' lives.<sup>29</sup>

These five dimensions guided the research design to ensure adherence to participatory and community-driven principles. Safe and supportive spaces for critical reflection and community engagement allowed the youths to understand the forces that influence their lives, articulate their experiences and recognize their capacity for creating change. By using an empowerment model, we made explicit our commitment to providing a space for youths to use their voices and to simultaneously recognizing their strengths and capacity for resilience as well as the oppressive structures and narratives that hinder agency.

### *Participatory action research approach*

We used a youth-led participatory action research (PAR) approach to better understand access to health care for Black youths.

PAR is a power-equalizing, collaborative research approach that sees community members as partners in the research process and experts on the issues of concern in their lives.<sup>30,31</sup> This methodology is based on principles of shared leadership, collaborative decision-making and researcher-community trust building. The aim is to create sustainable, action-oriented research outcomes.

Quality in PAR is defined as ensuring the principles of empowerment, local knowledge development and social action are safeguarded in all aspects of the research process.<sup>30-32</sup> The use of a youth empowerment model grounded in intersectionality theory to guide the PAR allowed the research team to uphold quality in research by ensuring the research questions are useful to the community: our research findings are grounded in the community's experiences, and final outcomes support sustainable changes in the community through knowledge dissemination.

We also wrote reflexive memos to record our experiences in the field and reflect on how our social locations (including ethnicity and sex/gender) might have influenced the research process.

The youths were active participants in all stages of the research project. Including youths in the data collection, analysis and writing phases allowed for greater transparency, ownership and legitimacy of findings within the community, which is also crucial to assuring rigour in PAR.<sup>33</sup>

### *Researchers and the advisory committee*

The research project was co-led by an advisory committee consisting of 10 youths who provided advice and tangible support to the research. Seven members of the advisory committee also collected data, co-facilitated conversation cafés, analyzed the data and contributed to dissemination activities. The youths had leadership roles throughout all stages of the study, from the conceptualization of the study (prior to submitting the grant application) to the dissemination of findings (including as co-authors on this work).

Non-youth members of the research team identified as being from racialized communities and/or had expertise working with marginalized youths.

## Recruitment and interviewers and study participants

Upon receiving ethics approval from the University of Alberta Research Ethics Board (REB 1 Committee Protocol: Pro00079877), we conducted 30 individual interviews to obtain an in-depth understanding of the youths' challenges accessing mental health services. We used posters and peer-youth recruiters to inform people of the study.

Interviews were conducted by Black youths and a graduate research assistant. They each received training in interview techniques, research ethics, qualitative methodologies and participatory research. We used purposeful sampling to recruit information-rich cases<sup>32</sup> and continued recruitment until we reached data saturation, that is, when a sufficient amount of data had been collected to render the research question answerable in ways that could inform our research and practice.<sup>34,35</sup>

## Study participants

All 129 participants in this study identified as Black and were between 16 and 30 years old and fluent in English.

We interviewed 30 participants, and another 99 engaged in our conversation cafés. Interview participants identified as male ( $n = 10$ ), female ( $n = 18$ ) and non-binary or other ( $n = 2$ ) and were predominantly Christian ( $n = 21$ ) or Muslim ( $n = 4$ ), with 5 identifying as non-religious or following another religion.

Conversation café participants identified as male ( $n = 22$ ), female ( $n = 76$ ) and non-binary or other ( $n = 1$ ) and were predominantly Christian ( $n = 67$ ) or Muslim ( $n = 24$ ) with 8 identifying as either non-religious or following another religion. Participant country of birth included Botswana, Burundi, Canada, Democratic Republic of Congo, Egypt, England, Ethiopia, Gambia, Germany, Ghana, Guinea, Haiti, Jamaica, Kenya, Lebanon, Liberia, Libya, Nigeria, Rwanda, Saudi Arabia, Sierra Leone, Sint Maarten (the Netherlands), Somalia, Sudan, South Sudan, Tanzania, the United States, Zambia and Zimbabwe.

## Data collection

Data were collected in two phases: Phase 1 involved interviews with 30 Black youths

and Phase 2 involved engaging in conversation cafés with an additional 99 Black youths.

Individual interviews lasted approximately 1 hour; most were conducted at the University of Alberta. Individual interviews included a sociodemographic questionnaire (available from the corresponding author on request) and semistructured interview questions centred on personal mental health experiences; barriers and facilitators to mental health; culturally appropriate and effective strategies to improve access to and uptake of mental health services; and implications for research, policy and practice.

In Phase 2, we engaged in conversation cafés with Black youths. The conversation cafés effectively fostered youth engagement and dialogue because the participants took the lead in identifying their issues of concern and in explaining the impact these issues have on their lives.

After conducting individual interviews but before the conversation cafés, the research team and advisory committee completed a preliminary analysis of the interview data and met to reflect on the results in order to come up with specific topics for the conversation cafés. These topics were based on data collected from interviews and the advice of the advisory committee members. The topics included the following: introduction to the mental health of Black youths; intersectionality experience and mental health; intergenerational relations and mental health; and mental health policy.

The cafés were conducted monthly over 4 months. These 3-hour conversation cafés included a guest speaker for about 20 minutes, followed by small-group breakout discussion sessions and a larger discussion by all attendees. We kept field notes for the cafés and collected sociodemographic information from all 99 participants.

All data were transcribed verbatim by a skilled transcriptionist. We used thematic analysis to identify and analyze patterns in the data while situating these patterns within the broader contexts of their occurrence.<sup>36</sup> Our data analysis encompassed several steps: (1) familiarizing ourselves with data through repeated readings of the transcripts; (2) generating initial codes; (3) searching for themes based on identified

codes; (4) reviewing, expanding and refining identified themes; (5) defining and naming the themes; and (6) writing the final report. We considered intersectional experiences throughout all stages of the analysis process. Data analysis was completed by two Black youths under the supervision of the lead researcher (BS), who is an expert in qualitative methods.

## Results

Study participants identified key barriers that prevent access to and use of mental health services by Black youth in Alberta. These include lack of cultural safety and inclusion; lack of knowledge/information on mental health services; cost of mental health services and geographical and locational barriers; stigma and judgmentalism; and limits of resilience.

### *Lack of cultural safety and inclusion in service delivery*

Our research participants considered cultural safety and inclusion a major concern. They observed that Canada has a majority White population, and as such, many services provided across different sectors of society appear to be designed to serve White people as the standard, excluding everyone else.

The participants described the mental health system as an "othering" service that contributes to the exclusion and marginalization of Black people. Participants who had used mental health services reported frequently experiencing being excluded and marginalized by White health providers, who they noted, often lacked intercultural training/understanding of the complexities of ethnicity. Because their ethnicity and culture define a large part of their lives, the youths felt service providers without relevant training could not serve them adequately.

In the context of intercultural competence and awareness, the majority of the youths affirmed that the mere thought of experiencing a culturally inappropriate health provider was sufficient to deter them from accessing mental health services. This stance towards accessing mental health services was linked to the disconnect, discomfort and insecurity that many youths said they felt when exposed to existing mental health services. One participant underscored the helplessness of encountering a culturally disconnected health provider:

Oh, like [I describe that] I'm experiencing racism. They'd be like, "What? ... are you sure? Okay, let's get you some ... strategies you can [apply to] deal with like the workplace or something." But it's, like, no... Someone who has not experienced that, or has any idea what it's like, I just feel like it'd be really difficult for them to empathize and relate, and sort of just, like, advise you on what you can do, or strategies and things like that. — Participant 010, female, born in Lebanon of South Sudanese-born parents

The youths feared that their experiences with racism would be invalidated during mental health sessions. Critiquing the popular "colour-blind approach" as emotionally invalidating, damaging and draining, one youth offered his experience-based perspective:

Don't ... you shouldn't be saying this. If you're going to [laughs] enter a space of all Black people, you can't say, "I don't see colour." You're invalidating us and our experiences. And I know you can acknowledge my colour. So and if these are the people who are supposed to be offering us services, how can we take them seriously? It's not a safe space, you know? It could trigger you. You can have more trauma in that way, yes. — Participant 013, male, born in Nigeria

When given the opportunity to design a mental health hub, conversation café participants described their ideal community hub as one that would be centrally located in the community; be serviced by culturally safe and Black health providers; show Black art on the walls; and accommodate a greater variety of counselling/therapies. The youths prioritized the need for Black representation in their services along with culturally safe practitioners.

### **Lack of knowledge and information on mental health services**

A general lack of understanding of the nature of mental health prevents Black youth from accessing services. The participants said that, regardless of the severity of a mental health episode, they often normalized their poor state of mental health, unaware that what they were experiencing was serious. This pattern of response

to mental health difficulties often resulted in an inability to codify their symptoms as abnormal, due to repeated normalization of adverse experiences. One interviewee admitted how a lack of knowledge previously kept her in the dark:

... when something has been named, it's like, "Oh, like this is considered depression or anxiety." I feel, like, before, I sort of just brushed off the symptoms ... I didn't have the language to describe ... the situation, if that makes sense. — Participant 010, female, born in Lebanon of South Sudanese-born parents

Compounding this lack of knowledge is a lack of awareness of the available services/resources that help maintain mental health or treat mental health episodes, as alluded to by an interviewee:

Um, I just think that in my community I just don't know where to go, or we just don't know where to go, for resources to stay mentally healthy, or we're not totally sure about, like, what can we do to stay mentally healthy and, like, commit to that, you know? So maybe not so much accessibility. — Participant 024, female, born in Somalia

The lack of awareness with respect to both mental health and related health care services creates a community of people that are deeply unfamiliar with the mental health care system. Moreover, this unfamiliarity creates significant delays in accessing and receiving mental health supports.

### **Geographical, economic and locational barriers**

Participants highlighted the clustering of mental health service providers outside their own communities and in the communities of their richer White counterparts. The combination of being a visible minority and living at a lower socioeconomic status created a sense of unwelcomeness, discomfort and/or exclusion for the youths in this context. This constitutes a barrier that prevents them from accessing services. A participant offered this perspective:

But, like, you don't want to go to a place, if you're not even comfortable ... Even if you are, like ... I don't want

to go to a place where I feel like people are going to be, like, I'm like the odd one out... — Participant 027, female, born in Zimbabwe

The ability of individuals to access mental health services is further stratified by socioeconomic class. The majority of the youths we interviewed were in higher education, and devoted a large amount of time, energy and money towards those ventures. In addition, as Black youth typically come from lower socioeconomic backgrounds, they also often help support their families. After accounting for all of their expenses, there is rarely enough money left to access mental health services:

And so I know I'm not making as much. I'm making enough. And then when you contribute that on top to help out the family, there's really not that much left sometimes to, like, go for services, to like [sic] for health services. — Participant 003, non-binary, born in Canada

Aside from generating feelings of discomfort, geographical and locational barriers also served as physical barriers to access. A notable number of the participating youths said that they cannot afford the travel costs or time to access mental health services. They stated that there was a need for the services to be available in Black-dominated communities to increase familiarity, alleviate the feeling of unwellcome/discomfort and increase accessibility for more of the Black community:

I think if we're going to have these services ... they need to be in the places where most of our people are, especially the ones who are ... who like, I guess, who would ... need it the most. — Participant 023, female, born in Nigeria

### **Stigmatization and judgmentalism within Black communities**

The participants highlighted pervasive stigma in their communities against the mental health system and against individuals who struggle with their mental health. This stigma stemmed from a lack of knowledge combined with cultural beliefs and idiosyncrasies that are often reinforced by family members. The youth participants mentioned that, in their cultures, certain forms of life struggles are

glorified and seen as more severe than mental struggles. To struggle with mental health is viewed by some as weakness or failure on the individual's part, to be brushed aside because its impact can only be minor. Often, the youths internalize this message to the point of assuming overwhelming personal responsibility for their poor mental health/illness and its management:

Like, they don't believe that mental health is as important as physical health, so they tend to, like, disregard mental health as just nonsense or ... just overblown, and they would say like just ... just get over it. — Participant 007, male, born in Canada

Stigma also manifests at times in a one-dimensional presentation of individuals who struggle with their mental health. Some youths said they believed in a caricature of a “crazy” individual as a representation of mental health struggles. As a result, they often delay or even forego treatment to avoid being viewed in a negative light.

