



RESEARCH ARTICLE

Meeting the service needs of youth with and without a self-reported mental health diagnosis during COVID-19

Ashley Radomski MSc PhD¹, Paula Cloutier MA^{1,2}, Christine Polihronis PhD^{1,3},
Nicole Sheridan BSc¹, Purnima Sundar PhD³, Mario Cappelli PhD^{1,3,4,5}

Abstract

Background: The COVID-19 pandemic catalyzed major changes in how youth mental health (MH) services are delivered. Understanding youth's MH, awareness and use of services since the pandemic, and differences between youth with and without a MH diagnosis, can help us optimize MH services during the pandemic and beyond. **Objectives:** We investigated youth's MH and service use one year into the pandemic and explored differences between those with and without a self-reported MH diagnosis. **Methods:** In February 2021, we administered a web-based survey to youth, 12-25 years, in Ontario. Data from 1373 out of 1497 (91.72%) participants were analyzed. We assessed differences in MH and service use between those with (N=623, 45.38%) and without (N=750, 54.62%) a self-reported MH diagnosis. Logistic regressions were used to explore MH diagnosis as a predictor of service use while controlling for confounders. Results: 86.73% of participants reported worse MH since COVID-19, with no between-group differences. Participants with a MH diagnosis had higher rates of MH problems, service awareness and use, compared to those without a diagnosis. MH diagnosis was the strongest predictor of service use. Gender and affordability of basic needs also independently predicted use of distinct services. **Conclusion:** Various services are required to mitigate the negative effects of the pandemic on youth MH and meet their service needs. Whether youth have a MH diagnosis may be important to understanding what services they are aware of and use. Sustaining pandemic-related service changes require increasing youth's awareness of digital interventions and overcoming other barriers to care.

Key Words: youth, mental health, COVID-19, services

Résumé

Contexte: La pandémie de la COVID-19 a catalysé des changements majeurs de la manière dont les services de santé mentale (SM) sont dispensés aux jeunes. Comprendre la SM des jeunes, la connaissance et l'utilisation des services depuis la pandémie, et les différences entre les jeunes avec et sans un diagnostic de SM peut nous aider à optimiser les services de SM durant la pandémie et au-delà. **Objectifs:** Nous avons investigué la SM et l'utilisation des services des jeunes un an après le début de la pandémie et exploré les différences entre ceux avec et sans un diagnostic de SM

¹ CHEO (Children's Hospital of Eastern Ontario) Research Institute, Ottawa, ON, Canada

² CHEO, Ottawa, ON, Canada

³ Knowledge Institute on Child and Youth Mental Health and Addictions, Ottawa, ON, Canada

⁴ Department of Psychiatry, University, Ottawa, ON, Canada

⁵ School of Psychology, University of Ottawa, Ottawa, ON, Canada

Corresponding E-Mail: cappelli@cymha.ca

Submitted: November 30, 2021; Accepted: December 20, 2022

auto-rapporté. **Méthodes:** En février 2021, nous avons administré un sondage en ligne à des jeunes de 12 à 25 ans en Ontario. Les données de 1373 participants sur 1497 (91,72 %) participants ont été analysées. Nous avons évalué les différences de SM et d'utilisation des services entre ceux avec ($N = 623$, 45,38 %) et sans ($N = 750$, 54,62 %) un diagnostic de SM auto-rapporté. Les régressions logistiques ont servi à explorer le diagnostic de SM comme prédicteur de l'utilisation de services tout en contrôlant les confusions. **Résultats:** 86,73 % des participants ont rapporté une SM pire depuis la COVID-19, sans différences entre les groupes. Les participants ayant un diagnostic de SM avaient des taux plus élevés de problèmes de SM, de connaissance et d'utilisation des services comparé à ceux sans diagnostic. Le diagnostic de SM était le prédicteur le plus fort de l'utilisation de services. Le sexe et l'abordabilité des besoins de base prédisaient aussi indépendamment l'utilisation de services distincts. **Conclusion:** Divers services sont nécessaires pour atténuer les effets négatifs de la pandémie sur la SM des jeunes et répondre à leurs besoins de service. Savoir si les jeunes ont un diagnostic de SM peut être important pour comprendre quels services ils connaissent et utilisent. Soutenir les changements de services liés à la pandémie exige d'accroître la connaissance des jeunes des interventions numériques et de surmonter d'autres obstacles des soins.

Mots clés: jeunes, santé mentale, COVID-19, services

Introduction

The COVID-19 pandemic has introduced multiple, co-occurring stressors for youth, such as drastic changes to their daily routines, social interactions, and educational conditions (1,2). Relative to other life stages, adolescence is a critical period of social and emotional development (3), and one in which mental health (MH) and substance use disorders are more likely to emerge in the face of overwhelming change (4). For many youth, it seems that the MH impacts from COVID-19 have been detrimental (5–8). For others, their MH may not have changed, or even improved, due to fewer social or school-related pressures or increases in family bonding (9–12). For youth with existing MH concerns, diagnoses or risk factors, the MH effects of the pandemic may have been especially harmful (9,13,14), particularly for those whose access to services has been discontinued or disrupted (13).

Since the COVID-19 pandemic, MH service delivery has undergone a massive transformation to comply with safety guidelines and support ongoing access to MH care (15). Two major changes to services included: (1) An abrupt transition to the online delivery of healthcare provider-based services to replace in-person visits ('virtual provider-based services') (16–18), and (2) an increase in government funding to make free or low-cost online counselling, telephone or instant messaging services ('digital MH interventions') more widely available (19). Whether these changes have narrowed or widened the gap in the long-standing rates of unmet service needs for youth is yet to be seen (20,21).

Timely access to MH services may provide the greatest opportunity to influence the future MH trajectories of youth (23). Therefore, understanding youth's MH and use of services amidst the pandemic is critical for responsive service planning and delivery. Additionally, MH diagnosis has

been among the strongest historic predictors of service use (24,25), and there is an indication that MH service use has increased for youth with various MH diagnoses since the pandemic (22). Therefore, it is relevant to explore whether having a diagnosis is related to patterns of service use in youth in the context of COVID-19.

Study aim and objectives

The aim of this study was to better understand the MH status and MH service use of youth during the COVID-19 pandemic. Our objectives were to describe youth's: (1) perceived MH, (2) use of MH services and supports, (3) awareness of services, and (4) suggestions for improving MH services. We explored whether youth with and without a MH diagnosis differed on any of these factors.

Methods

Study design and setting

We conducted a cross-sectional, observational study using a web-based survey of youth in the province of Ontario, Canada.

Participants

Youth were included in the study if they reported they were between 12 and 25 years old, lived in the province of Ontario, and consented to participate.

Participant recruitment

Recruitment took place within a 4-week period from February 19 to March 18, 2021. Recruitment fell within Ontario's 'second wave' of the COVID-19 pandemic—a time when many elementary and secondary schools were open for classroom-based learning, but all post-secondary

institutions offered online learning only (26). We used social media and email invitations to recruit a convenience sample. During the first 2 weeks, paid advertisements were designed to engage a wide variety of potentially eligible youth. During the last 2 weeks, the paid advertisements were adapted to better target youth with demographic characteristics underrepresented in our current sample (i.e., males and/or youth who lived in Northern regions). Paid advertisements were executed using the social media platforms of a children's hospital and regular posts were displayed on the social media platforms (Facebook, LinkedIn, Twitter) of a provincial organization providing evidence-informed resources to improve child and youth MH services. We contacted partnering community child and youth MH and addictions agencies to request they share recruitment materials among their contacts. We also sent a recruitment email to a subset of participants from a previously conducted COVID-19 survey study (27) who agreed to be contacted for future research. Recruitment materials were available in English and French.

