




BMJ Open Cross-sectional survey of the Mental health and Addictions effects, Service impacts and Care needs of children, youth and families during the COVID-19 pandemic: the COVID-19 MASC study protocol

Roula Markoulakis ,^{1,2} Maida Khalid,¹ Andreina Da Silva,¹ Sugy Kodeeswaran,³ Mark Sinyor,^{1,2,3} Amy Cheung,^{1,2,3} Donald Redelmeier ,^{1,2,3} James MacKillop ,⁴ Michael Scarpitti,⁵ Hannah Laird,⁶ Jeanne Foot,⁷ Anthony Levitt^{1,2,3}

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For numbered affiliations see end of article.

Correspondence to
Dr Roula Markoulakis;
roula.markoulakis@sunnybrook.ca

ABSTRACT

Introduction The COVID-19 pandemic has had a tremendous negative effect on the mental health and well-being of Canadians. These mental health challenges are especially acute among vulnerable Canadian populations. People living in Canada's most populous province, Ontario, have spent prolonged time in lockdown and under public health measures and there is a gap in our understanding of how this has impacted the mental health system. This protocol describes the Mental health and Addictions Service and Care Study that will use a repeated cross-sectional design to examine the effects, impacts, and needs of Ontario adults during the COVID-19 pandemic.

Methods and analysis A cross-sectional survey of Ontario adults 18 years or older, representative of the provincial population based on age, gender and location was conducted using Delvinia's AskingCanadians panel from January to March 2022. Study sample was 2500 in phases 1 and 2, and 5000 in phase 3. The Alcohol, Smoking and Substance Involvement Screening Test and Diagnostic Statistical Manual-5 Self-Rated Level 1 Cross-Cutting Symptom Measure-Adult were used to assess for substance and mental health concerns. Participants were asked about mental health and addiction service-seeking and/or accessing prior to and during the pandemic. Analyses to be conducted include: predictors of service access (ie, sociodemographics, mental illness and/or addiction, and social supports) before and during the pandemic, and χ^2 tests and logistic regressions to analyse for significant associations between variables and within subgroups.

Ethics and dissemination Ethics approval was obtained from the Sunnybrook Research Ethics Board. Dissemination plans include scientific publications and conferences, and online products for stakeholders and the general public.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ The repeated cross-sectional study design allows for the comparison of data, including changes in trends regarding needs, using validated measures.
- ⇒ Youth mental health and addictions needs and service access/support-seeking trends relative to the pandemic can be analysed via caregiver perspectives.
- ⇒ Data are derived from a provincially representative sample, enhancing external validity.
- ⇒ The main limitation of this study is that many survey items are retrospective in nature, leading to risk of recall bias.
- ⇒ Additional limitations include: online-only and English-language-only availability of the survey.

INTRODUCTION

Mental health and addictions (MHA) concerns carry a profound societal and personal burden which has been magnified by the COVID-19 pandemic.^{1 2} While MHA issues have been estimated to affect one in five Canadians at any given time,¹ recent reports suggest that psychological distress levels have doubled since the onset of the pandemic.³ Reasons cited for such increases among Canadians have included: concerns regarding themselves or loved ones contracting COVID-19, uncertainty over employment and financial hardships, fear of the unknown, social isolation as a result of pandemic measures (lockdowns, physical distancing, etc), and worries associated with following and/or others not abiding by guidelines.³ A recent poll found that 45% of Canadians reported

a negative impact on their mental health as a result of the pandemic.⁴ Among these mental health challenges, anxiety and depression remain the leading causes of disruption to Canadians' ability to function during the pandemic.⁴ Substance use has also increased during the pandemic, with considerable proportions of Canadians aged 35–54 (25%) and 18–34 (21%) reporting an increase in alcohol consumption since the onset of the pandemic.^{5 6} In addition, Canadians with self-perceived fair or poor mental health reported heightened use of tobacco, alcohol, and cannabis during the pandemic.⁷ Furthermore, while rates of suicide worldwide do not appear to have increased during the pandemic so far, Ontario is a potential outlier where increased risk of suicide has been observed in the general population.⁸ As we move to a post-COVID-19 society, an increase in delayed suicidal ideation/suicidal behaviour is of particular concern as sustained employment and economic uncertainty and its related stressors (including residual effects of isolation) intersect with hopelessness and existing mental health conditions.⁹ Distinct Canadian populations are particularly vulnerable to the mental health impacts of the COVID-19 pandemic, including women, children and youth, caregivers, and ethnically diverse, marginalised, and Indigenous communities.^{2 10} These groups are more likely to experience heightened anxiety and depression during the pandemic compared with other groups.¹⁰ Globally, the province of Ontario spent the greatest amount of time in lockdown and under public health measures (at the time of data collection),¹¹ necessitating a clear understanding of mental health and substance use impacts in this jurisdiction. Therefore, the aim of this study is to understand the MHA effects, service impacts, and care needs of Ontarians during the COVID-19 pandemic.