### *Limits of self-sufficiency in confronting mental health stressors*

The struggles and traumas that Black people in Canada historically faced has created a culture of independence where resilience and self-sufficiency are highly valued. Individuals are expected to outwardly exhibit these traits regardless of extreme adversity. Mental health struggles are considered a threat to the projection of resiliency and self-sufficiency, with youth expected to manage privately and alone, often to their detriment. The youths reported being encouraged by family and other members of their community to endure or ignore problems despite the resulting exacerbation of the issues. They were regarded as weak for addressing their struggles and traumas, and strong for refusing to acknowledge them—even when this reduced their likelihood of accessing care. The narratives of the following two participants echo the feelings expressed by several others:

... the belief that you can handle anything that life throws at you is a good thing to have, but when it's like obviously bringing you down and they're like, “No, no, like you can just handle it. Like, don't worry

about it. Just ... take it and go!” It's ... sort of debilitating to me, because it's, like, I can't do that at that moment, and they're sort of making me feel worse about it than I, like, would if I just sort of kept it to myself. So it's more like ... if, like, I were to like have an anxiety attack, or, like, my anxiety levels rose when I was around them, I'd have to keep it to myself ... — Participant 017, female, born in Canada

My parents, most immigrants ... we go through like [sic] a lot. I can't even say ... I'm not an immigrant, I was born here, but my parents and my siblings, they went through a lot of hardship from, you know, the day they stepped into this world until now, still struggling until this very day. So they have this strength that I really admire, but often that means, like hey, these things, the stress, the ... these, like, illnesses that we have that aren't just physical ... if we talk about them, it's like ... it's like we're weak. Or it's, like, we've been through so much like it's not even an illness. This is just something we go through. — Participant 027, female, born in Canada

We found differences in the mental health statuses of immigrant and non-immigrant Black youths: youths whose parents had experienced trauma prior to coming to Canada struggled to convey the importance of mental health to their parents. Participants indicated that their immigrant parents often perceived that the youths need to be stronger and as resilient as the parents who had gone through severe trauma.

## **Discussion**

There is ample and growing evidence that Black youth in Canada are disproportionately affected by challenges in accessing mental health services.<sup>20</sup> The results of our study confirm that a number of barriers impede the access to mental health services by Black youth in Alberta.

The implications of these findings are discussed in the following sections.

### *Cultural inclusion and representation*

Accessibility with respect to mental health services should not simply be defined or

understood in terms of receiving any type of care. The nature, quality, context, timeliness of care as well as the receiver's satisfaction with the care matter, among other factors. The American Institute of Medicine<sup>37,p.4</sup> views “access” as “a broad set of concerns that centre on the degree to which individuals and groups are able to obtain needed services from the medical care system”; they define it as “the timely use of personal health services to achieve the best possible health outcomes.”

Black youth in Canada typically first access mental health services or interventions through pathways of crises, such as interactions with the justice system or when in need of intensive care.<sup>38,39</sup> Once their symptoms degenerate into depression, Black people tend to have more severe and chronic mental health episodes compared to the overall population.<sup>40</sup> These troubling trends warrant serious attention and responses from health care policy makers and service providers given the well-established reality that poorer mental health also disproportionately impacts life outcomes for racialized and marginalized people.

Our study participants strongly perceive or believe the existing health care system is not sufficiently friendly or inclusive as it was not designed with their cultural needs or concerns in mind. This explains their insecurities and unwillingness to be immersed in the system or to take advantage of the services. The distrust evoked by a lack of culturally friendly services, and past or anticipated negative service encounters, further contribute to their exclusion despite their risk of poorer health and life outcomes.

Another element discouraging Black youth from accessing and participating in the mental health system is the lack of proximity of such services to their communities coupled with the stark underrepresentation of Black and interculturally competent health providers when services are accessed. These factors, together with prohibitive costs of services/medication for socioeconomically disadvantaged youth, create a cluster of barriers that render mental health services unattractive and unattainable luxuries.

Underlying these barriers to inclusion and representation are systems of discrimination, inequity and oppression that overtly

or covertly work to maintain privilege/ access for some and oppression/exclusion for others.<sup>41-45</sup> The onus is therefore on policy makers and health service providers to work alongside members of marginalized and historically excluded communities to find solutions that work for everyone. In doing this, they must strive to better understand culturally based barriers to access; challenge colonial, discriminatory policies and practices embedded in health care systems and services; and explore intentionally inclusive policies and service delivery models that accommodate ethnocultural differences and attract and satisfy the mental health care needs of Black youth.

### **Overemphasis on hardiness and self-sufficiency**

The tendency of some parents, elders, family members and community members to overemphasize hardiness or self-sufficiency constituted a barrier to accessing mental health care for several study participants. An overreliance on strength-based traits can be detrimental to accessing timely and quality care. The role of intergenerational/familial trauma and culture in shaping help-seeking behaviour of Black youth must be better understood and factored into mental health education and service provision strategies.

While the overemphasis on hardiness and self-sufficiency should be discouraged, the importance of resilience should not be ignored. Resilience is a dynamic process whereby an individual or community utilizes available protective factors to their advantage, which leads to positive health outcomes.<sup>46</sup> Some approaches to enhancing resilience can include fostering positive coping skills and utilizing external resources, such as family support, that can protect the individual from negative mental health outcomes.<sup>46</sup> In this study, youths discussed negative coping strategies such as avoidance and lack of familial and community support related to mental health. The youth empowerment model we used to bring forward the voices of Black youth is an approach recommended to building resilience in young adults.<sup>47</sup>

One future area of research will be to examine the ways Black youth and their communities can strengthen their capacity for resilience using inherent community strengths and addressing stigma around

mental health issues. Community education/ engagement programs can simultaneously acknowledge traumatic histories while demonstrating the benefits of addressing trauma-induced and other mental health challenges.

In addition, Black families' multiple social and economic stressors likely influence familial coping strategies and parenting styles. Hence, interventions addressing the overall well-being of their families are needed to improve Black youths' mental health outcomes.<sup>48</sup> Family- and community-centred approaches to delivering mental health programs to youths have led to greater program participation and retention and positive mental health outcomes. Previous Canadian research has also highlighted the need to further explore the design and implementation of such programs in ethnically and culturally diverse communities.<sup>49</sup>

### **Addressing intersectional mental health marginalization**

Marginalized people with intersecting adverse social locations and characteristics are disproportionately affected by numerous historical factors of discrimination.<sup>50-52</sup> The multiple and interrelated effects of the barriers to access identified in our study mean that Black youth face intersectional mental health marginalization in Alberta. Our collective findings point to these often-ignored cumulative intersecting factors being anchored in systemic inequities and historical structures of discrimination that covertly and overtly work to aggravate mental health conditions while reinforcing the exclusion of Black youth from quality mental health services.

This situation persists in part because health policies and interventions often only target certain barriers or aspects of the problem without considering the related or intersecting factors that contribute to the status quo.<sup>53</sup> For example, understanding the intersectionality of being a Black immigrant youth from an ethnocultural minority and living at a lower socioeconomic status, and how these different social locations interact to impact the actions and motivations of youth in need of help, can completely change the way policies and services are conceived and implemented to overcome barriers to access.

Similarly, solutions to address accessibility issues might be more equitable and relevant if they consider the interplay and accumulation of intersecting factors such as mental health literacy, ethnocultural beliefs and customs, stigmatization and structural challenges, among other barriers. Adding the other traditional dimensions of social difference (such as age, sex/gender, sexual orientation and so forth) can further underscore the complexity at play. The extent to which these factors influence each other and impact Black youths' help-seeking behaviours and motivations are so profound that continuing to ignore them in favour of more isolated/traditional responses will not change the current state of marginalization. We argue that health policy-making and service provision should embrace a deeper understanding of the complex intersecting identities of Black youth and address the multiple underlying discriminations/inequities that generate intersectional mental health marginalization in this demographic. This may serve as a much-needed equalizer and stimulate pathways to accelerated/improved mental health care access for this population.

The results of this study suggest health policy and practitioners should consider the following recommendations to break down barriers while optimizing Black youth agency to facilitate greater uptake and sustainable access to care:

- Diversify the mental health provider workforce by hiring, mentoring and supporting the professional development of Black service providers/professionals who have intercultural competencies;
- Increase multi-level (federal/provincial/municipal) government support for Black organizations that engage in quality/priority mental literacy and treatment activities in Alberta;
- Intensify efforts to collect ethnicity-based data and understand intersectional barriers (and facilitators) that influence the utilization of mental health services by Black youth;
- Address the racism Black people experience by ensuring service providers embed anti-racism into their practices;
- Partner with Black youth organizations, communities and researchers to design and provide culturally appropriate/



accessible education that enhances mental health literacy;

- Enlist the services of interculturally competent and/or Black educators and practitioners in mandatory intercultural training/orientation for mental health service providers;
- Allocate mental health and wellness resources and services in communities with a high concentration of Black/racialized youth; and
- Target/address systemic and structural factors that constitute or reinforce inequities and structural barriers to accessing mental health services.

### Strengths and limitations

Our project has several strengths: a large sample size (i.e. 129 participants) for a qualitative study; engagement of youths in collecting data (after rigorous training); and exercising reflexivity and member checking. However, we only collected data from youths in Edmonton, and thus cannot generalize our findings to other parts of the country. We do provide contextual information to facilitate transferability of our findings.

A central weakness of this study is that the participants were largely female. Our advisory committee and research assistants were female based on the leadership of our partner organization, and our research assistants mainly recruited individuals of the same sex/gender. Future research should ensure diverse representation on advisory committees.

### Conclusion

As is the case in much of North America, Black youth in Alberta face unequal and inequitable access to quality mental health services compared to the majority of the population. This situation is sustained by a range of harmful, culturally related and intersecting barriers that combine to exclude them from quality care. The resulting state of intersectional mental health marginalization warrants a comprehensive culturally sensitive response alongside a focus on the heterogeneity of barriers to access.

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### Conflicts of interest

The authors declare they have no conflict of interest.

### Authors' contributions and statement

BS: Conceptualization, Formal analysis, Funding acquisition, Investigation, Project administration, Methodology, Supervision, Writing – Original Draft, Writing – Review & Editing

BD: Investigation, Project administration, Supervision, Writing – Original Draft, Writing – Review & Editing

RT: Investigation, Writing – Original Draft

NA: Formal Analysis, Investigation, Writing – Original Draft

MJ: Conceptualization, Funding acquisition, Writing – Review & Editing

MA: Investigation, Writing – Review & Editing

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## Original quantitative research

# Changes in alcohol consumption during the COVID-19 pandemic: exploring gender differences and the role of emotional distress

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### Abstract

**Introduction:** Restrictions to do with the COVID-19 pandemic have had substantial unintended consequences on Canadians' alcohol consumption patterns, including increased emotional distress and its potential impact on alcohol use. This study examines 1) changes in adults' alcohol consumption during the COVID-19 pandemic in New Brunswick and Nova Scotia; 2) whether drinking more frequently during the pandemic is associated with increased feelings of stress, loneliness and hopelessness; and 3) whether gender moderates this relationship.

**Methods:** Participants were drawn from a cross-sectional survey of 2000 adults. Adjusted multinomial regression models were used to assess the association between drinking frequency and increased feelings of stress, loneliness and hopelessness. Additional analyses were stratified by gender.

**Results:** About 12% of respondents reported drinking more frequently after the start of the COVID-19 pandemic, and 25%–40% reported increased emotional distress. Increased feelings of stress (odds ratio [OR] = 1.99; 95% confidence interval [CI]: 1.35–2.93), loneliness (OR = 1.79; 95% CI: 1.22–2.61) and hopelessness (OR = 1.98; 95% CI: 1.21–3.23) were all associated with drinking more frequently during the pandemic. While women respondents reported higher rates of emotional distress, significant associations with increased drinking frequency were only observed among men in gender-stratified analyses.