Web-based survey

Our web-based survey included 28 items that were based on a survey previously developed by our research team (27), a list of publicly-funded MH services and supports (28,29), and a brief, standardized instrument of psychological distress, the Kessler-6 (30). The Kessler-6 asks respondents to rate the frequency of their symptoms across 6 domains (e.g., hopeless, restless, worthless) in the past 30 days using a 5-point Likert scale (from 0, "All of the time" to 4, "None of the time"). The Kessler-6 has good to excellent internal consistency (30–34) and good predictive validity of affective disorders (31,32,34). The survey assessed participants' demographics, pre-existing and current MH, and their use of MH services and supports. Participants could report whether they had a MH diagnosis by responding "Yes" or "No" to, "Do you have a formal mental health diagnosis?" Participants could also indicate whether they were aware of, or had used, a particular service or support by selecting the option(s) from a predetermined list. The survey was designed by our interdisciplinary team, which included a youth advisor. We pilot tested the survey among our 'in-house' youth advisory committee and three additional youth who helped ensure the survey was age-appropriate, comprehensible, and had good face validity. The survey was available in English or French and responses were non-mandatory and anonymous.

Participant consent and survey administration

The survey was administered through the Research Electronic Data Capture (REDCap) web application (35). The survey took approximately 5-10 minutes to complete. Participants were asked to enter their age and preferred language and read a study information letter before commencing the survey. Following completion, participants could enter a weekly lottery to win a \$100 Amazon gift card using their email address, which was captured and stored separately from survey responses.

Ethics approval

The study was approved by the CHEO research ethics board (Protocol No: 20/34X). The submission of the study information letter and survey responses were considered implied consent for participation.

Data analysis

IBM SPSS v 27 and MedCalc were used for all analyses. Kessler-6 response items were reverse coded whereby higher scores reflected higher psychological distress. Missing items (<1% for each question) were recoded to 0 prior to scoring (36). Total scores on the Kessler-6 ranged from 0-24, and a score of ≥ 13 indicated serious psychological distress (37). We used descriptive statistics to report participant characteristics. We used chi-square tests to compare percentages of participant demographics, Fisher exact tests were used for cell frequencies under 5. Independent samples t-tests were used to compare means and standard deviations (SD) between those with and without a self-reported diagnosis. Three logistic regressions were used to explore whether MH diagnosis was a predictor of our service use outcomes (virtual or in-person provider-based services, self-help resources, and digital MH interventions), while controlling for other confounding variables associated with MH diagnosis and service use (age, gender, racial identity, basic needs, and living situation). Between-group comparisons were conducted to explore whether differences in service use exist to inform service planning for these groups (38,39). Bonferroni corrections were used to correct for multiple comparisons by dividing the significance level (alpha of .05) by the number of tests performed.

Results

A total of 1497 youth began our survey and 1410 completed and submitted their responses (94.19%). Of those 1410 youth, 1373 (97.38%) met eligibility criteria and were retained for analysis.

Participants' demographics

Our sample primarily consisted of English-speaking, female participants who identified as white and were able to “easily” or “very easily” afford their basic needs (Table 1). The mean age of participants was 19.78 years (SD=3.39). The proportion of participants who self-reported having a MH diagnosis was 45.38%. There were significant differences between participants with and without a self-reported diagnosis, whereby a larger proportion of those with a self-reported diagnosis were older (19-25 years old) and found it difficult to afford their basic needs. Significant differences in gender and racial identity were also found between those with and without a self-reported diagnosis.

Participants' mental health characteristics

The proportion of participants who described their current MH as “fair” or “poor” was 75.71% (Table 1); this proportion was significantly greater for those with a self-reported MH diagnosis than for those without a diagnosis. On average, participants with a self-reported MH diagnosis reported significantly more MH concerns. For all participants, the mean total score on the Kessler-6 was 12.82 (SD=5.21). For those with a self-reported MH diagnosis, not only was the mean Kessler-6 score significantly greater than that of participants without a diagnosis, but it also surpassed the cut-off score of 13, indicating serious psychological distress. The proportion of participants who rated their MH as “somewhat worse” or “much worse” since COVID-19 was 86.73%, and there were no significant differences between groups.

Participants' use of mental health services and support

The most common type of MH support participants sought since the pandemic was that of friends, family or a trusted adult (78.59%). However, a smaller proportion of participants also met with a healthcare provider virtually or in-person (46.70%), accessed an online self-help resource (25.49%), or used a publicly-funded digital MH intervention (15.59%) (Table 2). Of those who used a digital MH intervention, 7.62% (N=16/210) indicated that this was the only form of MH-specific support they accessed since the pandemic.

Differences in use of mental health services and supports

Participants with a self-reported MH diagnosis were more likely to use MH services or support than those without a diagnosis, as well as opt for more than one type of service (Table 2). Nearly one-third of participants without a diagnosis (30.03%) explicitly reported not needing to see a

healthcare provider for their MH. However, 30.72% of participants without a diagnosis indicated that, although they have not yet met with a provider for their MH, they would like to.

We explored whether potential confounding factors of self-reported MH diagnosis (i.e., demographics that were significantly different between groups) could account for the greater service use of participants who had a self-reported MH diagnosis (Table 3). Across all services, self-reported MH diagnosis was the strongest predictor of use. Participants with a self-reported MH diagnosis were 6.82 times more likely to have used virtual or in-person provider-based services, 1.55 times more likely to have used self-help resources, and 2.84 times more likely to have used digital MH interventions. Gender independently and significantly predicted use of both virtual or in-person provider-based services and self-help resources, in that males were less likely than females to use either. Affordability of basic needs was a significant independent predictor of digital MH intervention use. Participants with difficulty affording their basic needs were 2.10 times more likely to use a digital MH intervention than those who could more easily afford their basic needs.

Patterns of awareness and use of digital mental health interventions

Participants indicated what publicly-funded digital MH interventions in Ontario they were aware of and had used (Figure 1). For all except one digital intervention (Kids Help Phone), the proportions of participants who were aware of, and used, these interventions were below 40% and 15%, respectively. Overall, those with a self-reported MH diagnosis had significantly greater awareness and use of interventions.

Learning about mental health services

Participants who used a MH service since the pandemic were asked to select how they learned about that service (N=777). Service information was most often received from friends or family (29.34%), a healthcare provider (23.42%), social media (13.13%) or at school (13.00%). Additionally, 10.04% (N=78/777) of participants indicated “other” sources of service information that included: using online search engines or searching specialized websites (e.g., Google, Psychology Today) (N=37), existing health services (N=18), work/insurance (N=11), school staff or clinics (N=5), correctional/probation services (N=2), spiritual/religious sources (N=2), and news broadcasts (N=2). One participant mentioned using multiple sources of service information. Participants with a self-reported MH diagnosis were significantly more likely to learn about MH services

Table 1. Participants' demographic and self-reported mental health (MH) characteristics and comparisons between those with and without a self-reported MH diagnosis