Children and youth

Children and youth are particularly vulnerable to pandemic-related stressors, such as disruptions in education and employment, family stress and emotional difficulties caused by social isolation, which can amplify pre-existing mental illness and/or result in new mental illness.^{1 12–15} The Mental Health Commission of Canada (MHCC) identified that the proportion of youth ages 15–24 reporting poor mental health (63.8%) during the pandemic was the highest of any age group.¹⁴ This decline in mental health has been associated with pandemic-related disruption to protective factors, such as environments that provide children and youth structure and safety.¹⁵ Heightened anxiety (31%) and depression (26%) are also of notable concern among youth.^{4 13 14} Elevated anxiety rates and increased depressed mood have been attributed to pandemic uncertainty, disruptions in daily routines, concerns over preserving social relationships, worry about loved ones' health, and social isolation and loneliness resulting from school closures and pandemic measures (ie, physical distancing requirements).^{13 14 16 17} Other commonly reported negative consequences of the

pandemic included increased fear, stigma, exposure to abuse and systemic racism, post-traumatic stress symptoms, substance abuse, disturbances in sleep and appetite, and suicidal behaviours and suicidal ideation.^{14 16} Persistent fears arising as a result of social isolation and loneliness are concerning among youth, regardless of changes in pandemic-related restrictions.¹⁸ These impacts must be clearly understood to effectively support youth experiencing MHA concerns during the pandemic and beyond.

Caregivers

Disproportionately higher poor mental health outcomes have also been reported among caregivers of youth during the pandemic, with increased internal and external parental/caregiver stressors resulting in elevated rates of anxiety, depression, stress and helplessness.^{19 20} Such adverse MHA effects have been attributed to such factors as pervasive economic/financial instability^{2 6 19 20}; loss of employment^{2 6 19 20}; social isolation and stay-home orders^{2 6 19}; concern over own health and health of family members²; family stress (ie, disruption of family routines, loss of respite, interpersonal conflict)^{6 19 20}; increased demands of caregiving including responsibilities to dependents^{6 19 20}; loss of pre-pandemic educational and childcare supports^{19 20}; and loss of recreational downtime.^{19 20} Perhaps the most critical consideration for parents/caregivers is the disruption in the management of both internal (ie, coping behaviours) and external (ie, programmes or services) resources that enable parents/caregivers to balance stressors.¹⁹ Furthermore, research during the pandemic suggests 57% of all caregivers meet criteria for depression, and 48% express moderate to high levels of concerns over managing their child's anxiety and stress, 32% report needing help with their child/youth's mood and/or behaviour, and 32% endorse needing help with their own mental health concerns.²⁰ Altogether, these data suggest that considering caregiver perspectives will not only yield further insight into the pandemic's effects on youth and their service needs, but also guide approaches to healthcare needs of caregivers themselves.

Marginalised communities

Existing research exploring pandemic-related uncertainty has highlighted the emergence of many MHA-related inequities faced by ethnically and linguistically diverse, and marginalised communities.^{12 14 19} These populations include refugees^{12 14}; immigrants¹²; those living in poverty,^{12 14} persons living in rural and remote areas^{12 14}; those identifying as First Nations, Inuit and Métis (Indigenous ethnicity),^{12 14} persons with disabilities,¹⁴ and persons with diverse sexual orientation and gender identities.¹⁴ Marginalised youth in particular are at higher risk of COVID-19-related adverse effects due to the multiplicity of disparities associated with social determinants of health.¹⁴ The stigma and discrimination faced by such groups may inadvertently prevent them from accessing equitable MHA-related health and community supports/

services.¹⁴ For example, it might be difficult for those in low-income households or those without stable housing to abide by public health measures such as virtual schooling and home-based quarantine due to lack of appropriate resources.¹⁴ During the pandemic, marginalised communities continue to experience disproportionately higher levels of unemployment and financial insecurity, and higher representation in low-wage employment.²¹ Thus, it is crucial to consider the experiences of these communities so they receive the supports they require to ensure equitable care and inclusive recovery.