**Conclusion:** Individuals who report increased feelings of stress, loneliness and hopelessness during the COVID-19 pandemic were more likely to report increased drinking frequency; however, these associations were only significant for men in stratified analyses. Understanding how the pandemic is associated with mental health and drinking may inform alcohol control policies and public health interventions to minimize alcohol-related harm.

**Keywords:** *alcohol drinking, COVID-19 pandemic, emotions, gender, self-medication*

### Introduction

The swift and drastic measures implemented to contain COVID-19 resulted in considerable change in Canadians' daily

lives. Widespread closures of schools, workplaces and businesses left many people unemployed. Parents and guardians took on the role of educators as schooling moved online, and access to much-needed

### Highlights

- This study examines how alcohol use and emotional well-being changed among New Brunswick and Nova Scotia adults following the start of the COVID-19 pandemic in March 2020.
- Since the start of the pandemic, 12.2% of respondents consumed alcohol more frequently than before.
- Between 25.3% and 43.5% of respondents reported increased stress, loneliness and hopelessness.
- A greater proportion of women reported increased emotional distress since the start of the pandemic.
- Significant associations between increased emotional distress and increased alcohol consumption during the pandemic were observed but only among men.

health services was cut. These changes resulted in considerable uncertainty and emotional distress.

Emerging studies on the unintended consequences of the social and environmental restrictions imposed to control the spread of COVID-19 report elevated rates of depression, anxiety and stress in some populations, particularly women, younger people and individuals with pre-existing health conditions.<sup>1-4</sup> These effects likely

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stem from the burden and loss of freedom imposed by the restrictions and reduced access to positive coping strategies typically used to manage stress, such as social support, extracurricular activities and even mental health services.<sup>5</sup>

Individuals may increasingly use alcohol as a coping mechanism during times of stress, seeking the relaxing pharmacological effects of alcohol. This self-medication hypothesis posits that individuals may engage in substance use when under emotional distress and be driven to increase positive affect and decrease negative affect.<sup>6</sup> Research has shown that drinking to cope is associated with heavier alcohol use (i.e. greater volume intake) and poses the greatest risk for negative alcohol-related consequences in the short and the long term.<sup>7,8</sup> Women are more likely than men to consume alcohol in response to negative emotions; they also have a higher prevalence of comorbid substance use and mental health disorders.<sup>7,9,10</sup>

Observed increases in post-disaster substance use may reflect a strategy of self-medication to cope with emotional distress.<sup>11</sup> In a recent commentary, Rehm and colleagues,<sup>12</sup> drawing on the literature from past public health crises,<sup>13</sup> suggested that the COVID-19 pandemic may lead to a medium- to long-term increase in alcohol consumption, particularly among men. Research on past large-scale disasters has found a strong link between post-disaster emotional distress and increased substance use.<sup>5,13,14</sup> Early research on the COVID-19 pandemic reports associations between overall poor mental health and increases in alcohol consumption.<sup>15</sup> More generally, Canadians who reported having fair or poor mental health reported greater substance use, and stress was the third most common reason cited by those who increased their drinking (44%).<sup>16</sup> Similar associations with increased alcohol use have been observed for overall poor mental health, increased depressive symptoms and lower mental well-being.<sup>15</sup> A study from the United States noted that emotional distress related to COVID-19 was associated with increased drinking frequency and heavy drinking for both men and women.<sup>17</sup>

Alcohol is the most used substance among Canadians<sup>18</sup> and the costliest in terms of harms to health.<sup>19</sup> Since the beginning of the pandemic in March 2020, alcohol sales

have increased in many jurisdictions.<sup>20,21</sup> Recent surveillance surveys suggest that while between 14% and 18% of adult Canadians have increased the amount of alcohol they consume, a similar proportion (9%–12%) have decreased their consumption; for most Canadians (70%), their drinking has remained the same.<sup>16,22,23</sup> Comparable patterns have been observed in the United States,<sup>24</sup> the United Kingdom,<sup>15</sup> Poland<sup>25</sup> and Australia.<sup>26</sup>

Increased alcohol use during the COVID-19 pandemic has potential long-term social and economic costs for individuals, communities and society.<sup>27-30</sup> It has prompted a “need to closely monitor any change in alcohol use.”<sup>12,p.303</sup> We need to strengthen our understanding of how, and for whom, specific COVID-19-related stressors are associated with alcohol consumption in order to inform alcohol control policies and public health interventions that can minimize alcohol-related harm. Moreover, because women are more likely than men to consume alcohol in response to negative emotions and have a higher prevalence of comorbid substance use and mental health disorders (as noted earlier),<sup>7,9,10</sup> we need to understand gender differences in the impacts of the COVID-19 pandemic to develop an appropriate pandemic-related response.<sup>31</sup>

In light of emerging evidence suggesting that alcohol consumption has increased during the pandemic, this study looks to examine whether changes in mental health and well-being, particularly emotional distress, brought on by the COVID-19 pandemic may be playing a role in changing consumption patterns. To date, research in this area has been sparse, with no population-based Canadian studies. Specifically, we aim to (1) identify changes in drinking patterns during the COVID-19 pandemic among adults in two Atlantic Canadian provinces; (2) examine whether there exists an association between drinking more frequently during the pandemic and increased feelings of stress, loneliness and hopelessness; and (3) assess whether gender moderates this relationship.

## Methods

### Data source

We took data for the present study from the 2020 Alcohol Consumption During COVID-19 (ACDC) Survey, an anonymous, cross-sectional survey of adults 19 years

and older residing in New Brunswick and Nova Scotia administered on behalf of the research team by Leger, a Canadian market research company. Like most jurisdictions in Canada, both these provinces deemed alcohol sales an essential service. Alcohol was readily accessible at on-premises locations, as well as through avenues initiated or expanded during the pandemic (curbside pickup, delivery and on-demand) when the survey was run in November/December 2020.

Respondents were sampled in two phases to reach a quota of 1000 respondents in each province. In the first phase, approximately 500 respondents were randomly selected to be surveyed online from a panel of over 400000, representing Canadians with Internet access, including hard-to-reach target groups.<sup>32</sup> The second phase sampled 1500 respondents via telephone and targeted respondents in regions not captured or underrepresented in the online Leger Opinion survey. The sampling frame consisted of a mix of landline and mobile phone numbers provided by ASDE Survey Sampler, an accredited Canadian database-survey sample provider. All phone numbers were compared against the voluntary, market research national “do not call” list, and all matches were removed from the sample before randomization and selection procedures.

The sample was stratified to ensure that all regions of New Brunswick and Nova Scotia were represented. Leger developed an Apple and Android application to reach people on their mobile devices and obtain a higher response rate. The response rate for the phone portion was 10% and for the online portion was 14%. Non-response comprised anything affecting survey completion, including phone numbers not in service, no answer, refusals and those who did not complete the survey. These rates align with other phone and online surveys.<sup>33-36</sup>

Ethics approval was obtained from the Dalhousie University Health Sciences Research Ethics Board (REB # 2020-5258).

### Measures

#### Outcome measure

The outcome of interest was the change in drinking frequency after the imposition of measures to contain COVID-19 in March 2020. Respondents were asked to describe their drinking frequency twice during the

survey, drawing on a common survey measure of drinking frequency.<sup>37</sup>

The first assessment was based on responses to the question: “Before the COVID-19 pandemic began in March 2020, how often did you use alcohol? (By alcohol, we mean a drink of beer, wine, liquor or any other alcoholic beverage.)” The second assessment was based on responses to the question: “Currently, how often do you use alcohol? (By alcohol, we mean a drink of beer, wine, liquor, or any other alcoholic beverage.)” Response options to both questions were as follows: “many times a day,” “once a day,” “4 to 5 times a week,” “2 to 3 times a week,” “once a week,” “2 to 3 times a month,” “once a month,” “less than once a month” and “never.”

From these two questions, a measure was constructed to capture changes in drinking patterns with four options: “non-drinker” (respondents who reported not drinking in both questions); “drinking less”; “drinking about the same”; and “drinking more.”

### Emotional distress

The primary exposure variables in this study were three measures of emotional distress, namely increased feelings of stress, loneliness and hopelessness since the start of the COVID-19 pandemic. We assessed increases based on responses to the following question: “Since the beginning of the COVID-19 pandemic in March, have you been experiencing more or less of the following?” The frequency of the response options—“far less,” “slightly less,” “the same,” “slightly more” and “far more”—were recorded on a five-point Likert scale. Responses were dichotomized to capture experiencing more (slightly more, far more) than the same or less of each emotional state. Please note that our study does not examine diagnosable psychiatric or psychological disorders, but forms of emotional distress. While such responses are typically sub-clinical, it is still important to investigate their public health impact.<sup>38</sup>

### Gender

We determined the respondents’ gender based on responses to the following question: “What is your gender identity?” Response options were “man,” “woman” and “non-binary.” Gender was used as a covariate in adjusted models and for stratification purposes. Given observed gender/sex differences in emotional and mental

health and drinking behaviours,<sup>39</sup> it is important to consider the potential for gender-specific associations between emotional distress and drinking frequency.

Three respondents identified as non-binary; while they were included in all analyses, we do not report their responses due to the small cell size.

### Other covariates

The analyses included covariates known to be associated with drinking. Other than gender, the demographic covariates were ethnicity (collapsed to White, non-White); age (continuous); official language spoken (French, English); living alone (yes, no); completed a bachelor’s degree (yes, no); employment status (employed full/part-time, retired, unemployed/can’t work, other); and province of residence (New Brunswick, Nova Scotia).

We included a covariate assessing overall self-rated mental health to adjust for broad, longer-term mental health and well-being. Responses to the question “In general, how would you rate your emotional/mental health?” ranged from poor to excellent on a standard five-point Likert scale. This measure was dichotomized to capture poor/fair relative to good/very good/excellent mental health, as is commonly described in the literature.<sup>40</sup>

### Analyses

Table 1 presents descriptive statistics and estimated prevalence rates for the total sample. Separate unadjusted and adjusted multinomial regression models estimated changes in drinking frequency since the start of the COVID-19 pandemic as a function of increased feelings of stress, loneliness and hopelessness. All models were repeated, stratified by gender identity and adjusted for other covariates. All analyses used analytic weights to account for study design and participant non-response to reflect the gender, age and regional profiles of adults in the respective provinces. We assessed multicollinearity in our measures using variance inflation factors (VIF); results were within normal ranges. All analyses were conducted using STATA version 16.1 (StataCorp LP, College Station, TX, USA).

To collect data for sensitivity analyses, respondents were asked a separate question about alcohol consumption: “At the beginning of the COVID-19 pandemic in

March 2020, how would you describe your drinking?” Response options were as follows: “I was drinking more often”; “I was consuming a greater number of drinks when I drink”; “I was drinking both more often and in higher amounts”; “I was drinking less often and/or fewer drinks”; “My drinking was about the same as before COVID-19”; and “I don’t drink.” Response options were collapsed to measure drinking more often/higher amounts, drinking the same, drinking less often/fewer drinks and non-drinking.

## Results

### Descriptive analyses

Of the 2000 participants included in the analysis, 51.9% identified as women; participants’ mean (SD) age was 50.5 (17.2) years (see Table 1). Most respondents were White (92.8%), spoke English (85.5%) and lived with others (80.2%). Just over a third had completed a bachelor’s degree (34.5%). Over a half were employed full- or part-time (57.7%), and 26% were retired and 6.4% unemployed. Over three-quarters reported good to excellent mental health and well-being (76.9%), and the same proportion (76.9%) reported drinking alcohol.

One-eighth of the respondents (12.2%) reported that they had started drinking more frequently since March 2020, 49.9% reported that they were drinking about the same, 14.8% reported that they were drinking less and 23.1% reported that they did not drink. In terms of emotional distress, since the start of the COVID-19 pandemic, approximately 43.5% of respondents reported feeling increased levels of stress, 38.4% reported increased feelings of loneliness and 25.3% reported increased feelings of hopelessness.

Across sociodemographic and psychosocial covariates, women, respondents without a bachelor’s degree and retirees were more likely to be non-drinkers (see Table 2). Respondents who reported more frequent drinking since the start of the COVID-19 pandemic were, on average, younger and more likely to report fair or poor mental health and higher rates of stress, loneliness and hopelessness.