Participant characteristics	All participants (N=1373) % (n)	MH diagnosis (N=623) % (n)	No MH diagnosis (N=750) % (n)	χ^2	p-value
Demographics					
Language				1.43 ¹	0.23
English	97.52 (1339)	98.07 (611)	97.07 (728)		
French	2.48 (34)	1.93 (12)	2.93 (22)		
Age (years) ^a				16.61 ²	<.001
12-15	11.73 (161)	7.87 (49)	14.93 (112)		
16-17	19.08 (262)	19.42 (121)	18.80 (141)		
18-25	69.19 (950)	72.71 (453)	66.27 (497)		
Gender				53.0 ³	<.001
Female	78.20 (1069)	79.10 (492)	77.45 (577)		
Male	13.09 (179)	8.04 (50)	17.32 (129)		
Transgender/Non-binary	7.61 (104)	12.06 (75)	3.89 (29)		
Prefer not to say	1.10 (15)	0.80 (5)	1.34 (10)		
Racial identity				18.36 ⁴	<.001
White	85.03 (1159)	86.60 (537)	83.60 (622)		
Black	1.10 (15)	0.48 (3)	1.61 (12)		
Indigenous	1.69 (23)	2.75 (17)	0.81 (6)		
Person of Colour/other	10.12 (138)	7.75 (48)	12.10 (90)		
Prefer not to say	2.05 (28)	2.26 (14)	1.88 (14)		
Current/highest level of education				7.66 ¹	0.05
Elementary ^b	4.84 (66)	4.03 (25)	5.52 (41)		
High school ^c	46.55 (635)	46.86 (291)	46.30 (344)		
College	12.17 (166)	14.49 (90)	10.23 (76)		
University	36.44 (497)	34.62 (215)	37.95 (282)		
Ontario public health region				2.58 ³	0.46
Northern	8.59 (117)	7.75 (48)	9.29 (69)		
Southwest	10.57 (144)	10.02 (62)	11.04 (82)		
Central	41.85 (570)	43.94 (272)	40.11 (298)		
Eastern	38.99 (531)	38.29 (237)	39.57 (294)		
Living situation				7.66 ²	0.02
With family	67.08 (915)	65.70 (408)	68.24 (507)		
With others	26.69 (364)	26.09 (162)	27.19 (202)		
Alone	6.23 (85)	8.21 (51)	4.58 (34)		
Affordability of basic needs				33.01 ²	<.001
Easy or very easy	66.42 (904)	59.00 (364)	72.58 (540)		
Unsure	16.46 (224)	18.15 (112)	15.05 (112)		
Difficult or very difficult	17.12 (233)	22.85 (141)	12.37 (92)		
Current school situation ^d				0.25 ¹	0.62
In school	73.95 (1008)	73.30 (453)	74.50 (555)		
Not currently in school	26.05 (355)	26.70 (165)	25.50 (190)		

continued

Table 1. continued					
Participant characteristics	All participants (N=1373) % (n)	MH diagnosis (N=623) % (n)	No MH diagnosis (N=750) % (n)	χ^2	p-value
Employment status				3.16 ²	0.21
Employed	51.98 (708)	50.00 (310)	53.64 (398)		
Lost job due to COVID-19	10.06 (137)	11.45 (71)	8.89 (66)		
Unemployed	37.96 (517)	38.55 (239)	37.47 (278)		
MH Characteristics					
Current MH (Past few days)				56.46 ⁴	<.001
Excellent	1.32 (18)	0.80 (5)	1.74 (13)		
Very good	4.90 (67)	2.25 (14)	7.11 (53)		
Good	18.07 (247)	15.76 (98)	20.00 (149)		
Fair	37.45 (512)	33.12 (206)	41.07 (306)		
Poor	38.26 (523)	48.07 (299)	30.07 (224)		
Current MH concerns ^{ef}					
Depression	79.32 (1089)	86.84 (541)	73.07 (548)	39.34 ¹	<.001
Anxiety	76.77 (1054)	83.95 (523)	70.80 (531)	32.99 ¹	<.001
ADHD/attention	41.22 (566)	47.19 (294)	36.27 (272)	16.76 ¹	<.001
School problems	27.39 (376)	27.61 (172)	27.20 (204)	0.03 ¹	0.87
Family conflicts	25.93 (356)	28.41 (177)	23.87 (179)	3.66 ¹	0.06
Anger	25.49 (350)	25.52 (159)	25.47 (191)	0.001 ¹	0.98
Drugs or alcohol	11.14 (153)	14.77 (92)	8.13 (61)	15.12 ¹	<.001
I don't have any	2.69 (37)	0.64 (4)	4.40 (33)	18.33 ¹	<.001
Psychological distress ^g					
Total score 13 and above	53.72 (737)	67.36 (419)	42.40 (318)	85.23 ³	<.001
Current MH compared to usual				1.88 ²	0.39
Better than usual	13.17 (180)	14.01 (87)	12.47 (93)		
Same as usual	42.72 (584)	43.80 (272)	41.82 (312)		
Worse than usual	44.11 (603)	42.19 (262)	45.71 (341)		
Perceptions of change in MH since COVID-19				1.48 ²	0.48
Much/Somewhat better	6.45 (88)	5.79 (36)	7.01 (52)		
No change	6.82 (93)	6.27 (39)	7.28 (54)		
Much/Somewhat worse	86.73 (1183)	87.94 (547)	85.71 (636)		
<p>Most variables had <2% of missing data except for "Language", "Age" and "Current MH Concerns", which had no missing data. Bonferroni adjustment for demographic variables (.05/10 tests), $\alpha=.005$. Bonferroni adjustment for MH variables (.05/15 tests), $\alpha=.003$. Degrees of Freedom shown as a superscript. ^aAge subgroups are based on common eligibility criteria for mental health services in Ontario. ^bElementary=Grades 4 – 8. ^cHigh school=Grade 9 – 12. ^dThe survey was conducted during the 'second wave' of the pandemic in Ontario, Canada, during a time when primary and secondary schools were open for classroom-based learning. "In school" refers to learning in classrooms, online, hybrid models (both in person and online), attending a co-op placement for school, and being homeschooled. ^eParticipants could select more than one current MH concern. ^fFor all participants, the mean number of current MH concerns was 2.92 (SD 1.56), for those with a MH diagnosis, the mean was 3.21 (SD 1.55), and for those without a MH diagnosis, the mean was 2.70 (SD 1.54). There was a significant difference between groups, $t(1371) = -6.09, p<.001$. ^gFor all participants, the mean total score on the Kessler-6 was 12.82 (SD 5.21), for those with a MH diagnosis, the mean was 14.48 (SD 4.75), and for those without a MH diagnosis, the mean was 11.48 (SD 5.15). There was a significant difference between groups $t(1355) = -11.23, p<0.001$. Levene's test for equality of variances was significant, $F=6.13, p=0.01$.</p>					

Table 2. Participants' self-reported use of mental health (MH) services and supports and comparisons between those with and without a self-reported MH diagnosis

Type of MH service or support used ^a	All participants (N=1373) % (n)	MH diagnosis (N=623) % (n)	No MH diagnosis (N=750) % (n)	χ^2	p-value
Healthcare provider ^b					
Accessed before the pandemic	23.74 (319)	31.39 (194)	17.22 (125)	37.00 ¹	<.001
Accessed during the pandemic ^c	19.05 (256)	24.60 (152)	14.33 (104)	22.81 ¹	<.001
Accessed both before and during the pandemic ^c	21.13 (284)	36.89 (228)	7.71 (56)	170.45 ¹	<.001
Not accessed, but would like to access	18.97 (255)	5.18 (32)	30.72 (223)	141.52 ¹	<.001
Not accessed, and don't need to access	17.11 (230)	1.94 (12)	30.03 (218)	185.56 ¹	<.001
All MH services and supports					
Virtual or in-person provider-based services ^{bd}	46.70 (636)	71.61 (444)	25.88 (192)	283.87 ¹	<.001
Self-help resources ^{ef}	25.49 (350)	30.50 (190)	21.33 (160)	15.05 ¹	<.001
Digital MH interventions ^{bg}	15.59 (210)	23.25 (143)	9.15 (67)	50.48 ¹	<.001

^aParticipants could select one or more options.
^bVariable had <1% missing data.
^cMeeting with a healthcare provider during the pandemic could include meeting with a provider in the 'last month' and/or any time 'since COVID-19'.
^dVirtual or in-person provider-based services included: Doctor, school counselor, online counsellor, youth wellness hub, faith-based counselling.
^eVariable had no missing data.
^fSelf-help resources included: Mental health informational websites (e.g., mindyourmind), mobile health app, online self-help app.
^gDigital mental health (MH) interventions included: Crisis line (phone or chat), Instant Messaging service (e.g., Kids Help Phone, Good2Talk), online counselling services provided by private organizations (e.g., MindBeacon, Wellness Together Canada).
Degrees of Freedom shown as a superscript.

through a healthcare professional ($\chi^2 (1)=52.74, p<0.001$), whereas those without a diagnosis were significantly more likely to learn about MH services through social media ($\chi^2 (1)=13.22, p=0.003$; Figure 2).