MHA services and supports

MHA concerns have shown to persist even as pandemic-related restrictions are lifted, suggesting MHA challenges may continue in the longer term.^{2 22 23} These postpandemic impacts, or ‘aftershocks,’ are likely to heighten difficulties for many Canadians and will place a substantial burden on an already strained MHA system.²⁴ Postpandemic recovery will depend on availability and accessibility of adequate MHA services and supports.^{13 23} Prior to the COVID-19 pandemic, 22% of all Canadians reported that their needs for MHA services were only partially met and 21% reported their needs were not met at all.²⁵ During the pandemic, 45% of all Canadians reported their need for MHA services were only partially met (22.5%) or not met at all (22.5%) of which about 40% comprised of youth aged 12–18 years.²⁶ Recent research shows that 59% of Canadians have expressed a need for relevant and effective MHA services, especially during the emergence of the Omicron variant (approximately 21 months after the pandemic was declared).^{4 27} Similarly, a recent survey conducted by the MHCC showed that youth reported inadequate MHA services and other mental health supports as one of the most detrimental service access challenges during the pandemic.¹⁴

In compliance with public health measures, many MHA services in Ontario pivoted to virtual care for those struggling during the pandemic.¹² While this shift has been crucial in providing swift MHA services and ensuring continuity of mental healthcare by reducing the deleterious effects of pandemic-related restrictions (ie, isolation),²⁸ it may not be equitable due to multiple barriers associated with level of need and sociodemographic factors.¹² Of the Canadians with unmet or partially unmet MHA needs, 78.5% stated personal barriers as reason for their unmet needs.²⁶ The most common reported barriers include: lack of MHA system knowledge and MHA literacy; lack of transportation or means to get to services/supports; conflicting employment schedules; lack of financial means (eg, no insurance, no resources to pay for private care); cultural or language barriers, concerns about discrimination and stigma; lack of trust in the MHA system; and long wait times.^{19 25 26} The types of identified barriers are consistently present across diverse populations despite differences in mental health and sociodemographic factors. Regardless, as services begin to operate in post-COVID environments, it is worth

considering the continued use of virtual care in conjunction with in-person supports especially for vulnerable and/or marginalised populations to reinforce resilience and alleviate the impacts of the pandemic and its possible aftershocks.¹⁸

The highlighted work demonstrates the imperative that the MHA concerns and service/care needs of Ontarians in relation to their sociodemographic characteristics and experiences during the COVID-19 pandemic be identified and understood. Findings from this research will provide crucial information about Ontarians’ preferences for MHA care, identify the factors influencing MHA service seeking and access, and inform decision-making regarding targeted MHA service planning and response to meet the current and future needs of Ontarians with MHA concerns. Furthermore, focused exploration of child, youth, and caregiver MHA concerns and service needs will be conducted, via caregiver report.

OBJECTIVES

The objectives of the study are as follows:

1. To determine the proportion of Ontarians ages 18+ that identify MHA concerns and service needs during the COVID-19 pandemic.
2. To investigate whether there are differences in various sociodemographic, resiliency, pandemic experience and social support factors.
3. To identify the barriers associated with support needs.
4. To describe MHA support seeking and service access.
5. To explore the above objectives, as they pertain to children and youth ages 0–30 and/or relate to burden on the caregiver.

METHODS AND ANALYSIS

Study design

The study is a community-based, cross-sectional survey investigating the MHA experiences, perspectives and concerns of Ontario adults 18+ during the COVID-19 pandemic, matched to the population of Ontario by age, gender and geographical region. The official survey was conducted in three phases: phase 1, phase 2 and phase 3, which were completed in August 2020, March 2021 and March 2022, respectively, to coincide with the Ontario government-declared COVID-19 wave occurrences.²⁹ The survey was circulated online and took approximately 20 min to complete.

Patient and public involvement

Patient partners have been involved at every stage of study conception, design and tool development. Prior to pilot testing, the survey was reviewed by patient and general public stakeholder representatives, who were engaged to foster active collaboration and to assess the appropriateness of survey items from their unique perspectives on MHA concerns. A survey pilot to test for quality assurance was conducted with 57 Ontarians who were within a priori

Table 1 Phase 1 and Phase 2 a priori quotas by region

Postal (region)	%	Sample (N)
M (Toronto)	15	375
N (Southwestern Ontario)	25	625
K (Eastern Ontario)	20	500
L (Central Ontario)	30	750
P (Northern Ontario)	10	250
Ontario total	100	2500

quotas and were not involved in the development of the survey. Apart from question formatting, there were no changes to survey content as a result of the pilot.