Male respondents were more likely than female respondents to report being drinkers, while female respondents were more likely to report feelings of stress and of

**TABLE 1**  
**Survey respondents' characteristics, New Brunswick and Nova Scotia (N = 2000)**

Measures	Unweighted frequency (n)	Weighted prevalence (%)
<b>Sociodemographic measures</b>		
<b>Ethnicity</b>		
White	1897	92.8
Non-White	103	7.2
<b>Gender</b>		
Men	884	47.7
Women	1113	51.9
Non-binary	3	0.4
Mean (SD) age, years	2000	50.5 (17.2)
<b>Official language spoken</b>		
French	327	14.5
English	1673	85.5
<b>Live alone</b>		
No	1554	80.2
Yes	446	19.8
<b>Completed bachelor's degree</b>		
No	1350	65.5
Yes	650	34.5
<b>Employment status</b>		
Employed	948	57.7
Retired	816	25.9
Unemployed/can't work	105	6.4
Other	131	9.9
<b>Province of residence</b>		
New Brunswick	1000	50.0
Nova Scotia	1000	50.0
<b>Self-rated mental health</b>		
Good/very good/excellent	1669	76.9
Poor/fair	331	23.1
<b>Psychosocial measures</b>		
<b>Increased stress<sup>a</sup></b>		
No	1260	56.5
Yes	740	43.5
<b>Increased loneliness<sup>a</sup></b>		
No	1357	61.6
Yes	643	38.4
<b>Increased hopelessness<sup>a</sup></b>		
No	1630	74.4
Yes	370	25.3
<b>Changes in drinking frequency<sup>a</sup></b>		
Non-drinker	532	23.1
Drinking less now	279	14.8
Drinking the same amount	992	49.9
Drinking more now	197	12.2

Source: 2020 Alcohol Consumption During COVID-19 Survey.

Abbreviation: SD, standard deviation.

<sup>a</sup> Since the start of the COVID-19 pandemic in March 2020.

hopelessness since the start of the COVID-19 pandemic (see Table 3).

### Main effects regression results

Adjusted estimates from multinomial regression models of changes in drinking frequency indicate an association between increased feelings of stress (odds ratio [OR] = 1.99; 95% CI: 1.35–2.93), loneliness (1.79; 1.22–2.61) and hopelessness (1.98; 1.21–3.23) since the start of the COVID-19 pandemic and increases in drinking frequency (see Table 4).

### Stratified regression results

In unadjusted multinomial logistic regression models, increased feelings of stress, loneliness and hopelessness were associated with drinking more frequently for both men and women. However, after adjusting for ethnicity, age, official language spoken, family status (living alone or not), education, employment status, province of residence and self-rated mental health, these associations remained only for men (see Table 5).

Increased feelings of stress (OR = 2.77; 95% CI: 1.53–5.00), loneliness (2.19; 1.22–3.95) and hopelessness (2.14; 1.01–4.53) among men were each associated with drinking more frequently since the start of the COVID-19 pandemic. However, in each model, the confidence intervals for male and female respondents overlap, pointing to a lack of moderation by gender. We further assessed the interaction of gender and each measure of emotional distress in our main effects' models of changes in drinking frequency since the start of the COVID-19 pandemic. All gender interaction terms were nonsignificant, which aligns with the results from our stratified models.

### Sensitivity analyses

We re-analyzed the main effect models based on collapsed responses to the separate question about alcohol consumption: "At the beginning of the COVID-19 pandemic in March 2020, how would you describe your drinking?" Adjusted models indicated similar associations between increased feelings of stress, loneliness and hopelessness, with increased drinking during the pandemic, though effect size estimates were reduced. (Data available on request from the authors.) To confirm the temporal effects of the association of

**TABLE 2**  
**Changes in drinking frequency since the start of the COVID-19 pandemic across sociodemographic and psychosocial covariates, New Brunswick and Nova Scotia (N = 2000)**

Measures	Weighted prevalence (95% CI)			
	Non-drinker (n = 532) (n = 461, weighted)	Drinking less now (n = 279) (n = 296, weighted)	Drinking the same amount (n = 992) (n = 998, weighted)	Drinking more now (n = 197) (n = 244, weighted)
<b>Ethnicity</b>				
White	93.5 (89.9–95.8)	92.6 (87.1–95.9)	94.0 (91.6–95.8)	86.8 (79.0–92.0)
Non-White	6.5 (4.2–10.1)	7.4 (4.1–12.9)	6.0 (4.2–8.4)	13.2 (8.0–21.0)
<b>Gender</b>				
Men	40.2 (35.3–45.3)	44.6 (37.7–51.7)	51.6 (47.9–55.2)	49.6 (41.4–57.7)
Women	59.8 (54.7–64.7)	54.4 (47.3–61.3)	48.2 (44.6–51.9)	49.2 (41.1–57.4)
Mean age, years	56.3 (54.2–58.4)	47.9 (45.4–50.5)	50.19 (48.9–51.5)	44.1 (41.6–46.5)
<b>Official language spoken</b>				
French	14.6 (11.7–18.1)	17.2 (12.9–22.6)	14.5 (12.3–17.2)	10.9 (7.2–16.0)
English	85.4 (81.9–88.3)	82.8 (77.4–87.1)	85.5 (82.8–87.7)	89.1 (84.0–92.8)
<b>Live alone</b>				
No	75.0 (70.8–78.9)	82.0 (76.2–86.6)	81.8 (78.9–84.4)	81.0 (73.9–86.6)
Yes	25.0 (21.1–29.2)	18.0 (13.4–23.8)	18.2 (15.6–21.1)	19.0 (13.4–26.1)
<b>Completed bachelor's degree</b>				
No	78.0 (73.5–82.0)	67.1 (60.2–73.3)	60.5 (56.9–64.0)	60.2 (52.0–68.0)
Yes	22.0 (18.0–26.5)	32.9 (26.7–39.8)	39.5 (36.0–43.1)	39.8 (32.0–48.0)
<b>Employment status</b>				
Employed	45.7 (40.7–50.8)	53.6 (46.6–60.5)	61.2 (57.7–64.5)	71.3 (64.0–77.7)
Retired	36.6 (32.3–41.0)	23.3 (19.0–28.4)	25.1 (22.6–27.7)	12.5 (9.2–16.8)
Unemployed/can't work	6.6 (4.4–9.8)	6.9 (4.2–11.3)	6.4 (4.6–8.7)	5.3 (3.0–9.2)
Other	10.4 (7.1–15.0)	12.5 (7.8–19.6)	6.4 (4.6–8.7)	9.3 (5.3–15.7)
<b>Province of residence</b>				
New Brunswick	45.9 (41.0–50.8)	40.6 (34.2–47.3)	46.4 (42.9–50.1)	39.9 (32.3–48.0)
Nova Scotia	54.1 (49.2–59.0)	59.4 (52.7–65.8)	53.6 (49.9–57.1)	60.1 (52.0–67.7)
<b>Self-rated mental health</b>				
Good/very good/ excellent	80.8 (76.2–84.7)	70.8 (63.1–77.4)	80.7 (77.2–83.7)	61.3 (52.7–69.3)
Poor/fair	19.2 (15.3–23.8)	29.2 (22.6–36.9)	19.3 (16.3–22.8)	38.7 (30.7–47.3)
<b>Increased stress<sup>a</sup></b>				
No	67.6 (62.4–72.3)	56.4 (49.3–63.3)	56.5 (52.8–60.1)	33.2 (26.5–40.8)
Yes	32.4 (27.7–37.6)	43.6 (36.7–50.7)	43.5 (39.9–47.2)	66.8 (59.2–73.5)
<b>Increased loneliness<sup>a</sup></b>				
No	70.3 (65.3–74.9)	56.7 (49.4–63.7)	63.6 (59.9–67.2)	42.6 (34.9–50.7)
Yes	29.7 (25.1–34.7)	43.3 (36.3–50.6)	36.4 (32.8–40.1)	57.4 (49.3–65.1)
<b>Increased hopelessness<sup>a</sup></b>				
No	79.4 (74.3–83.7)	73.1 (65.9–79.3)	77.9 (74.4–81.1)	55.1 (46.7–63.2)
Yes	20.6 (16.3–25.7)	26.9 (20.7–34.1)	22.1 (18.9–25.6)	44.9 (36.8–53.3)

Source: 2020 Alcohol Consumption During COVID-19 Survey.

Abbreviation: CI, confidence interval.

<sup>a</sup> Since the start of the COVID-19 pandemic in March 2020.



**TABLE 3**  
**Increased stress, loneliness and hopelessness, and changes in drinking frequency since the start of the COVID-19 pandemic, by gender, New Brunswick and Nova Scotia (N = 2000)**

Measures	Weighted prevalence (95% CI)	
	Men (n = 884)	Women (n = 1113)
<b>Increased stress</b>		
No	64.6 (60.6–68.4)	48.9 (45.6–52.4)
Yes	35.4 (31.6–39.4)	51.0 (47.6–54.4)
<b>Increased loneliness</b>		
No	65.4 (61.4–69.3)	58.2 (54.8–61.7)
Yes	34.6 (30.8–38.6)	41.8 (38.4–45.2)
<b>Increased hopelessness</b>		
No	79.0 (75.1–82.5)	71.2 (67.8–74.5)
Yes	21.0 (17.5–24.9)	28.8 (25.5–32.2)
<b>Changes in drinking frequency</b>		
Non-drinker	19.4 (16.6–22.6)	26.6 (23.8–29.5)
Drinking less now	13.9 (11.3–16.9)	15.5 (13.1–18.2)
Drinking the same amount	54.0 (50.1–57.9)	46.4 (43.0–49.8)
Drinking more now	12.7 (10.1–15.8)	11.6 (9.4–14.1)

Source: 2020 Alcohol Consumption During COVID-19 Survey.

Abbreviation: CI, confidence interval.

changes in emotional distress with changes in drinking frequency as a function of the COVID-19 pandemic, we assessed the association of increased feelings of stress, loneliness and hopelessness on sustained heavy drinking (those who reported drinking

similar amounts across time periods at a high level—defined as drinking between 4 days per week to daily/multiple times per day). For all three measures, stress ( $p = 0.69$ ), loneliness ( $p = 0.097$ ) and hopelessness ( $p = 0.14$ ), there was no

**TABLE 4**  
**Unadjusted and adjusted multinomial logistic regression models of changes in drinking frequency and increased feelings of stress, loneliness and hopelessness since the start of the COVID-19 pandemic, New Brunswick and Nova Scotia (N = 2000)**

Measure	Odds ratio (95% CI)		
	Non-drinker vs. drinking the same amount	Drinking less vs. drinking the same amount	Drinking more vs. drinking the same amount
<b>Increased stress</b>			
Unadjusted	0.62** (0.47–0.82)	1.00 (0.73–1.38)	2.61** (1.83–3.71)
Adjusted <sup>a</sup>	0.64** (0.47–0.86)	0.78 (0.54–1.12)	1.99** (1.35–2.93)
<b>Increased loneliness</b>			
Unadjusted	0.74* (0.56–0.97)	1.33 (0.96–1.85)	2.35** (1.64–3.36)
Adjusted <sup>a</sup>	0.79 (0.58–1.08)	1.10 (0.78–1.57)	1.79** (1.22–2.61)
<b>Increased hopelessness</b>			
Unadjusted	0.91 (0.65–1.29)	1.30 (0.88–1.92)	2.87** (1.95–4.23)
Adjusted <sup>a</sup>	1.07 (0.71–1.60)	0.91 (0.57–1.45)	1.98** (1.21–3.23)

Source: 2020 Alcohol Consumption During COVID-19 Survey.

Abbreviation: CI, confidence interval.

<sup>a</sup> Models adjusted for respondent's ethnicity, gender, age, official language spoken, living alone, education, employment status, province of residence and self-rated mental health.

\* $p < 0.05$ .

\*\* $p < 0.01$ .

association between increased feelings and sustained heavy drinking. This observation further supports the finding that pandemic-related emotional distress may be associated with changes in drinking frequency.