Suggestions for improving mental health services

Participants provided their top 3 suggestions for how MH services could be improved (Figure 3). The highest-ranking suggestions were to lower their cost, lessen the wait time, and help people know what services exist. After a Bonferroni correction, a significantly larger proportion of participants with a self-reported MH diagnosis suggested to lower their cost ($\chi^2 (1)=23.86, p<0.001$), and lessen wait times ($\chi^2 (1)=93.91, p<0.001$), whereas a significantly larger proportion of those without a diagnosis suggested removing

stigma ($\chi^2 (1)=10.30, p=0.001$), and improving privacy ($\chi^2 (1)=14.69, p<0.001$).

Discussion

More than 86% of participants reported a worsening of their MH since the pandemic. With no significant differences between those with or without a self-reported MH diagnosis, we see how widespread perceived changes in youth's MH related to the pandemic have been. However, looking at MH concerns and level of distress (which differed between groups) might tell us more about how the perceived worsening in youth's MH is affecting them now. An increasing number of studies describe the significant negative impact of the pandemic on youths' MH (5,7–9,40–45), with as many as 60 – 70% of Canadian youth reporting a similar change (9,27,46). Longitudinal studies indicate that youth MH may continue to decline between subsequent waves of

Table 3. Predictors of participants' mental health (MH) service use

Participant characteristics	Virtual or in-person provider-based services OR [95% CI]	Self-help resources OR [95% CI]	Digital MH interventions OR [95% CI]
Age (years)			
12-15	0.71 [0.46, 1.10]	0.62 [0.39, 0.99]	1.05 [0.60, 1.83]
16-17	1.01 [0.71, 1.44]	0.74 [0.52, 1.06]	1.47 [0.98, 2.21]
18-25	reference		
Gender			
Female	reference		
Male	0.51 [0.34, 0.76]*	0.45 [0.29, 0.72]*	0.62 [0.36, 1.09]
Other ^a	1.86 [1.12, 3.10]	1.20 [0.76, 1.90]	1.07 [0.63, 1.80]
Racial identity			
White	reference		
BIPoC ^b	0.96 [0.66, 1.40]	1.16 [0.80, 1.68]	1.34 [0.86, 2.10]
Living situation			
With family	0.79 [0.46, 1.38]	1.82 [0.99, 3.33]	1.53 [0.76, 3.10]
With others	0.86 [0.49, 1.52]	1.67 [0.90, 3.10]	1.28 [0.62, 2.66]
Alone	reference		
Affordability of basic needs			
Easy	reference		
Unsure	1.03 [0.73, 1.46]	1.05 [0.74, 1.49]	1.18 [0.76, 1.82]
Difficult	1.33 [0.94, 1.88]	0.80 [0.56, 1.14]	2.10 [1.44, 3.08]*
Self-reported MH diagnosis			
No	reference		
Yes	6.82 [5.29, 8.88]*	1.55 [1.19, 2.01]*	2.84 [2.03, 3.98]*

*p ≤ .001; Bonferroni test (.05/ 18 tests) α = .003
OR = Odds ratio
CI = Confidence interval
^a'Other' refers to participants who identified as transgender, non-binary, or preferred not to say.
^bBIPoC is as acronym for participants who identified as Black, Indigenous, and/or as a Person of Colour.

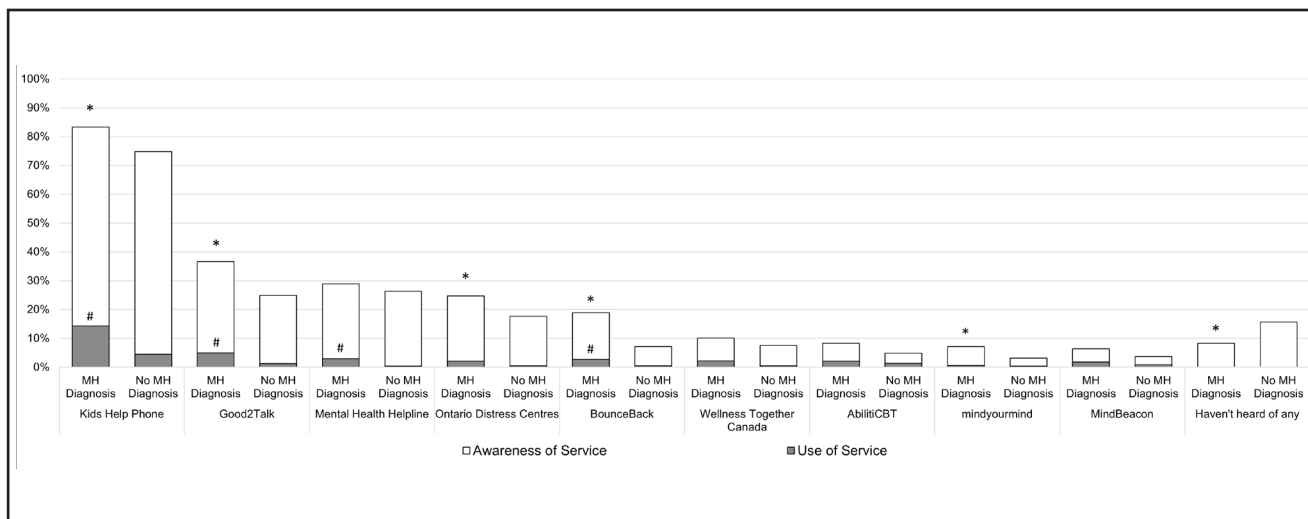
the pandemic (47,48), underscoring the importance of understanding the service use of youth to ensure resources are available to meet evolving needs.

Patterns of service use differed between participants with and without a self-reported MH diagnosis in several ways. Participants with a MH diagnosis were more likely to use provider-based services, self-help resources, and digital MH interventions since the pandemic. Youth with a diagnosis were more likely to have used MH services and/or seen a healthcare providers prior to the pandemic compared to those without a diagnosis, which may have influenced not only *whether* youth used MH services, but *what* services they used. Across all services, self-reported MH diagnosis was the strongest predictor of use. However, gender and affordability of basic needs also emerged as independent predictors. Males were less likely than females to use provider-based services and self-help resources. Participants with

difficulty affording their basic needs were more likely to use digital MH interventions. It has been well-documented that females are more likely to use MH services than males (49–51), perhaps, in part, due to the greater MH burden females experience (20). Pandemic-related data further supports this trend (22,52,53). Although there are income-based disparities in technology ownership (54), making it less likely for youth with difficulty affording their basic needs to use digital interventions, Internet access is nearly ubiquitous among Canadian youth and up to 93% have a smartphone (55). Additionally, the digital interventions listed were available for free or low cost, and may be more affordable than other MH care options (e.g., costs of private services, transportation to services), thereby lowering the barriers to service access among disadvantaged users (56).