Participants and recruitment

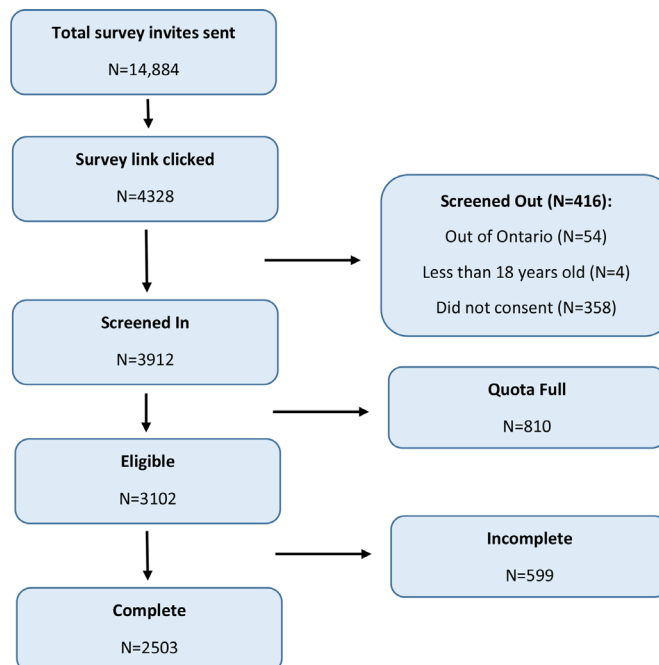
Participants were recruited through Delvinia's Asking-Canadians respondent panel.³⁰ Individuals registered with AskingCanadians, whose profile matched a priori quotas, were randomly sent the survey link and of those that clicked the link and were eligible provided informed consent. To ensure provincial representativeness, interlocking quotas based on age, gender and regional population (Toronto, Southwestern, Eastern, Central and Northern) were used (see tables 1 and 2). Targeted oversampling was conducted in regions less densely populated and more likely to have a harder-to-reach demographic, particularly in Northern Ontario, in order to improve confidence intervals for prevalence estimates for MHA.

Sampling and completion rates

Relevant data were extracted from a provincially representative sample of 2500 Ontarians age 18 years or older over a 4-week and 3-week time period for phase 1 and phase 2, respectively. By the end of the data collection period, phase 1 garnered 2503 participants with a response rate of 16.8% and a completion rate of 81% (see figure 1). Phase 2 closed out with 2528 participants with a response rate of 13.2% and a completion rate of 79% (see figure 2). In phase 3, the proposed number of recruits was doubled. This increase in sample size reflected additional stratification proposed for analysis of caregiver perspectives of youth MHA concerns and service needs. Phase 3 garnered 5000 participants with a response rate of 7.94% and a completion rate of 78.9% (see figure 3). All three phases had acceptable response rates.³¹

Table 2 Phase 3 a priori quotas by region

Postal (region)	%	Sample (N)
M (Toronto)	15	750
N (Southwestern Ontario)	25	1250
K (Eastern Ontario)	20	1000
L (Central Ontario)	30	1500
P (Northern Ontario)	10	500
Ontario total	100	5000

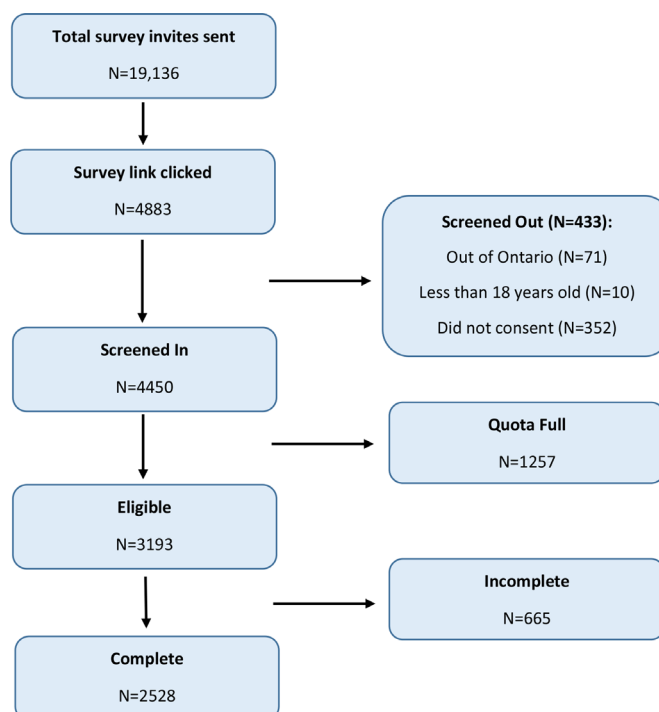
**Figure 1** Completion rate of survey in phase 1.

Respondent distribution overlap was observed, resulting in the same respondents completing phase 1 and phase 2 (n=337) or phase 1 and phase 3 (n=765) or phase 2 and phase 3 (n=588) or all three phases (n=161).

Inclusion and exclusion criteria

Inclusion criteria

- ▶ Age >18 years.
- ▶ Living in the province of Ontario, Canada.