## Discussion

This study reveals important associations between drinking behaviour and emotional distress during the COVID-19 pandemic. Similar proportions of adults reported drinking more (12.2%) versus less (14.8%) frequently since the start of the pandemic. This divergent pattern has also been observed in other recent studies<sup>16,22</sup> and speaks to the unique ways in which the COVID-19 pandemic is associated with alcohol consumption. Rehm and colleagues<sup>12</sup> posit that the burden posed by the pandemic pushes some people to self-medicate with alcohol, while pandemic-related restrictions on alcohol access and availability cause others to reduce their consumption. Our interest lies in trying to understand why some people have increased their drinking frequency during the pandemic.<sup>15,25</sup>

We found that individuals who reported increased levels of stress, loneliness and hopelessness since the start of the COVID-19 pandemic were more likely to report increased frequency of drinking during this time. While heightened distress is a common response to the uncertain circumstances resulting from disasters and public health crises,<sup>38,40-42</sup> some individuals may adopt alcohol consumption as a maladaptive coping strategy.<sup>11</sup> The underlying reasons cited typically include uncertainty about employment, financial strain, disruptions in daily life and concerns about the health of loved ones.<sup>41,42</sup> Beyond the direct health threat, COVID-19 presents many uncertainties related to quarantine, intermittent restrictions on access to schools, workplaces and other public venues and feelings about social isolation. Since the start of the pandemic, a large proportion of respondents indicated increased feelings of stress (43.5%), loneliness (38.4%) and hopelessness (25.3%), with significantly higher rates reported among women. Sex/gender differences in stress response are well documented.<sup>43,44</sup> The differences in stress response may be exacerbated by the pandemic because women are the predominant caretakers of children and make up the higher proportion of frontline health

**TABLE 5**  
**Unadjusted and adjusted multinomial logistic regression models of changes in drinking frequency since the start of the COVID-19 pandemic on increased feelings of stress, loneliness and hopelessness stratified by gender**

Measure	Odds ratio (95% CI)		
	Non-drinker vs. drinking the same amount	Drinking less vs. drinking the same amount	Drinking more vs. drinking the same amount
<b>Increased stress</b>			
<b>Unadjusted</b>			
Men	0.63 (0.38–1.03)	1.05 (0.62–1.19)	3.46** (2.03–5.90)
Women	0.52** (0.37–0.73)	0.84 (0.56–1.27)	1.91** (1.20–3.06)
<b>Adjusted<sup>a</sup></b>			
Men	0.71 (0.41–1.21)	0.79 (0.44–1.42)	2.77** (1.53–5.00)
Women	0.58** (0.41–0.83)	0.72 (0.45–1.13)	1.45 (0.90–2.35)
<b>Increased loneliness</b>			
<b>Unadjusted</b>			
Men	0.66 (0.40–1.09)	1.33 (0.78–2.23)	3.05** (1.77–5.29)
Women	0.73 (0.52–1.03)	1.24 (0.81–1.89)	1.94** (1.29–3.12)
<b>Adjusted<sup>a</sup></b>			
Men	0.69 (0.41–1.16)	0.98 (0.54–1.79)	2.19** (1.22–3.95)
Women	0.84 (0.58–1.23)	1.11 (0.73–1.70)	1.61 (0.98–2.63)
<b>Increased hopelessness</b>			
<b>Unadjusted</b>			
Men	0.94 (0.49–1.81)	1.35 (0.71–2.57)	3.26** (1.77–6.02)
Women	0.81 (0.54–1.22)	1.11 (0.68–1.83)	2.43** (1.47–4.01)
<b>Adjusted<sup>a</sup></b>			
Men	1.11 (0.52–2.37)	0.85 (0.37–1.92)	2.14* (1.01–4.53)
Women	1.04 (0.66–1.65)	0.92 (0.53–1.59)	1.79 (0.94–3.42)

Source: 2020 Alcohol Consumption During COVID-19 Survey.

Abbreviation: CI, confidence interval.

<sup>a</sup> Models adjusted for respondent's ethnicity, age, official language spoken, living alone, education, employment status, province of residence and self-rated mental health.

\* $p < 0.05$ .

\*\* $p < 0.01$ .

care staff;<sup>31</sup> in addition, women's participation in the workforce dropped more than men's in the early months of the pandemic.<sup>45</sup>

While our study only investigates association, rather than causation, our results suggest that some individuals *may* have used alcohol to cope with pandemic-related emotional distress. The respondents who reported increased feelings of stress, loneliness and/or hopelessness were roughly twice as likely to report drinking more frequently since the start of the COVID-19 pandemic. This highlights a worrying trend that merits further investigation.

Our findings aligns with those of previous studies on the role of substance use as a

form of coping or self-medicating in times of distress, more generally, and in response to acute traumatic events or disasters.<sup>6,7,11</sup> This also touches on the comorbid nature of problematic substance use and poor mental health.<sup>46</sup> Interestingly, despite the higher rates of stress, loneliness and hopelessness reported by women, gender-stratified analyses found that heightened emotional states were significantly associated with more frequent drinking among men, but not women. Previous research has found that men's and women's distress response and coping strategies differ considerably,<sup>47</sup> with men more likely to respond to emotional distress with substance use.<sup>9</sup> In general, women are more likely to seek social support in times of stress, an option limited by pandemic-related restrictions and reduced access to

more adaptive coping strategies.<sup>48,49</sup> Conversely, men tend to avoid coping altogether or to externalize their coping response. As such, the observation of an association of distress and increased drinking frequency during the COVID-19 pandemic should come as no surprise.<sup>50</sup>

Several studies indicate that the psychosocial burden of the COVID-19 pandemic merits increased intervention on societal, community and individual levels.<sup>5</sup> A review of jurisdictional approaches to reducing population distress and increasing compliance with pandemic restrictions could be beneficial,<sup>51</sup> based on our findings. Alcohol consumption motivated by emotional distress may decline as increased attention is paid to the psychosocial burden of the COVID-19 pandemic.

### Strengths and limitations

First, data for this study were cross-sectional and our key exposure and outcome measures relate to events measured at a single point in time; thus, we cannot infer causal order or effect (e.g. individuals who consume more alcohol during the pandemic may experience increased distress as a result).

Second, responses were drawn from self-reports and therefore subject to response bias, including social desirability bias and recall bias. This may particularly affect assessments of past drinking behaviour and drinking frequency changes, though associations with emotional distress were consistent when we used an alternative measure of changes in drinking. Related to this, the third limitation of this study is the low response rate of 10%–14%, which likely introduces non-response bias. Such low response rates are expected for market research firms as they include all cases where a telephone number or a request to a random panel did not result in a completed questionnaire, including telephone numbers that are no longer in service and numbers for businesses and organizations, all of which inflate the non-response rate. With respect to non-response bias, some categories of people would logically be more likely to complete the survey (i.e. retirees, people working remotely) than others (i.e. essential workers who are less likely to be home to answer the telephone).

While data were weighted to be representative of the age, sex and regional profiles

of the adult population in each province, it is likely that our data are not fully representative. However, the association between lower response rates and high bias are generally not supported in the literature.<sup>34-36</sup> Fourth, we are unable to examine whether alcohol consumption and emotional distress vary according to sex because the dataset only includes gender expression.

Finally, this study includes only respondents from New Brunswick and Nova Scotia, two provinces that have fared relatively well in terms of the COVID-19 case-load and the extent and duration of pandemic-related restrictions imposed. As such, these results may not be generalizable to other regions of Canada.

While recognizing these limitations, this study contributes to a timely and important research area. Our findings demonstrate the need to consider the unintended consequences of the COVID-19 pandemic and associated far-reaching public health measures. This natural experiment suggests that around one in ten people used alcohol as a form of self-medication during this distressing period, meaning that future public health messaging should include warnings against emotionally motivated alcohol consumption and other high-risk drinking behaviours.

## Conclusion

The COVID-19 pandemic has had substantial indirect impacts on the health and well-being of Canadians. Pandemic-related restrictions have affected many individuals' daily lives, shaping their levels of distress and how they are able to cope. These increased levels of distress commonly affected between one-quarter and nearly one-half of respondents, but were disproportionately experienced by women.

This study found that adults who reported feeling increased levels of stress, loneliness and hopelessness since the start of the pandemic consumed alcohol more frequently than they did pre-pandemic and that alcohol use increased among more than one in ten individuals. However, this association was largely restricted to men. Future research should seek to provide a more careful examination of the factors shaping increased alcohol consumption during the COVID-19 pandemic, with an aim to implement strategies to shape reduced or less harmful consumption or

mitigate the impact of feelings of distress on Canadians' health. Understanding how the pandemic has affected mental health and associating drinking may help inform alcohol control policies and public health interventions that can minimize alcohol-related harm.

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## Conflicts of interest

The authors have no conflicts of interest.

## Authors' contributions and statement

MA, KT and DD were involved in the conceptualization of the work and funding acquisition.

MA and TL conducted formal analysis.

MA, KT and KM jointly wrote the original draft.

DD, KM, SB and TL reviewed and edited the manuscript.

The content and views expressed in this article are those of the authors and do not necessarily reflect those of the Government of Canada.

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## Editorial

# Alcohol use during pregnancy and fetal alcohol spectrum disorder in Canada: who, what, where?

Jocelynn L. Cook, PhD (1,2,3)

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### Understanding fetal alcohol spectrum disorder

The estimated prevalence of fetal alcohol spectrum disorder (FASD) in Canada is greater than that of autism, cerebral palsy and Down syndrome *combined*, and the incremental cost per case of FASD over a person's lifespan is estimated at \$1.1 million.<sup>1</sup>

FASD is a lifelong disability that impacts the brain and body of individuals prenatally exposed to alcohol. Individuals frequently have challenges in their daily living and need support with motor skills, physical health, learning, memory, emotional regulation and social skills.<sup>2,3</sup> Emerging evidence suggests that FASD is also associated with chronic disease and mental health disorders and adverse societal experiences.<sup>4,5</sup> When undiagnosed and unsupported, individuals with FASD are more likely to experience substance use challenges, mental health conditions, involvement with the criminal justice and child welfare systems, emotional and physical abuse, trauma and disrupted housing.<sup>6</sup>

FASD occurs within a web of increased risk and vulnerabilities. All populations that use alcohol are at risk for FASD, yet we still do not understand the prevalence of alcohol consumption during pregnancy, or FASD, in Canada.

### Alcohol use during pregnancy

That alcohol is a neurobehavioural teratogen is neither contentious nor debatable. Yet, despite years of public messaging about the harms of alcohol during

pregnancy, and millions of dollars spent on prevention campaigns, the number of women who consume alcohol during pregnancy has not decreased.<sup>7</sup>

So what's going on?

We know that the lives of women who drink alcohol during pregnancy are complex. We know that women consume alcohol during pregnancy for a number of reasons, that the social determinants of health play an important role<sup>8</sup> and that stigma impacts reporting alcohol use and accessing interventions.<sup>9</sup> And sometimes women don't know that they are pregnant.

Of note, the newest iteration of the guideline on screening and counselling for alcohol consumption during pregnancy, published in September 2020 by the Society of Obstetricians and Gynaecologists of Canada,<sup>10</sup> explicitly states that all pregnant women should be questioned about alcohol use. If a pattern of use is established, this information should be documented in the infant's medical record after delivery. These recommendations attempt to incorporate alcohol screening and conversations about alcohol use into routine practice, and to note exposure in both the mother's and the baby's charts. Health care providers play a critical role in capturing this information and getting it into provincial data systems, and normalizing questions about alcohol use and creating a safe environment to have meaningful conversations with patient-clients.

### Surveillance

Canada's surveillance data related to alcohol and pregnancy are scarce. There

are a few published reports, and many people have worked very hard to try to capture routine information about alcohol and pregnancy with complete ascertainment, using retrospective and prospective approaches and over time and across jurisdictions. There have been national surveys, including the now defunct Maternity Experiences Survey and the still operational Canadian Community Health Survey, that have provided a snapshot of use. While these provide information about the amount of alcohol reported to have been consumed, we do not have information about the reasons for use, contexts for use, challenges/barriers to accessing supports and services, or patterns of consumption and at which points during pregnancy. And the information that is available is based on self-report data with values too small, in many cases, to be useful for drawing general conclusions.