Despite the number of publicly-funded digital MH interventions available to youth, there were relatively low rates

Figure 1. Participants' awareness and use of self-help resources and digital mental health (MH) interventions according to those with and without a self-reported MH diagnosis.



N = 1373, MH Diagnosis N = 750, No MH Diagnosis N = 623

*Significant difference in awareness of services between participants with a self-reported MH diagnosis and those without a self-reported MH diagnosis.

Kids Help Phone: $\chi^2(1) = 14.67, p < .001$,

Good2Talk: $\chi^2(1) = 21.95, p < .001$,

Ontario Distress Centre: $\chi^2(1) = 10.05, p = 0.002$

Bounceback: $\chi^2(1) = 42.81, p < .001$,

Mindyourmind: $\chi^2(1) = 11.54, p < .001$,

Haven't heard of any: $\chi^2(1) = 17.12, p < .001$,

#Significant difference in use of services between participants with a self-reported MH diagnosis and those without a self-reported MH diagnosis.

Kids Help Phone: $\chi^2(1) = 39.69, p < .001$

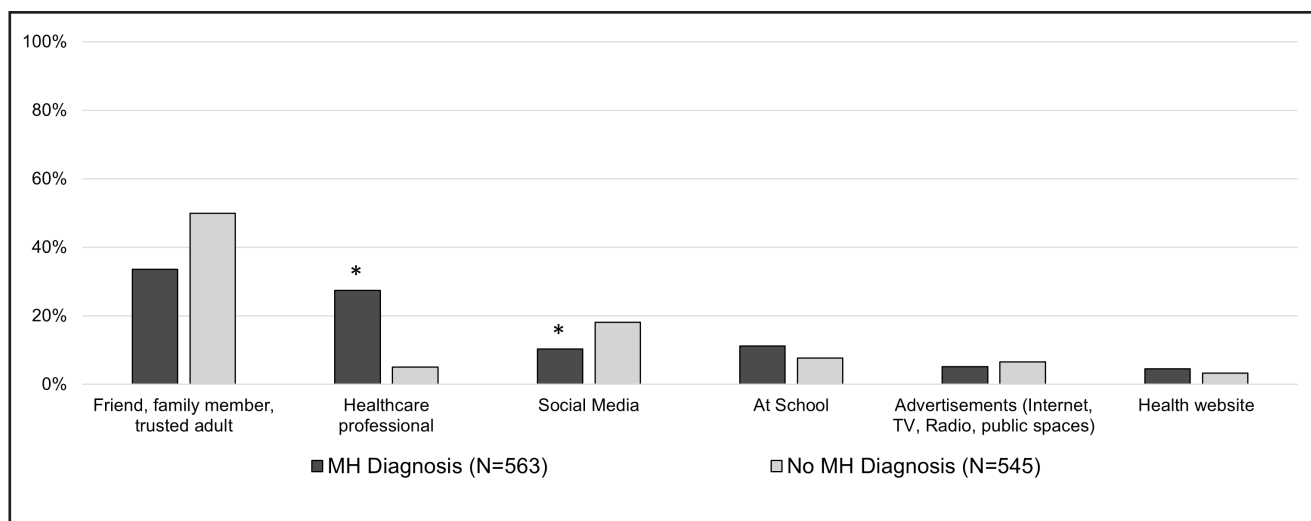
Good2Talk: $\chi^2(1) = 17.15, p < .001$

Mental Health Helpline: $\chi^2(1) = 15.16, p < .001$

Bounceback: $\chi^2(1) = 10.89, p = 0.001$

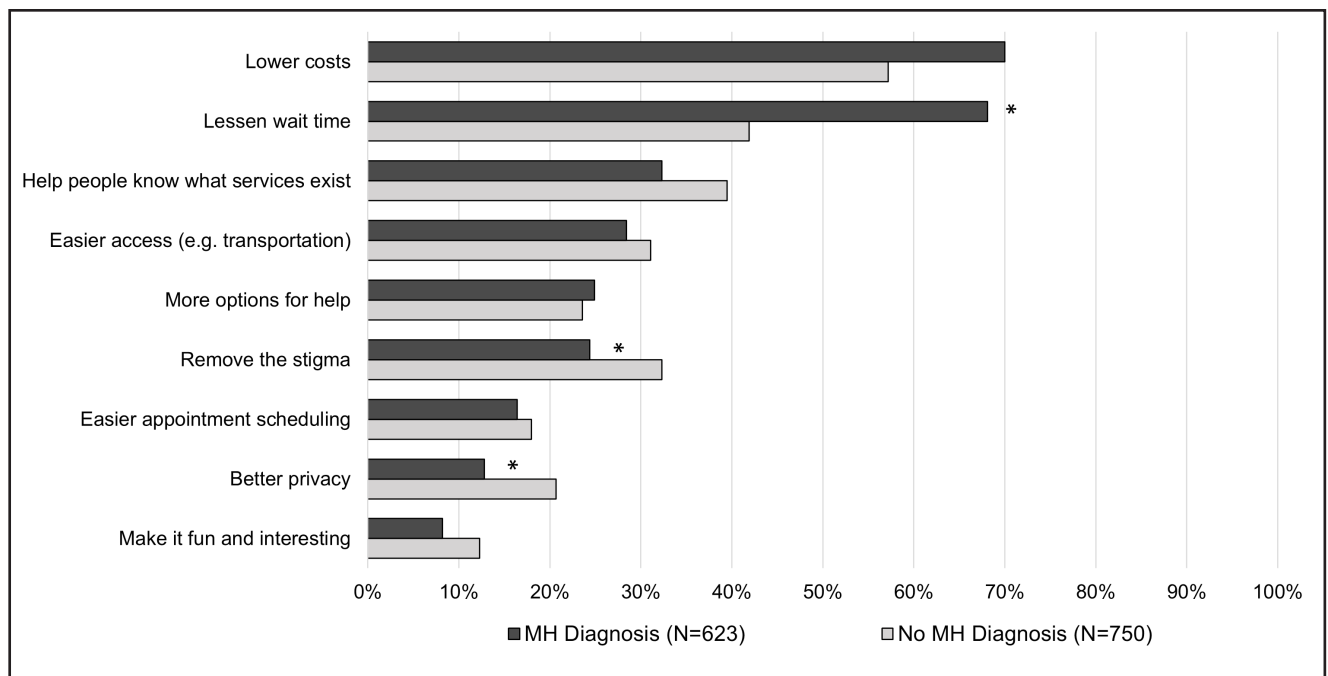
Bonferroni correction (.05/19 tests) $\alpha = .003$

Figure 2. How participants received mental health (MH) service information according to those with and without a self-reported MH diagnosis.



Bonferroni correction = (0.05/7 tests), $\alpha = 0.007$

Figure 3. Participants' suggestions for improving mental health (MH) services according to those with and without a self-reported MH diagnosis.



Bonferroni correction=(0.05/9 tests), $\alpha=0.006$

of awareness and use among participants across most interventions. However, participants reported a distinct familiarity with one intervention, Kids Help Phone, that may be related to the government's ongoing funding investments, and recent financial top up (57), as well as the organization's 30-year history of supporting young Canadians (58). Learning more about the outreach efforts and service offerings of Kids Help Phone could provide insights into how other digital MH interventions might increase their awareness and use among youth.