**Figure 2** Completion rate of survey in phase 2.

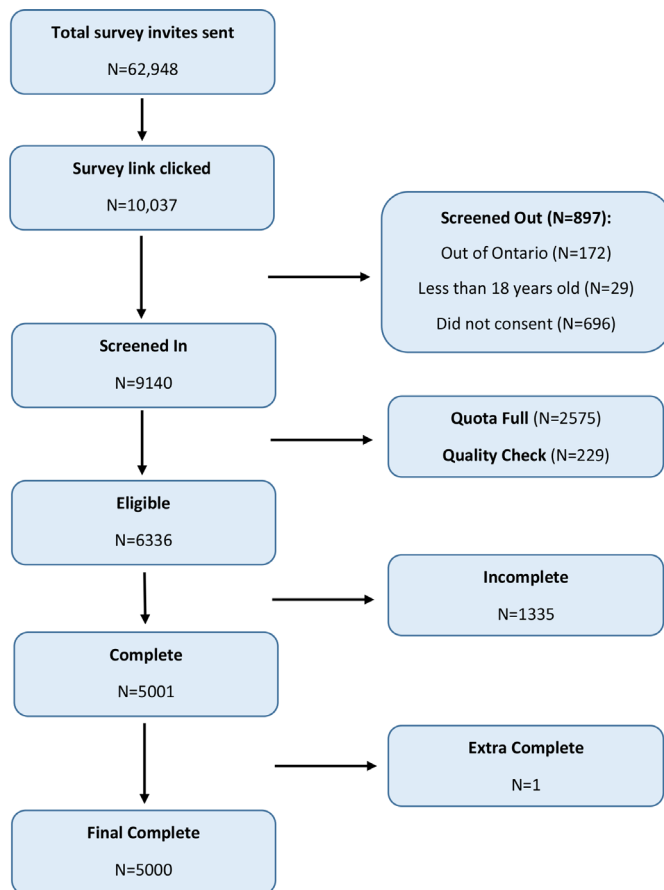


Figure 3 Completion rate of survey in phase 3.

- ▶ Registered with Delvinia's AskingCanadians respondent panel.

Exclusion criteria

- ▶ Respondent's quota full (based on a priori quotas for age, gender and region).

Study variables

For a summary of the study variables included in each phase of data collection, refer to [table 3](#). Descriptions of survey content areas and variables collected across phases are provided below.

Sociodemographic variables

Respondents provided age, gender identity, sexual orientation, ethnicity, geographical location (first three digits of postal code), education level, marital status and living situation. Socioeconomic status (SES) was assessed using the MacArthur Scale of Subjective Social Status-Adult Version both in relation to the time prior to the pandemic and at the time of the survey being taken.³²

General health and MHA concerns

Impact on general physical and mental health as a result of the pandemic was assessed with an original single item, seven-point bipolar Likert scale (1=very much better, 4=neither better or worse, 7=very much worse). Assessment of general health varied by time in each phase but

consistently examined effects in comparison with the time prior to the pandemic; Phase 1 considered this outcome in comparison to 'the few months before pandemic', phase 2, 'a year ago, before the pandemic began' and phase 3, 'before the pandemic'.

The presence of mental health concerns was assessed by the American Psychiatric Association's Diagnostic Statistical Manual-5 Self-Rated Level 1 Cross-Cutting Symptom Measure, Adult version.³³ This measure has good to excellent test-retest reliability (0.60–1 intraclass correlation coefficient) and is clinically significant in Canadian populations.³⁴ Substance use was assessed via the WHO Alcohol, Smoking and Substance Involvement Screening Test V.3.0.³⁵ This scale classifies participants into low-risk, moderate-risk and high-risk categories for substance use and dependence, and has good internal validity (Cronbach's $\alpha=0.89$)^{35 36} and good to excellent test-retest reliability ($\kappa=0.58$ – 0.90).³⁷ A general assessment of perceived substance use was also included in phase 1 only, whereby participants were asked how they anticipated the amount or frequency of substance use would change over the next 6 months, via an original single item, seven-point bipolar Likert scale (1=will very much reduce, 4=no change, 7=will very much increase).