Provincial databases and registries sometimes capture information related to alcohol use during pregnancy, but they depend upon information about alcohol use being captured in the data source (i.e. patient charts). While this approach could capture information about alcohol use during pregnancy relatively thoroughly, the details are often not available and the datasets tend to be incomplete. Alcohol use is almost exclusively self-reported, and with the complexity of stigma, coupled with the fact that screening for alcohol use during pregnancy is not a standard part of prenatal/antenatal forms, the data tend to not be reliable. There have been attempts to develop a standardized national perinatal record that includes information about prenatal exposures, but efforts appear to have stalled.

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Canada also has no set of indicators or systematic and routine data collection related to the prevalence of FASD. Again, the research community has done a lot of excellent work attempted to glean prevalence data from different studies in different populations in Canada. We have reports from rural communities,<sup>11</sup> urban schools,<sup>12</sup> child welfare systems<sup>13</sup> and justice systems.<sup>14</sup> In 2019, the Canadian Health Survey on Children and Youth attempted to gather data about FASD.<sup>15</sup> These studies depend on the results of an FASD diagnostic assessment, and Canada's access to diagnostic services falls very short of demand.<sup>16</sup> This is a critical gap: without early identification of prenatal alcohol exposure captured by our data systems, we lose the opportunity for early monitoring and anticipatory guidance for supports and services. And the opportunity to maximize potential is tragically missed.

Capturing reliable information about amounts of alcohol and patterns of use/prenatal exposure in provincial data systems would go a long way toward understanding prevalence, demographic and regional trends as well as comorbidities. We would also be able to pinpoint time periods where alcohol consumption, as well as comorbidities, seem to change—the past year of the COVID-19 pandemic is a perfect example—in order to anticipate the need for changes in prevention and support programs. This type of data would also help us to better understand the effectiveness of prevention and harm reduction efforts in real time—or at least much faster than the years it takes to report on national surveys.

## The National FASD Database

The National FASD Database is another national project that has been implemented to capture thorough information about FASD, risk factors and outcomes. From 2010 to 2020, the Public Health Agency of Canada provided support for the development and implementation of the National FASD Database. NeuroDevNet/Kids Brain Health contributed to the support from 2013 to 2019, and the Canada FASD Research Network is now the sole funder. The database was developed in an attempt to capture information about FASD and its prevalence across all Canada's diagnostic clinics.

Presently, we have over 3500 records, and have learned about the environments of individuals who were exposed to alcohol prenatally, their health and behaviours and the challenges to changing the way we think about preventing FASD and supporting women who use alcohol during pregnancy.

Despite limited diagnostic capacity in Canada, with the full participation of clinics across the country we can ascertain prevalence of FASD using a system such as the national database.

## Summary and recommendation for funding and support

Alcohol use during pregnancy, and FASD, is complex, and we need to understand the magnitude of the issue as well as the situations surrounding it. Provincial data systems are poised to capture information about alcohol use, including during pregnancy, as well as patterns and amounts consumed. Integrating these questions into the routine practice of health care providers is critical. Standardizing perinatal forms would also be a helpful contribution.

Canada has come a long way, and in many ways we are leaders in the field of FASD research. But our fragmented health system with jurisdictional differences in data collection and barriers to data sharing make it difficult to report nationally on the prevalence of alcohol use during pregnancy and FASD. Further developing the National FASD Database as part of the pan-Canadian surveillance infrastructure, with buy-in and participation from all jurisdictions, is an effective way to capture and report on accurate national data.

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## At-a-glance

# Prevalence of alcohol use among women of reproductive age in Canada

Mélanie Varin, MSc (1); Elia Palladino, MSc (1,2); Kate Hill MacEachern, PhD (1); Lisa Belzak, MHSc (1); Melissa M. Baker, PhD (1)

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### Abstract

**Introduction:** Reporting on alcohol use among women of reproductive age in Canada addresses a major gap in evidence.

**Methods:** We assessed the prevalence of weekly and heavy alcohol consumption among women aged 15 to 54 years by sociodemographic characteristics, province of residence and concurrent use of other substance(s) using data from the 2019 Canadian Community Health Survey.

**Results:** Of the target population, 30.5% reported weekly and 18.3% reported heavy alcohol consumption in the past year. Prevalence varied by sociodemographic characteristics, province and substance use. The most notable and significant differences were to do with cannabis use and smoking.

**Conclusion:** This information can guide health care providers in assessing alcohol consumption and in promoting low-risk alcohol drinking to prevent alcohol exposure during pregnancy.

**Keywords:** *substance use, polysubstance use, women of reproductive age, Canada's Low-Risk Alcohol Drinking Guidelines*

### Highlights

- In 2019, 30.5% of women of reproductive age reported weekly alcohol consumption.
- In 2019, 18.3% of women of reproductive age reported heavy alcohol consumption that exceeds Canada's Low-Risk Alcohol Drinking Guidelines.
- These proportions varied by sociodemographic characteristics, province of residence, smoking status and cannabis use.
- Prevalence estimates for weekly and heavy alcohol consumption were between 2 and 3 times higher for women who reported being current, former or experimental tobacco smokers or who had reported consuming cannabis in the past year.

### Introduction

Alcohol is widely used in Canada, with over 75% of the population aged 15 years and over reporting alcohol consumption in the previous year.<sup>1</sup> Numerous adverse outcomes are associated with alcohol consumption, commonly referred to as alcohol-related harms. These include, but are not limited to, physical injury<sup>2</sup>, adverse physical and mental health effects<sup>2,3</sup>, cancer<sup>4</sup>, cirrhosis of the liver<sup>5</sup> and even death.<sup>2,6,7</sup>

Canada's *Low-Risk Alcohol Drinking Guidelines* were published in 2011 to raise awareness to help reduce alcohol-related harms.<sup>8</sup> These guidelines outline best practices for safe alcohol consumption, including recommendations to abstain from

alcohol when planning to become pregnant or when pregnant.<sup>8</sup> Harm reduction strategies help clinicians and public health professionals promote low-risk alcohol consumption in subpopulations who would benefit from increased awareness of the health risks associated with drinking behaviours. This is particularly important for women of reproductive age as they may have a planned or unplanned pregnancy during this time in their lives, and alcohol consumption while pregnant could have significant impacts on the fetus. In 2017, 4.2% of women in Canada who had given birth in the last 5 years reported consuming any alcohol during their pregnancy.<sup>9</sup>

In this study, we (1) report on the prevalence of weekly and heavy alcohol

consumption among women aged 15 to 54 years old in Canada; and (2) explore alcohol consumption in this population by sociodemographic characteristics, province of residence, smoking status and cannabis use. To our knowledge, there are no historic or current national estimates that report on alcohol consumption by women of reproductive age. We aim to fill that gap in this paper.

### Methods

Using data from the Canadian Community Health Survey (CCHS) annual cycle for 2019 (January to December), we assessed two alcohol consumption behaviours in the population in Canada who self-reported as female and who were between

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15 and 54 years old: weekly alcohol consumption and heavy alcohol consumption. The CCHS is a national cross-sectional survey conducted by Statistics Canada that provides health information. The 2019 CCHS coverage excluded women living in the territories, on First Nation reserves or other Indigenous settlements in the provinces, as well as full-time members of the Canadian Armed Forces and individuals in institutions.

Further detail about the CCHS design and sampling framework can be found on the Statistics Canada website.<sup>1</sup>

### **Weekly alcohol consumption**

Respondents were asked, “During the past 12 months, how often did you drink alcoholic beverages?” Response options included “less than once a month,” “once a month,” “2 to 3 times a month,” “once a week,” “2 to 3 times a week,” “4 to 6 times a week” or “every day.” Weekly alcohol consumption was defined as responses of “once a week,” “2 to 3 times a week,” “4 to 6 times a week” or “every day.” We excluded from the analysis women of reproductive age who responded with “don’t know,” “refusal” or “not stated” (n = 72).

### **Heavy alcohol consumption**

Respondents were asked, “How often in the past 12 months have you had four or more drinks on one occasion?” Response options were “never,” “less than once a month,” “once a month,” “2 to 3 times a month,” “once a week” or “more than once a week.” Heavy alcohol consumption was defined as responses of “once a month,” “2 to 3 times a month,” “once a week” or “more than once a week.”<sup>10</sup> Women of reproductive age who responded with “don’t know,” “refusal” or “not stated” were excluded from the analysis (n = 108).

We estimated the weighted prevalence (with 95% confidence interval) of weekly and heavy alcohol consumption of the target population. We used as numerator the total number of women of reproductive age who reported weekly or heavy alcohol consumption and as the denominator the total number of women of reproductive age who responded to the question.

We disaggregated estimates by age group, household income quintile, province of residence, marital status, urban/rural status,

immigrant status, employment in past 12 months, current student status, cannabis use and tobacco smoking status in the last year. Weighted prevalence estimates were calculated with survey sampling weights provided by Statistics Canada. Variance was estimated using the bootstrap method, and SAS Enterprise Guide version 7.1 (SAS Institute Inc., Cary, NC, USA) was used for statistical analyses. Statistical significance was established by examining overlapping confidence intervals.

## **Results**

Overall, 30.5% of women of reproductive age reported consuming alcohol weekly in the past year, and 18.3% reported engaging in heavy alcohol consumption. These prevalence estimates varied after disaggregation (Table 1). Statistically significant differences are detailed in the following sections.

### **Weekly alcohol consumption**

Rates of weekly alcohol consumption (“regular use”) increased with age (from 7.1% to 35.6%) and income (19.8% to 41.2%). The highest prevalence of weekly alcohol consumption in this target population was in Quebec (41.0%) and the lowest (20.0%) in New Brunswick. A higher proportion of women of reproductive age who were married or living common-law reported weekly alcohol consumption (33.7%) than those who were widowed, separated, divorced, single or never married (26.3%).

Non-immigrants (37.6%) and non-students (33.4%) had a higher prevalence of weekly alcohol consumption than immigrants (13.6%) and students (19.1%). The percentage of women of reproductive age who worked at a job or business in the past year reporting weekly alcohol consumption was higher (33.9%) than for those who did not work at a job or business (13.9%).

Prevalence rates of weekly alcohol use were approximately 2 times higher for current (40.3%), former (47.0%) and experimental (43.2%) tobacco smokers than for lifetime abstainers (21.6%). Women of reproductive age who reported using cannabis in the past 12 months reported weekly alcohol use (46.0%) that was almost twice that of those who did not use cannabis in the past 12 months (26.3%).

### **Heavy alcohol consumption**

Women aged 20 to 29 years had the highest prevalence of heavy alcohol consumption (25.2%). Rates of heavy alcohol consumption increased with income (from 15.4% to 23.7%). The highest prevalence of heavy alcohol consumption among women of reproductive age was in Newfoundland and Labrador (26.6%) and the lowest in New Brunswick (14.6%). A higher percentage of widowed, separated, divorced, single or never married women of reproductive age (21.1%) reported heavy alcohol consumption than those who were married or living common-law (16.3%).

The percentage of women of reproductive age reporting heavy alcohol consumption was higher for those living in a rural area (22.4%) than for those in urban areas (17.6%). A higher proportion who were non-immigrants (23.1%) and who worked at a paid job in the past 12 months (20.4%) reported heavy drinking compared to immigrants (6.9%) and to those who did not work a paid job in the last year (8.2%).

Current (35.4%), former (27.3%) and experimental (23.0%) tobacco smokers had proportions of heavy alcohol consumption that were between 2 and 3 times higher than lifetime abstainers (11.3%). Women of reproductive age who reported consuming cannabis in the past 12 months (39.1%) had a rate of heavy alcohol consumption that was over 3 times higher than women of reproductive age who did not consume cannabis in the past 12 months (12.4%).