This study also demonstrated that participants often came to know about other MH services through a support or service they were already accessing. This raises the question to what extent current services or providers can be leveraged to influence future service use. In the literature, factors that influence help-seeking and service use is inconsistent and unclear (59). However, these findings highlight the importance of 'meeting youth where they are at' to increase their service awareness.

For ongoing efforts to meaningfully improve MH service use in help-seeking youth, we need to incorporate feedback from youth themselves (60–62). Participants' top three suggestions for improving MH services were to lower their cost, lessen the wait time, and help people know what services exist. These suggestions are among the most commonly cited obstacles to MH service use (63–65), including

a review by Moroz et al. (2020) that described barriers and solutions to accessing MH services in a Canadian context (66). Interestingly, characteristics of digital MH interventions (low user fees, wide accessibility, privacy standards, flexible use) appear to address at least some of participants' suggestions, yet our data indicate a disconnect between their potential and current state.

Recommendations for future work

While the pandemic spurred the shift to virtual services and increased availability of publicly-funded digital MH interventions, it is likely that some of these service changes will be sustained (67). To meet the MH service needs of youth, we can first improve youth's awareness of existing MH services (40), especially digital MH interventions, which can be accessed by many. We can leverage known sources of service information (e.g., healthcare providers, social media) or examples of successful social dissemination strategies (e.g., online directories (68,69) or marketing campaigns (70–72)) to make services more known. Second, we can build on emerging evidence to better understand barriers and facilitators to the use of current services (63,73–76) to develop solutions for improved access and equity for youth seeking care. Third, we can further examine predictors of service use to better identify and support youth needing or wanting to use MH services. We can also use predictors to tailor service awareness strategies for youth so that

youth who are most likely to use a particular service will receive information about that service. Involving youth in co-designing strategies to increase service awareness and use (77,78) helps ensure they are developmentally-appropriate, meet their needs and preferences, and connect with youth across various backgrounds and characteristics (74,79–82).

Strengths and limitations

This study has several strengths and limitations. One limitation is its cross-sectional design (83,84) and lack of participants' baseline measurements in MH or service use prior to the pandemic. We attempted to mitigate this by asking participants about their perceived changes/differences in order to get an estimate of change; however, retrospective reports may be biased (85). Additionally, the generalizability of our findings may be limited in a few ways. One, our sample consisted of an overrepresentation of youth who have a self-reported MH diagnosis (45% in this sample versus 25% as the pre-pandemic national average) (86), perhaps biasing our sample in terms of responses or demographics. However, due to the high proportion of participants who reported having a MH diagnosis, we were able to conduct between-group comparisons between those with and without a diagnosis. Two, although participants were asked to self-report whether they have a MH diagnosis, to avoid a lengthy survey, we did not use any diagnostic measures to determine their specific diagnosis(es) or validate their response. Three, despite our recruitment efforts to target potential participants typically underrepresented in survey studies, we still obtained a sample of youth who mostly identify as female, white, and socioeconomically 'well-off'. A strength of this study is that it is the first to examine youth's use of virtual and in-person provider-based services and digital MH interventions since the second wave of the pandemic. Findings may spark the investigation of government funding models and/or awareness strategies to improve service use moving forward. Another strength is the use of bivariate and multivariate analyses we conducted that suggest that having a MH diagnosis may distinguish MH service use patterns in youth.

Implications

Various MH services and support may be required to help mitigate the significant negative MH impact of COVID-19 on youth and meet their service needs. Having a MH diagnosis may be important factor for understanding the services youth are aware of and use. Sustaining pandemic-related changes to MH services may require increasing youth's awareness of digital interventions and overcoming other barriers to care. Involving youth in the development of MH

care improvement strategies helps ensures MH services are meaningful and beneficial to them.

Conflicts of Interest

This research was funded by the Knowledge Institute on Child and Youth Mental Health and Addictions. Dr. Radomski was supported by a Canadian Institutes of Health Research—Health Systems Impact Postdoctoral Fellowship. Ms. Cloutier and Ms. Sheridan declare that they have not received a financial incentive from any organization for the submitted work, have no financial relationships with any organizations that might have an interest in the submitted work in the previous three years, and have no other relationships or activities that could appear to have influenced the submitted work. Dr. Radomski was a postdoctoral fellow funded by the CIHR Health Systems Impact Fellowship and employed by the Knowledge Institute on Child and Youth Mental Health and Addictions (funding sponsor) at the time of the study but has no conflict of interest with the subject matter or materials discussed in the manuscript. Dr. Cappelli, Dr. Sundar and Dr. Polihronis are employed at the Knowledge Institute on Child and Youth Mental Health and Addictions (funding sponsor) but have no conflict of interest with the subject matter or materials discussed in the manuscript. For a copy of the survey, please contact the corresponding author, Dr. Mario Cappelli, at cappelli@cymha.ca.

Acknowledgements

We acknowledge and thank our communications teams at CHEO, the CHEO Research Institute, the Knowledge Institute on Child and Youth Mental Health and Addictions, and Mortimer Marketing, for assistance with participant recruitment. We thank Dr. Jaime Brown for reviewing the manuscript.

References

1. Courtney D, Watson P, Battaglia M, Mulsant BH, Szatmari P. COVID-19 Impacts on Child and Youth Anxiety and Depression: Challenges and Opportunities. *Can J Psychiatry*. 2020 Jun 22;65(10):688–91.
2. Fox SE, Levitt P, Nelson III CA. How the timing and quality of early experiences influence the development of brain architecture. *Child Dev*. 2010;81(1):28–40.
3. Romeo RD. The impact of stress on the structure of the adolescent brain: Implications for adolescent mental health. *Brain Res*. 2017;1654:185–91.
4. de Figueiredo CS, Sandre PC, Portugal LCL, Mázala-de-Oliveira T, da Silva Chagas L, Raony Í, et al. COVID-19 pandemic impact on children and adolescents' mental health: Biological, environmental, and social factors. *Prog Neuro-Psychopharmacology Biol Psychiatry*.