MHA supports and service needs and preferences

MHA supports and/or services need were evaluated via original checklist developed for the purpose of identifying the types of services respondents: (1) received and accessed and (2) desired but did not access, either one-on-one, in a group, and/or at a treatment centre (see [box 1](#)). This checklist was adapted from one developed previously by research team members.³⁸ Respondents also indicated via yes/no response whether they were seeking new service/support. Satisfaction with services/supports received was assessed with a seven-point Likert scale (1=extremely satisfied, 7=extremely dissatisfied). Participants also identified, using an original checklist, perceived barriers to service access (see [box 2](#)). Preferences regarding how helpful various types of supports (eg, case manager, peer worker, primary healthcare provider, navigator, multimedia resources, and informational and referral services) were in finding MHA services and preferred mode of access (eg, in-person one-on-one, video conferencing, one-on-one phone contact, email, text messaging, and professional-led in-person, online video, and phone group) to desired services were assessed using a five-point Likert scale (1=extremely helpful, 5=not at all helpful). These items were also adapted from measures developed previously by members of the research team.³⁸

Social support and positive perceptions scale

Respondents' satisfaction with the availability of social supports (eg, friends, family, romantic partners, community groups, coworkers, pets) prior to and since the onset of the pandemic was evaluated via an original seven-point bipolar Likert scale (1=extremely satisfied, 4=neither satisfied nor dissatisfied, 7=extremely dissatisfied). An

**Table 3** Survey outcome measures documented by phase

	Phase 1	Phase 2	Phase 3
Sociodemographics			
Age, gender, ethnicity, marital status, living situation, SES	✓	✓	✓
Sexual orientation	✗	✗	✓
Education level	✓	✓	✓*
General health			
Mental & physical health	✓	✓	✓
COVID comorbidities	✓	✗	✗
Mental health concerns			
DSM-5 Self-Rated Level 1 Cross-Cutting Symptom Measure	✓	✓	✓
Additional Self-Harm and Suicide Items	✗	✓	✓
Substance use			
ASSIST and self-perceived use	✓	✓	✓
MHA care needs and preferences			
Service utilisation and access checklists:	✓	✓	✓
1. Services receiving/accessed			
2. Services desired/seeking			
3. Barriers to access			
Satisfaction with services	✓	✓	✓
Support types and mode preferences	✓	✓	✓
COVID-19 experiences			
Impacts of pandemic checklist	✓	✓	✓
Anxiety of self or others contracting COVID	✓	✓	✓
COVID-19 symptoms: types, duration and severity	✗	✓	✓†
Vaccine intentions and status	✗	✓‡	✓
Social support and Positive Perceptions Scale			
Satisfaction with social supports	✓	✓	✓
Positive Perceptions Scale	✗	✓	✓
Caregiving responsibilities			
Caregiver strain	✗	✗	✓
Impact on own well-being	✓	✓	✓
Youth MHA needs (reported by caregiver)			
Count, demographics, and general MHA observation and service access	✓	✓	✓
Emotional, behavioural and substance use concerns	✗	✗	✓
MHA service access for youth with greatest need (reported by caregiver)			
Service types accessed	✗	✗	✓
Need for service and waitlist status	✗	✗	✓
Barriers to access	✗	✗	✓
Support type preferences	✗	✗	✓

*Amended to include 'More than one university degree (ie, Master, PhD)'.
 †Duration and severity assessed only.
 ‡No dose 3/booster.

ASSIST, Alcohol, Smoking, and Substance Involvement Screening Test; DSM-5, Diagnostic Statistical Manual-5; MHA, mental health and

addictions; SES, socioeconomic status.

Box 1 Types of services and supports endorsed to caregivers and youth

Service/support

- ⇒ Sessions with a private therapist/counsellor.
- ⇒ Addiction assessment and/or treatment (eg, detox/withdrawal management).
- ⇒ Treatment from a family physician or walk-in clinic doctor.
- ⇒ Assessment by a psychiatrist (eg, consultation for diagnosis and treatment planning).
- ⇒ Treatment by a psychiatrist (eg, medication management, follow-up, psychotherapy).
- ⇒ Crisis supports/interventions.
- ⇒ Culturally specific mental health and addiction services.
- ⇒ MHA supports focused on education and employment goals.
- ⇒ In-patient hospital programme.
- ⇒ Parental/caregiver supports.
- ⇒ Non-hospital based residential or live-in treatment.
- ⇒ Supportive housing (including Group Homes).
- ⇒ Case Management.
- ⇒ Educational/vocational supports (including Section 23 schools).
- ⇒ Financial Support (ie, disability support, social assistance, special grants).
- ⇒ Two-Spirit, Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, Asexual, and additional sexual orientations and/or gender identities (2SLGBTQIA+) supports.
- ⇒ Outpatient treatment programme (including day treatment programmes).

original six-item questionnaire was used to assess changes in participants' experiences of feeling grateful, fortunate, healthy, physically strong, resilient and successful since the pandemic was declared. Responses ranged from a lot more (1) to a lot less (5).