## **Discussion**

In 2019, 30.5% of Canadian women of reproductive age reported consuming alcohol weekly and 18.3% reported engaging in heavy alcohol consumption. Although there are slight differences in the definitions of heavy (having four or more drinks on one occasion at least once a month in the past year) and binge drinking (having four or more drinks on one occasion at least once in the past year), the proportion of heavy alcohol consumption is similar to the 2019 median prevalence (19.2%) of binge drinking among women aged 18 to 44 years in the United States.<sup>11</sup>

We found that the proportion of weekly and heavy alcohol consumption was highest among women of reproductive age in

**TABLE 1**  
**Prevalence estimates for weekly and heavy consumption of alcohol in the last year among women of reproductive age, by sociodemographic and other characteristics, Canada, provinces, 2019**

Variables	Prevalence (95% CI)		
	% in sample	% who reported weekly alcohol consumption	% who reported heavy alcohol consumption once a month or more frequently
<b>Age group, years</b>			
15–19	9.8 (9.1, 10.6)	7.1 (5.1, 9.0)	10.6 (8.1, 13.1)
20–29	23.9 (22.9, 24.9)	29.8 (27.1, 32.5)	25.2 (22.8, 27.7)
30–39	27.8 (26.7, 29.0)	32.4 (30.1, 34.6)	16.7 (15.0, 18.4)
40–54	38.5 (37.6, 39.3)	35.6 (33.6, 37.5)	17.2 (15.7, 18.7)
<b>Income</b>			
Q1 (lowest income)	21.8 (20.7, 23.0)	19.8 (17.3, 22.3)	15.4 (13.1, 17.7)
Q2	19.2 (18.1, 20.3)	27.1 (24.3, 29.8)	17.3 (15.1, 19.6)
Q3	20.1 (19.0, 21.3)	30.6 (27.9, 33.2)	16.5 (14.4, 18.5)
Q4	20.0 (18.9, 21.1)	35.6 (32.7, 38.6)	19.3 (17.0, 21.6)
Q5 (highest income)	18.8 (17.8, 19.8)	41.2 (38.3, 44.1)	23.7 (21.1, 26.3)
<b>Province of residence</b>			
British Columbia	12.9 (12.7, 13.2)	29.9 (26.6, 33.2)	20.5 (17.5, 23.4)
Alberta	12.4 (12.1, 12.6)	31.8 (28.4, 35.3)	18.0 (15.2, 20.9)
Saskatchewan	2.9 (2.8, 3.0)	27.9 (22.3, 33.6)	17.1 (12.6, 21.5)
Manitoba	3.5 (3.4, 3.6)	30.1 (24.8, 35.4)	20.4 (15.6, 25.2)
Ontario	40.6 (40.1, 41.0)	25.5 (23.6, 27.5)	15.5 (13.8, 17.2)
Quebec	21.7 (21.4, 22.1)	41.0 (38.3, 43.7)	21.6 (19.4, 23.8)
New Brunswick	1.9 (1.8, 1.9)	20.0 (14.8, 25.3)	14.6 <sup>c</sup> (10.1, 19.1)
Nova Scotia	2.5 (2.4, 2.6)	34.1 (29.0, 39.2)	23.1 (18.4, 27.8)
Prince Edward Island	0.4 (0.4, 0.4)	23.9 <sup>c</sup> (16.7, 31.1)	19.4 <sup>c</sup> (13.2, 25.6)
Newfoundland and Labrador	1.2 (1.2, 1.3)	21.3 (15.0, 27.5)	26.6 (20.2, 32.9)
<b>Marital status</b>			
Married/living common-law	57.4 (56.1, 58.6)	33.7 (32.0, 35.3)	16.3 (15.0, 17.5)
Widowed, separated, divorced, single, never married	42.6 (41.4, 43.9)	26.3 (24.5, 28.1)	21.1 (19.4, 22.7)
<b>Urban/rural area of residence</b>			
Urban	85.5 (84.7, 86.2)	30.1 (28.7, 31.4)	17.6 (16.5, 18.7)
Rural	14.5 (13.8, 15.3)	33.0 (30.6, 35.5)	22.4 (20.3, 24.6)
<b>Immigrant status</b>			
Yes	29.8 (28.4, 31.1)	13.6 (11.9, 15.3)	6.9 (5.7, 8.2)
No	70.2 (68.9, 71.6)	37.6 (36.2, 39.0)	23.1 (21.8, 24.3)
<b>Worked at a paid job or business in past 12 months</b>			
Yes	83.2 (82.2, 84.3)	33.9 (32.6, 35.3)	20.4 (19.2, 21.5)
No	16.8 (15.7, 17.8)	13.9 (11.7, 16.2)	8.2 (6.5, 9.9)
<b>Current student</b>			
Yes	20.2 (19.2, 21.3)	19.1 (16.7, 21.5)	16.6 (14.3, 18.8)
No	79.8 (78.7, 80.8)	33.4 (32.0, 34.8)	18.8 (17.6, 19.9)
<b>Smoking status</b>			
Lifetime abstainer	59.4 (58.0, 60.7)	21.6 (20.2, 23.1)	11.3 (10.2, 12.4)
Current smoker	13.4 (12.6, 14.2)	40.3 (37.2, 43.4)	35.4 (32.3, 38.5)
Former smoker	14.0 (13.1, 14.9)	47.0 (43.9, 50.2)	27.3 (24.5, 30.0)
Experimental smoker	13.2 (12.3, 14.2)	43.2 (39.4, 46.9)	23.0 (19.9, 26.2)

Continued on the following page

**TABLE 1 (continued)**  
**Prevalence estimates for weekly and heavy consumption of alcohol in the last year among women of reproductive age, by sociodemographic and other characteristics, Canada, provinces, 2019**

Variables	Prevalence (95% CI)		
	% in sample	% who reported weekly alcohol consumption	% who reported heavy alcohol consumption once a month or more frequently
<b>Cannabis use in past 12 months</b>			
Yes	23.0 (21.9, 24.2)	46.0 (43.2, 48.7)	39.1 (36.4, 41.8)
No	77.0 (75.8, 78.1)	26.3 (25.0, 27.6)	12.4 (11.5, 13.4)
<b>Overall</b>	–	<b>30.5 (29.3, 31.7)</b>	<b>18.3 (17.3, 19.3)</b>

Data source: Canadian Community Health Survey 2019.

Abbreviation: CI, confidence interval.

<sup>c</sup> As per the Statistics Canada's sampling variability guidelines, prevalence estimates should be interpreted with caution, as the coefficient of variation is between 15.1% and 25.0%.

the highest income quintile, who were not immigrants, who worked at a job in the past 12 months and who were not students. We also found heterogeneity between self-reported alcohol consumption behaviours. For example, although women of reproductive age who were married or in a common-law relationship had a higher prevalence of weekly alcohol consumption than those who were widowed, separated, divorced, single or had never married, this pattern was the opposite for heavy alcohol consumption behaviour. Similarly, prevalence of weekly alcohol consumption was highest for those in the 40–49-year age group, whereas prevalence for heavy alcohol consumption was highest for those in the 20–29-year age group. Based on these differences, future studies should examine more than one consumption behaviour across various social determinants of health to have a better understanding of alcohol use in this population.

Our most notable findings were to do with smoking and cannabis use, which may be indicative of polysubstance use. Prevalence of past year weekly and heavy alcohol consumption was 2 to 3 times higher for women of reproductive age who were current, former or experimental tobacco smokers or who had reported consuming cannabis in the past year. This information can help health care providers assess polysubstance use in this population and promote low-risk alcohol drinking as a measure to prevent exposure to alcohol during pregnancy.

### Strength and limitations

Our study was the first to provide nationally representative prevalence estimates of two alcohol use behaviours among women

of reproductive age and to disaggregate by various sociodemographic and substance use variables. While our findings address a gap in evidence, we have a few limitations to highlight.

First, as the data are cross-sectional we cannot establish temporality. Second, all of the data in the analysis were self-reported and therefore subject to reporting and social desirability bias. Lastly, due to the CCHS's exclusion criteria, we were unable to include information from women of reproductive age living in the territories or on First Nation reserves.

### Further research

To identify groups of women of reproductive age who may benefit from increased awareness of low-risk alcohol-drinking guidelines, future research should examine associations between sociodemographic characteristics, consumption of other substances and alcohol use.

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### Conflicts of interest

None.

### Authors' contributions and statement

All authors advised on the conception and design of the secondary data analysis. MV

drafted this At-a-glance article and conducted the descriptive analysis. All co-authors interpreted the data and critically revised and provided feedback on every draft of this At-a-glance article.

The content and views expressed in this At-a-glance article are those of the authors and do not necessarily reflect those of the Government of Canada.

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## At-a-glance

# FASD prevalence among children and youth: results from the 2019 Canadian Health Survey on Children and Youth

Sarah Palmeter, MPH; Adam Probert, MSc; Claudia Lagacé, MSc

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## Abstract

**Introduction:** The lack of national fetal alcohol spectrum disorder (FASD) prevalence estimates represents an important knowledge gap.

**Methods:** Using data from the 2019 Canadian Health Survey on Children and Youth, the prevalence of FASD was examined by age, sex and Indigenous identity. Median age of diagnosis and comorbid long-term health conditions were also assessed.

**Results:** The prevalence of FASD among Canadian children and youth living in private dwellings was 1 per 1000 (0.1%). The prevalence was significantly higher among those who identified as Indigenous and lived off reserve (1.2%).

**Conclusion:** These findings are in keeping with FASD prevalence studies that used similar passive surveillance methods. They provide a starting point to better understanding the prevalence and burden of FASD in Canada.

**Keywords:** fetal alcohol spectrum disorder, prevalence, public health surveillance, child health, Canadian Health Survey on Children and Youth

## Highlights

- In 2019, the prevalence of FASD among Canadian children and youth aged 1 to 17 years living in private dwellings was 1 per 1000 (0.1%).
- Canadian children and youth who identified as Indigenous and lived off reserve had a significantly higher prevalence of FASD than those who did not identify as Indigenous (1.2% versus 0.1%).
- The median age of diagnosis for children and youth with FASD was 5.7 years old.
- Most children and youth with FASD had at least one other long-term condition.
- We need national surveillance of FASD to better understand the prevalence of this condition.

## Introduction

Fetal alcohol spectrum disorder (FASD) is a diagnostic term used to describe the impacts on the brain and body of individuals prenatally exposed to alcohol.<sup>1,2</sup> FASD is a lifelong disability. Individuals with FASD will experience some degree of challenges in their daily living and need support with motor skills, physical health, learning, memory, attention, communication, emotional regulation and social skills to reach their full potential.

Each individual with FASD is unique and has areas of both strengths and challenges.<sup>3</sup>

A significant amount of evidence has accumulated to support prevention and to help in the early identification and diagnosis as well as in estimating prevalence

of FASD.<sup>4</sup> Various methodologies have been used and tested to estimate prevalence, mostly focussing on specific geographical areas and vulnerable populations.<sup>5-7</sup> Prevalence estimates for Canada have neither been consistent nor national in scope. Prevalence of FASD is inherently difficult to measure, mainly because of the challenges associated with recognition, screening and diagnosis.<sup>8</sup> There is no specific biological or genetic marker for FASD. In addition, many children who were adversely affected by prenatal exposure to alcohol will not present with the physical characteristics of FASD such as dysmorphic facial features.<sup>9</sup> Canadian diagnostic guidelines require detailed information on prenatal alcohol exposure for confirmed diagnoses, which is not always available.<sup>9</sup> This makes identifying FASD challenging in all but the most severe cases.<sup>1</sup>

The lack of national FASD prevalence estimates represents an important knowledge gap in informing the public health response. This article aims to provide initial national estimates of the magnitude of FASD prevalence using the 2019 Canadian Health Survey on Children and Youth (CHSCY).

## Methods

The 2019 CHSCY surveyed a national sample of Canadians aged 1 to 17 years, as of 31 January 2019, living in private dwellings in the ten provinces and three territories (n = 39 951; response rate 52.1%).<sup>10,11</sup> Excluded from the survey's coverage are children and youth living on First Nation reserves and other Indigenous settlements

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in the provinces, in foster homes and in institutions.<sup>10</sup> Data were collected via self-reported questionnaire administered to the person most knowledgeable about the child/youth (aged 1–17 years).<sup>11</sup>

Children and youth were identified as having FASD if the respondent answered “yes” to the question: “Has this child been diagnosed with any of the following long-term conditions? – Fetal Alcohol Spectrum Disorder, also known as FASD.”<sup>12</sup>

The following select sociodemographic and health-related variables were included in this study: age (1–11 years vs. 12–17 years), sex (male vs. female) and Indigenous identity (First Nations/Métis/Inuit vs. non-Indigenous).