- 2021;106:110171.
5. Meherali S, Punjani N, Louie-Poon S, Abdul Rahim K, Das JK, Salam RA, Lassi ZS. Mental health of children and adolescents amidst COVID-19 and past pandemics: a rapid systematic review. *Int J Environ Res Public Health*. 2021 Mar 26;18(7):3432.
 6. El-Gabalawy R, Sommer JL. "We Are at Risk Too": The Disparate Mental Health Impacts of the Pandemic on Younger Generations: Nous Sommes Aussi à Risque: Les Effets Disparates de la Pandémie Sur la Santé Mentale des Générations Plus Jeunes. *Can J Psychiatry*. 2021 Jul;66(7):634-44.
 7. Jones EAK, Mitra AK, Bhuiyan AR. Impact of COVID-19 on Mental Health in Adolescents: A Systematic Review. *Int J Environ Res Public Health*. 2021;18(5):2470.
 8. Zolopa C, Burack JA, O'Connor RM, Corran C, Lai J, Bomfim E, et al. Changes in Youth Mental Health, Psychological Wellbeing, and Substance Use During the COVID-19 Pandemic: A Rapid Review. *Adolesc Res Rev*. 2022;1-17.
 9. Cost KT, Crosbie J, Anagnostou E, Birken CS, Charach A, Monga S, et al. Mostly worse, occasionally better: impact of COVID-19 pandemic on the mental health of Canadian children and adolescents. *Eur Child Adolesc Psychiatry*. 2021 Feb 26;1-14.
 10. Panchal U, Salazar de Pablo G, Franco M, Moreno C, Parellada M, Arango C, et al. The impact of COVID-19 lockdown on child and adolescent mental health: systematic review. *Eur Child Adolesc Psychiatry*. 2021;1-27.
 11. Mitra R, Waygood EOD, Fullan J. Subjective well-being of Canadian children and youth during the COVID-19 pandemic: The role of the social and physical environment and healthy movement behaviours. *Prev Med Reports*. 2021;23:101404.
 12. Ferguson KN, Coen SE, Tobin D, Martin G, Seabrook JA, Gilliland JA. The mental well-being and coping strategies of Canadian adolescents during the COVID-19 pandemic: a qualitative, cross-sectional study. *Can Med Assoc Open Access J*. 2021;9(4):E1013-20.
 13. Fegert JM, Vitiello B, Plener PL, Clemens V. Challenges and burden of the Coronavirus 2019 (COVID-19) pandemic for child and adolescent mental health: a narrative review to highlight clinical and research needs in the acute phase and the long return to normality. *Child Adolesc Psychiatry Ment Health*. 2020;14:1-11.
 14. Gilsbach S, Herpertz-Dahlmann B, Konrad K. Psychological impact of the COVID-19 pandemic on children and adolescents with and without mental disorders. *Frontiers in public health*. 2021 Nov 5;9:679041.
 15. Government of Canada. Individual and community-based measures to mitigate the spread of coronavirus disease (COVID-19) in Canada [Internet]. 2020. Available from: https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/health-professionals/public-health-measures-mitigate-covid-19.html#_Physical_distancing
 16. Government of Canada. From risk to resilience: An equity approach to COVID-19 [Internet]. 2020. Available from: <https://www.canada.ca/en/public-health/corporate/publications/chief-public-healthofficer-reports-state-public-health-canada/from-risk-resilienceequity-approach-covid-19.html#a3>.
 17. Gaid KS. Mental Health and Healthcare in Canada during the COVID-19 Epidemic: A Social Perspective. *World Soc Psychiatry*. 2020;2(2):106.
 18. Glazier RH, Green ME, Wu FC, Frymire E, Kopp A, Kiran T. Shifts in office and virtual primary care during the early COVID-19 pandemic in Ontario, Canada. *CMAJ*. 2021;193(6):E200-10.
 19. Government of Canada. Pan-Canadian Virtual Care Priorities in Response to COVID-19 [Internet]. 2020. Available from: <https://www.canada.ca/en/health-canada/corporate/transparency/healthagreements/bilateral-agreement-pan-canadian-virtual-care-prioritiescovid-19.html>
 20. Wiens K, Bhattarai A, Pedram P, Dores A, Williams J, Bulloch A, Patten S. A growing need for youth mental health services in Canada: examining trends in youth mental health from 2011 to 2018. *Epidemiol Psychiatr Sci*. 2020;29:e115.
 21. Mental Health Commission of Canada. COVID-19 and Mental Health: Policy Responses and Emerging Issues [Internet]. Ottawa, Canada; 2020. Available from: https://www.mentalhealthcommission.ca/sites/default/files/2020-06/COVID_19_policy_responses_emerging_issues_eng.%0A.pdf
 22. Saunders NR, Kurdyak P, Stukel TA, Strauss R, Fu L, Guan J, et al. Utilization of Physician-Based Mental Health Care Services Among Children and Adolescents Before and During the COVID-19 Pandemic in Ontario, Canada. *JAMA Pediatr*. 2022 Feb 7;e216298-e216298.
 23. McGorry PD, Mei C. Early intervention in youth mental health: progress and future directions. *Evid Based Ment Health*. 2018;21(4):182-4.
 24. Lin E, Goering P, Offord DR, Campbell D, Boyle MH. The Use of Mental Health Services in Ontario: Epidemiologic Findings. *Can J Psychiatry*. 1996 Nov 1;41(9):572-7.
 25. Vasiliadis H-M, Lesage A, Adair C, Boyer R. Service Use for Mental Health Reasons: Cross-Provincial Differences in Rates, Determinants, and Equity of Access. *Can J Psychiatry*. 2005 Aug 1;50(10):614-9.
 26. Nielsen K. A timeline of COVID-19 in Ontario. *CBC Global News* [Internet]. 2021; Available from: <https://globalnews.ca/news/6859636/ontario-coronavirus-timeline/>
 27. Radomski A, Cloutier P, Gardner W, Pajer K, N S, Sundar P, et al. COVID-19 pandemic: Snapshot of young Ontarian's mental health needs [Internet]. The Ontario Centre of Excellence for Child and Youth Mental Health. 2020. Available from: https://www.cymh.ca/en/projects/resources/covid-19/centre_covid-19_research_snapshot.pdf
 28. Canadian Mental Health Association (CAMH). COVID-19 and mental health [Internet]. 2021. Available from: <https://cmha.ca/news/covid-19-and-mental-health>
 29. Ontario Hospital Association. Strengthening Mental Health and Wellness During COVID-19 [Internet]. Available from: <https://www.oha.com/news/strengthening-mental-health-and-wellness-during-covid-19>
 30. Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, Normand SL, Walters EE, Zaslavsky AM. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychol Med*. 2002;32(6):959.
 31. Chan SM, Fung TCT. Reliability and validity of K10 and K6 in screening depressive symptoms in Hong Kong adolescents. *Vulnerable Child Youth Stud*. 2014;9(1):75-85.
 32. Green JG, Gruber MJ, Sampson NA, Zaslavsky AM, Kessler RC. Improving the K6 short scale to predict serious emotional disturbance in adolescents in the USA. *Int J Methods Psychiatr Res*. 2010;19(S1):23-35.