COVID-19 and vaccine experiences

COVID-19 impact was assessed using an original five-item risk checklist, with responses signifying high risk (being tested by rapid antigen and diagnosed with SARS-CoV-2 infection, being tested by PCR and diagnosed with SARS-CoV-2 infection, and/or being told they had SARS-CoV-2 infection by a professional) and low risk (suspecting they had COVID-19 but not tested and/or tested by rapid antigen or PCR for SARS-CoV-2 infection but negative). For those self-reporting as positive, date of onset and

Box 2 Caregivers' perceived barriers to service engagement

Barriers

- ⇒ Lack of availability of services close to home.
- ⇒ Unavailability of preferred service format.
- ⇒ Unavailability of preferred service type.
- ⇒ Lack of adequate internet service for online care.
- ⇒ Service closures.
- ⇒ Financial costs.
- ⇒ Waiting lists.
- ⇒ Hesitancy to initiate service for personal reasons.
- ⇒ Decision to maintain service being received prior to the pandemic.

duration were assessed. Severity of COVID-19 symptoms was assessed via a severity spectrum with responses ranging from critical (1=extremely severe, 2=very severe), to moderate (3=quite severe, 4=a little severe), to mild (5=not severe at all) or asymptomatic (6=did not experience). COVID-19 symptoms were also assessed on level of disability, with responses reflecting asymptomatic to mild (1=not disabling at all), to moderate (2=a little disabling, 3=quite disabling), to critical (4=very disabling, 5=extremely disabling). Level of concern over self and/or someone close developing COVID-19 was assessed on two original items via five-point unipolar Likert scales (1=extremely worried, 5=not worried at all). Participants were asked about COVID-19 vaccination status (via yes/no response) on three separate items for dose 1, dose 2 and dose 3/Booster. Vaccination intentions were assessed separately for all doses, with responses reflecting whether the respondent planned to get the respective vaccination dose, had heard about the vaccination/dose but were undecided, had heard about the vaccination/dose and did not plan to be vaccinated, and had not heard about the vaccination/dose.

Caregiving responsibilities

Impact on well-being as a result of caregiving responsibilities was assessed via a seven-point bipolar Likert scale (1=extremely positive impact, 4=neither positive nor negative impact, 7=extremely negative impact). Disruption in the family/household as a result of the responsibilities to the youth(s) with MHA needs was assessed using the seven-item Caregiver Strain Questionnaire-Short Form (CGSQ-SF).³⁹ The CGSQ-SF has comparable reliability and validity to the original (Cronbach's alphas of 0.88 for the objective subscale and 0.82 for the subjective internalised subscale).⁴⁰

Youth MHA needs

Caregivers were asked to identify the number of children/youth for whom they are the primary caregiver and the age and gender of each child/youth. Caregivers' impression of change in youth's overall physical and mental health since the onset of the pandemic was assessed via a seven-point bipolar Likert scale (1=extremely positive change, 4=neither positive nor negative change, 7=extremely negative change). MHA, emotional and behavioural concerns of the child/youth were assessed using an original 13-item checklist curated through consultations with psychiatric medical professionals (see [box 3](#)). Caregivers' understanding of child/youth substance use was assessed using an original checklist of most commonly used substances (see [box 3](#)). Finally, participants were also asked whether or not (yes/no) their child/youth had shown signs of MHA concerns prior to and since the pandemic was declared.

Youth service access and needs

Items regarding service access/needs were assessed for the self-reported youth of most concern or with the

Box 3 Youth mental health, emotional and behavioural concerns, and commonly used substances

Youth mental health and addiction concerns

- ⇒ Avoiding friends and family.
- ⇒ Having difficulty sleeping.
- ⇒ Drinking a lot of alcohol and/or using a lot of street drugs.
- ⇒ Worrying constantly.
- ⇒ Experiencing frequent or abnormal mood swings.
- ⇒ Overly concerned with their weight or body image.
- ⇒ Lacking energy or motivation.
- ⇒ Attempting to injure themselves.
- ⇒ Seeing or hearing things that others do not see or hear.
- ⇒ Poor concentration, attention or memory.
- ⇒ Low or sad mood.
- ⇒ Persistent irritability.
- ⇒ Obsessions and/or compulsions.
- ⇒ Alcohol.
- ⇒ Cigarettes/nicotine.
- ⇒ Cannabinoids (eg, 'weed', 'grass', 'pot', 'shatter', marijuana, hashish).
- ⇒ Opioids (eg, heroin, opium, fentanyl, morphine, oxycodone, 'purple drank').
- ⇒ Stimulants (eg, cocaine, 'coke', 'speed', amphetamine, methamphetamine, 'crystal meth').
- ⇒ Club drugs (eg, 'Ecstasy', 'E', 3,4-methylenedioxy-methamphetamine (MDMA), rohypnol, gamma hydroxybutyrate (GHB), Midazolam, 'Roofies').
- ⇒ Dissociative drugs (eg, ketamine, phencyclidine (PCP), salvia, dextromethorphan).
- ⇒ Hallucinogens (eg, 'mushrooms', 'shrooms', lysergic acid diethylamide (LSD), mescaline, psilocybin).
- ⇒ Other substances (eg, anabolic steroids, inhalants, such as 'glue', 'poppers').