The median age of diagnosis was derived from the question: “How old was this child when first diagnosed with the following conditions? – Fetal Alcohol Spectrum Disorder, also known as FASD.”<sup>12</sup>

Children/youth were identified as having another long-term condition if the respondent answered “yes” to the question: “Has this child been diagnosed with any of the following long-term conditions?” Conditions included asthma, diabetes, epilepsy, anxiety disorder, mood disorder, eating disorder, learning disability/disorder, attention deficit disorder/attention deficit hyperactivity disorder (ADD/ADHD), autism spectrum disorder and other unspecified conditions.<sup>12</sup>

Descriptive analyses were conducted to examine the prevalence of FASD among Canadian children and youth. Where relevant, the estimates for those with FASD were compared to those without this diagnosis. All estimates were weighted to be representative of the Canadian population aged 1 to 17 years, and we used the bootstrap method to calculate variance estimates, including 95% confidence intervals (CI) and coefficients of variation. All analyses were carried out using the statistical package SAS Enterprise Guide version 7.1.<sup>13</sup> Results were suppressed if the sampling variability was high (coefficient of variation was over 35%).

## Results

In 2019, an estimated 9400 (based on an unweighted sample size of 54), or 1 per 1000 Canadian children and youth aged 1 to 17 years, had been diagnosed with FASD (0.1%<sup>c</sup>; 95% CI: 0.1–0.2) (Table 1). This represents 1 per 1000 children/youth aged 1 to 11 years (0.1%<sup>d</sup>; 95% CI: 0.0–0.2) and 2 per 1000 aged 12 to 17 years (0.2%<sup>c</sup>; 95% CI: 0.1–0.3). The prevalence was the same for male and female children and youth.

While data were available to examine various socioeconomic variables, such as ethnicity (visible minority/not visible minority), urban/rural status, income and education, the high sampling variability associated with the resulting estimates did not allow for these to be reported.

The prevalence of FASD among Indigenous children and youth living off reserve was 1.2%<sup>d</sup> (95% CI: 0.4–1.9) compared to 0.1%<sup>c</sup> (95% CI: 0.1–0.1) for non-Indigenous children (Table 1). These estimates, while statistically significantly different, should be interpreted with caution as they are associated with high coefficients of variation.

The median age of diagnosis for children and youth with FASD was 5.7 years old

(95% CI: 3.8–7.6); this did not differ statistically significantly when examined by sex or other sociodemographic variables (data not shown).

FASD is a condition associated with a high number of comorbidities.<sup>14</sup> The majority (82.7%; 95% CI: 66.5–98.9) of children and youth with FASD had at least one other long-term condition compared with just under a quarter (23.4%; 95% CI: 22.8–24.0) of those without FASD. Of those aged 5 to 17 years, 64.7%<sup>c</sup> (95% CI: 45.1–84.3) had a diagnosed learning disability/disorder; 44.3%<sup>c</sup> (95% CI: 25.3–63.3) had a diagnosed anxiety disorder; and 32.9%<sup>d</sup> (95% CI: 14.7–51.1) had a diagnosed mood disorder (Table 2). Of those aged 1 to 17 years, 69.6% (95% CI: 51.5–87.7) had diagnosed ADD/ADHD and 31.9%<sup>d</sup> (95% CI: 13.6–50.2) had other non-specified diagnosed long-term conditions (Table 2).

## Discussion

Based on the data from the 2019 CHSCY, the estimated national prevalence of diagnosed FASD among children and youth aged 1 to 17 years is 1 per 1000 or 0.1%<sup>c</sup>. No statistically significant differences were found between males and females, but the prevalence of FASD was higher

**TABLE 1**  
Prevalence of FASD among children and youth, 1–17 years old, by select demographic characteristics, Canada, 2019

Demographic characteristic	Prevalence, % (95% CI) (n = 9382)
<b>Age (years)</b>	
1–11	0.1 (0.0–0.2) <sup>d</sup>
12–17	0.2 (0.1–0.3) <sup>c</sup>
<b>Sex</b>	
Male	0.1 (0.1–0.2) <sup>d</sup>
Female	0.1 (0.1–0.2) <sup>d</sup>
<b>Indigenous identity</b>	
Indigenous (First Nations, Métis, Inuit)	1.2 (0.4–1.9) <sup>d</sup>
Not Indigenous	0.1 (0.1–0.1) <sup>c</sup>
<b>Overall</b>	<b>0.1 (0.1–0.2)<sup>c</sup></b>

Source: 2019 Canadian Health Survey on Children and Youth.

Abbreviations: CI, confidence interval; FASD, fetal alcohol spectrum disorder.

<sup>c</sup> High sampling variability (coefficient of variation between 15.0% and 25.0%).

<sup>d</sup> High sampling variability (coefficient of variation between 25.0% and 35.0%).

Notes: Percentages and 95% confidence intervals are based on weighted data. Weighted estimates are based on an overall unweighted sample size of 54.

<sup>c</sup> High sampling variability (coefficient of variation between 15.0% and 25.0%).

<sup>d</sup> High sampling variability (coefficient of variation between 25.0% and 35.0%).

**TABLE 2**  
**Long-term health conditions among children and youth, 1–17 years old, with or without FASD, Canada, 2019**

Long-term health condition (age range in years)	With FASD, % (95% CI) (n = 9382)	Without FASD, % (95% CI) (n = 6 557 361)
<b>Learning disability/disorder (5–17)</b>		
Yes	64.7 (45.1–84.3) <sup>c</sup>	8.4 (7.9–8.8)
No	35.3 (15.7–54.9) <sup>d</sup>	91.6 (91.2–92.1)
<b>Anxiety disorder (5–17)</b>		
Yes	44.3 (25.3–63.3) <sup>c</sup>	5.1 (4.8–5.5)
No	55.7 (36.7–74.7) <sup>c</sup>	94.9 (94.5–95.2)
<b>Mood disorder (5–17)</b>		
Yes	32.9 (14.7–51.1) <sup>d</sup>	2.1 (1.8–2.3)
No	67.1 (48.9–85.3)	97.9 (97.7–98.2)
<b>ADD/ADHD (1–17)</b>		
Yes	69.6 (51.5–87.7)	6.7 (6.3–7.1)
No	30.4 (12.3–48.5) <sup>d</sup>	93.3 (92.9–93.7)
<b>Other long-term condition (1–17)</b>		
Yes	31.9 (13.6–50.2) <sup>d</sup>	6.7 (6.4–7.1)
No	68.1 (49.8–86.4)	93.3 (92.9–93.6)

Source: 2019 Canadian Health Survey on Children and Youth.

Abbreviations: ADD/ADHD, attention deficit disorder/attention deficit hyperactivity disorder; CI, confidence interval; FASD, fetal alcohol spectrum disorder.

<sup>c</sup> High sampling variability (coefficient of variation between 15.0% and 25.0%).

<sup>d</sup> High sampling variability (coefficient of variation between 25.0% and 35.0%).

Notes: Percentages and 95% confidence intervals are based on weighted data. Weighted estimates are based on an overall unweighted sample size of 54 (for those with FASD) and 39 897 (for those without FASD).

Too few children and youth with FASD reported having asthma, diabetes, epilepsy, eating disorder or autism spectrum disorder to report these estimates.

among children and youth identifying as Indigenous and living off reserve.

Canadian prevalence studies of FASD have employed various methods including clinical examinations and active case ascertainment while focussing on different population groups, jurisdictions and age ranges.<sup>5,15</sup> Published Canadian estimates range from 0.09%, using an early childhood development instrument,<sup>5</sup> to 1.4% to 4.4%, using active methods of case ascertainment.<sup>15,16</sup> Similar studies conducted in Australia, the United States and countries in Western Europe, albeit using different methods and covering different ages, found FASD prevalence ranges between 1% and 5% among children.<sup>6,17–20</sup> Our finding of 0.1% is in the lower end of this range, but is in keeping with studies that used a passive case ascertainment approach,<sup>5</sup> although far lower than those using an active case ascertainment method.<sup>15</sup>

Canadian children and youth who identified as Indigenous and who lived off reserve had a significantly higher

prevalence of FASD than those who did not (1.2% versus 0.1%). Data from the CHSCY cannot be examined for differences in diagnostic practices, access to care or other factors that could account for the differences in prevalence. However, this estimate is in line with other studies that focussed on Indigenous populations.<sup>21</sup> One study found that the pooled prevalence of FASD among Indigenous children and youth living on and off reserve in Canada was 8.7%, compared to 0.5% in the general population.<sup>21</sup> Similar patterns were found among children and youth in Western Australia and the southwest United States, also with large Indigenous populations.<sup>6,7,22</sup> These studies reported FASD prevalence estimates from 2%<sup>6</sup> to close to 20%.<sup>7</sup> The prevalence of FASD among First Nations children living on reserve has decreased over time: the 2015–2016 First Nations Regional Health Survey reported the prevalence to be 0.5%, down from 1.8% in 2002–2003.<sup>23</sup>

The difference in prevalence rates among Indigenous children and youth living off reserve and non-Indigenous children and

youth cannot be associated solely with differences in prenatal alcohol exposure. Interconnected and complex factors have been identified and linked to FASD and prenatal alcohol exposure. These factors include the devastating effects of colonization, including residential school experiences, and the ongoing economic and social marginalization that Indigenous peoples experience.<sup>24</sup>

### Strengths and limitations

A strength of this study is that the 2019 CHSCY is a national, population-based survey that covers a wide range of topics and allows for an in-depth look into the health and sociodemographic characteristics of Canadian children and youth. At present, the CHSCY is the only national source of data allowing the calculation of national FASD prevalence estimates. Nevertheless, despite representing 98% of the Canadian population, the CHSCY does not include population groups of children and youth with known higher prevalence rates of FASD,<sup>21,25</sup> that is, those living on First Nations reserves and other Indigenous settlements in the provinces, in foster homes or in institutions. These exclusions may have resulted in underestimating the prevalence of FASD among Canadian children and youth.

While acceptable for reporting, the number of FASD cases in this analysis was small. Analyses to investigate the role of sociodemographic factors among those with FASD could not be reported due to high sampling variability. Furthermore, as stigma may be attached to a diagnosis of FASD, underreporting can be expected.<sup>15</sup>

In this analysis, over three-quarters of children and youth with FASD had another co-occurring condition. Popova and others<sup>14</sup> hypothesized that the number of co-occurring conditions in individuals with FASD could account for lower than expected prevalence estimates of FASD. These other conditions could be behind sought-after medical attention, leading to an underdiagnosis of the underlying cause (i.e. FASD) of the comorbidity.<sup>14</sup>

Passive approaches to data collection, such as the CHSCY, are more efficient and representative, but tend to generate the lowest estimates for the reasons noted above. Active and clinical approaches, while producing higher prevalence estimates and more detail on FASD cases, are



more expensive and time consuming, and thus usually target particular geographical areas of interest or subpopulations.<sup>4</sup>

## Conclusion

National surveillance of FASD is needed to gain a better understanding of the estimated prevalence and provide baseline numbers against which future public health actions can be evaluated. Using data from the 2019 CHSCY, we estimated the prevalence of FASD among Canadian children and youth living in private dwellings to be 1 per 1000.

This analysis presents, to our knowledge, the first national FASD prevalence estimate in Canada. It provides a starting point to identify the burden of this preventable condition. In light of the existing challenges, a combination of passive and active surveillance approaches and/or data sources may be required to establish FASD surveillance in Canada.

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## Conflicts of interest

None.

## Authors' contributions and statement

SP analyzed the data, and AP and SP drafted the paper. All authors contributed to the study concept, informed the data analysis, assisted in the interpretation of results, critically revised the manuscript and approved the final version.

The content and views expressed in this At-a-glance article are those of the authors and do not necessarily reflect those of the Government of Canada.

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