greatest need. Current MHA service/support access by the child/youth was assessed using an original 16-item checklist adapted from a similar one developed previously by members of the research team (see [box 1](#)).³⁸ Participants also indicated whether they were desirous of, but not receiving, new/additional services/supports. Waitlist status was also assessed via yes/no response. For those selecting 'yes', current duration and expected duration were asked with responses in either weeks, months, or years. Attitudes regarding perceived barriers to finding relevant and effective MHA services were assessed via a five-point Likert scale (1=strongly disagree, 5=strongly agree) (see [box 4](#)). These were adapted from prior work conducted by the research team members.³⁸

Preferences regarding helpfulness of various types of supports (eg, case manager, youth peer support worker, primary healthcare provider, navigator, multimedia resources, and informational and referral services) in finding the most appropriate MHA services for the child/youth were assessed using a five-point Likert scale (1=very helpful, 5=very unhelpful).

Data analysis and statistics

Data will be cleaned (eg, straight-line responses, non-responses, insufficiently complete surveys) prior to

Box 4 Youths' perceived barriers to service engagement

Barriers

- ⇒ Availability of services in youth's first language.
- ⇒ Financial costs.
- ⇒ Availability of culturally sensitive services.
- ⇒ Availability of services close to home.
- ⇒ Caregiver's knowledge about mental health system.
- ⇒ Youth's knowledge about mental health system.
- ⇒ Caregiver's understanding of most appropriate treatment options.
- ⇒ Youth's understanding of most appropriate treatment options.
- ⇒ Availability of most appropriate treatment options.
- ⇒ Youth's motivation to participate in care.
- ⇒ Confidentiality issues (ie, unable to discuss youth's mental health and addictions concerns with caregiver without youth's consent).

analysis. Descriptive statistics (frequency, percentages, means, medians, modes and SD) will be used to describe the characteristics of the variables and any related subgroups. Comparison between the dependent variable(s) of interest such as support-seeking and service access and sociodemographic variables, COVID-19-related variables, and MHA variables will be tested by use of the χ^2 test. Ratios of youth/caregivers that were in need of but were/were not accessing care during the pandemic, self-reported satisfaction with services accessed, and a hierarchy of the kinds of supports preferred by respondents to MHA support/service-seeking and access will be descriptively presented.

Descriptive and regression analyses will demonstrate trends in needs, impacts of the pandemic on the mental health of Canadians, as well as specific needs for different demographic groups and regions. Factors associated with MHA symptomology and unmet care needs during the pandemic will be tested using regression analyses with various covariates (eg, age, sex and SES). Significance of the associations between variables will be analysed using a logistic regression model. Independent variables will include age, gender, ethnicity, geographical location, education and marital status. For all analyses, respective *p* values and/or 95% CIs, along with ORs will be reported.

ETHICS AND DISSEMINATION

Ethical considerations

Ethics approval was granted by the Sunnybrook Research Ethics Board. Any potential conflicts of interests will be declared and all contributors will be acknowledged.

Dissemination

The findings of proposed studies will be submitted for open-access publication in peer-reviewed journals that focus on research involving youth mental health and substance use factors. The findings will also be presented to academic audiences through conferences focusing on MHA concerns and/or COVID-19. The results will be communicated to the general public and stakeholders using project summaries (eg, infographics, webinars) and

online data products (eg, data visualisation and summary tables).

Author affiliations

¹Sunnybrook Research Institute, Toronto, Ontario, Canada

²Temerty Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada

³Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada

⁴Peter Boris Centre for Addictions Research, McMaster University, Hamilton, Ontario, Canada

⁵Canadian Mental Health Association Ontario Division, Toronto, Ontario, Canada

⁶Youth Advisory Council, Family Navigation Project at Sunnybrook, Toronto, Ontario, Canada

⁷Family Advisory Council, Family Navigation Project at Sunnybrook, Toronto, Ontario, Canada

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Competing interests JM is a principal in Beam Diagnostics and a consultant to Clairvoyant Therapeutics.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

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ORCID iDs

Roula Markoulakis <http://orcid.org/0000-0001-9149-025X>

Donald Redelmeier <http://orcid.org/0000-0003-4147-3544>

James MacKillop <http://orcid.org/0000-0002-8695-1071>

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