33. Peiper N, Clayton R, Wilson R, Illback R. The performance of the K6 Scale in a large school sample. *Psychol Assess*. 2015;27(1):228.
34. Mewton L, Kessler RC, Slade T, Hobbs MJ, Brownhill L, Birrell L, et al. The psychometric properties of the Kessler Psychological Distress Scale (K6) in a general population sample of adolescents. *Psychol Assess*. 2016;28(10):1232.
35. Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, Conde JG. Research electronic data capture (REDCap)—A metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform*. 2009 Apr;42(2):377–81.
36. Harvard Medical School. National Comorbidity Survey: K10 and K6 Scales [Internet]. 2005. Available from: https://www.hcp.med.harvard.edu/ncs/k6_scales.php
37. Kessler RC, Barker PR, Colpe LJ, Epstein JF, Gfroerer JC, Hiripi E, et al. Screening for serious mental illness in the general population. *Arch Gen Psychiatry*. 2003;60(2):184–9.
38. Radomski A, Cloutier P, Gardner W, Pajer K, Sheridan N, Sundar P, et al. Planning for the mental health surge: the self-reported mental health impact of COVID-19 on young people and their needs and preferences for future services. *Can J Community Ment Heal*. 2022;41(1):46–61.
39. Costello EJ, Burns BJ, Angold A, Leaf PJ. How can epidemiology improve mental health services for children and adolescents? *J Am Acad Child Adolesc Psychiatry*. 1993;32(6):1106–17.
40. Hawke LD, Barbic SP, Voineskos A, Szatmari P, Cleverley K, Hayes E, et al. Impacts of COVID-19 on Youth Mental Health, Substance Use, and Well-being: A Rapid Survey of Clinical and Community Samples: Répercussions de la COVID-19 sur la santé mentale, l'utilisation de substances et le bien-être des adolescents: un sondage rapide. *Can J Psychiatry*. 2020;65(10):701–9.
41. Hawke LD, Hayes E, Darnay K, Henderson J. Mental health among transgender and gender diverse youth: An exploration of effects during the COVID-19 pandemic. *Psychol Sex Orientat Gen Divers*. 2021 Jun;8(2):180.
42. Hawke LD, Monga S, Korczak D, Hayes E, Relihan J, Darnay K, Cleverley K, Lunsky Y, Szatmari P, Henderson J. Impacts of the COVID-19 pandemic on youth mental health among youth with physical health challenges. *Early Interv Psychiatry*. 2021 Oct;15(5):1146–53.
43. Samji H, Wu J, Ladak A, Vossen C, Stewart E, Dove N, Long D, Snell G. Mental health impacts of the COVID-19 pandemic on children and youth—a systematic review. *Child Adolesc Ment Health*. 2022 May;27(2):173–89.
44. Robinson E, Sutin AR, Daly M, Jones A. A systematic review and meta-analysis of longitudinal cohort studies comparing mental health before versus during the COVID-19 pandemic in 2020. *J Affect Disord*. 2022;296:567–76.
45. Racine N, McArthur BA, Cooke JE, Eirich R, Zhu J, Madigan S. Global prevalence of depressive and anxiety symptoms in children and adolescents during COVID-19: a meta-analysis. *JAMA Pediatr*. 2021;175(11):1142–50.
46. Gill PK, Du C, Khan F, Karimi N, Sabharwal K, Agarwal M. The psychological effects of COVID-19 spread in young Canadian adults. *Int J Soc Psychiatry*. 2022 Feb;68(1):216–22.
47. Ravens-Sieberer U, Kaman A, Erhart M, Otto C, Devine J, Löffler C, Hurrelmann K, Bullinger M, Barkmann C, Siegel NA, Simon AM. Quality of life and mental health in children and adolescents during the first year of the COVID-19 pandemic: results of a two-wave nationwide population-based study. *Eur Child Adolesc Psychiatry*. 2021 Oct 12:1–4.
48. De France K, Hancock GR, Stack DM, Serbin LA, Hollenstein T. The mental health implications of COVID-19 for adolescents: Follow-up of a four-wave longitudinal study during the pandemic. *Am Psychol*. 2022 Jan;77(1):85.
49. Merikangas KR, He J, Burstein M, Swendsen J, Avenevoli S, Case B, et al. Service utilization for lifetime mental disorders in US adolescents: results of the National Comorbidity Survey—Adolescent Supplement (NCS-A). *J Am Acad Child Adolesc Psychiatry*. 2011;50(1):32–45.
50. Fleury M-J, Grenier G, Bamvita J-M, Perreault M, Kestens Y, Caron J. Comprehensive determinants of health service utilisation for mental health reasons in a Canadian catchment area. *Int J Equity Health*. 2012;11(1):1–12.
51. Li W, Dorstyn DS, Denson LA. Predictors of mental health service use by young adults: A systematic review. *Psychiatr Serv*. 2016;67(9):946–56.
52. Ellis WE, Dumas TM, Forbes LM. Physically isolated but socially connected: Psychological adjustment and stress among adolescents during the initial COVID-19 crisis. *Can J Behav Sci Can des Sci du Comport*. 2020;52(3):177.
53. Craig SG, Ames ME, Bondi BC, Pepler DJ. Canadian adolescents' mental health and substance use during the COVID-19 pandemic: Associations with COVID-19 stressors. *Can J Behav Sci Can des Sci du Comport*. 2023 Jan;55(1):46.
54. Lehtimäki S, Martic J, Wahl B, Foster KT, Schwalbe N. Evidence on digital mental health interventions for adolescents and young people: systematic overview. *JMIR Ment Heal*. 2021;8(4):e25847.
55. MediaSmarts. Young Canadians in a Wireless World, Phase IV: Life Online [Internet]. Ottawa, Canada; 2022. Available from: <https://mediasmarts.ca/sites/default/files/publication-report/full/life-onlinereport-en-final-11-22.pdf>
56. Macevičiūtė E, Wilson TD. Digital means for reducing digital inequality: Literature review. *Informing Sci Int J an Emerg Transdiscipl*. 2018;21:269–87.
57. Office of the Prime Minister of Canada. Prime Minister announces support for vulnerable Canadians affected by COVID 19 [Internet]. 2020. Available from: <https://pm.gc.ca/en/news/newsreleases/2020/03/29/prime-minister-announces-support-vulnerablecanadians-affected-covid>
58. Kids Help Phone. Who is Kids Help Phone? [Internet]. Available from: <https://kidshelpphone.ca/get-involved/about-us/who-is-kids-help-phone/>
59. Rickwood D, Deane FP, Wilson CJ, Ciarrochi J. Young people's help-seeking for mental health problems. *Aust e-Journal Adv Ment Heal*. 2005 Jan 17 [cited 2019 Jun 7];4(3):218–51.
60. Xu Z, Huang F, Koesters M, Staiger T, Becker T, Thornicroft G, et al. Effectiveness of interventions to promote help-seeking for mental health problems: systematic review and meta-analysis. *Psychol Med*. 2018;48(16):2658–67.
61. Hom MA, Stanley IH, Joiner Jr TE. Evaluating factors and interventions that influence help-seeking and mental health service utilization among suicidal individuals: A review of the literature. *Clin Psychol Rev*. 2015;40:28–39.
62. Clement S, Schauman O, Graham T, Maggioni F, Evans-Lacko S, Bezborodovs N, et al. What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychol Med*. 2015;45(1):11–27.

63. Radez J, Reardon T, Creswell C, Lawrence PJ, Evdoka-Burton G, Waite P. Why do children and adolescents (not) seek and access professional help for their mental health problems? A systematic review of quantitative and qualitative studies. *Eur Child Adolesc Psychiatry*. 2021;30(2):183–211.
64. Anderson JK, Howarth E, Vainre M, Humphrey A, Jones PB, Ford TJ. Advancing methodology for scoping reviews: recommendations arising from a scoping literature review (SLR) to inform transformation of Children and Adolescent Mental Health Services. *BMC Medical Res. Methodol*. 2020 Dec;20(1):1-4.
65. Moroz N, Moroz I, D'Angelo MS. Mental health services in Canada: Barriers and cost-effective solutions to increase access. In: *Healthcare Management Forum*. SAGE Publications Sage CA: Los Angeles, CA; 2020. p. 282–7.
66. Bierbooms JJPA, van Haaren M, IJsselsteijn WA, de Kort YAW, Feijt M, Bongers IMB. Integration of online treatment into the “new normal” in mental health care in post-COVID-19 times: Exploratory qualitative study. *JMIR Form Res*. 2020;4(10):e21344.
67. Ruggiero KJ, Resnick HS, Acierno R, Coffey SF, Carpenter MJ, Ruscio AM, et al. Internet-based intervention for mental health and substance use problems in disaster-affected populations: a pilot feasibility study. *Behav Ther*. 2006;37(2):190–205.
68. Christensen H, Hickie IB. E-mental health: a new era in delivery of mental health services. *Med J Aust*. 2010;192(11):S2.
69. headspace. Our campaigns [Internet]. National Youth Mental Health Foundation Ltd. 2021. Available from: <https://headspace.org.au/about-us/our-campaigns/>
70. Birnbaum ML, Garrett C, Baumel A, Scovel M, Rizvi AF, Muscat W, et al. Using digital media advertising in early psychosis intervention. *Psychiatr Serv*. 2017;68(11):1144–9.
71. Booth RG, Allen BN, Bray Jenkyn KM, Li L, Shariff SZ. Youth Mental Health Services Utilization Rates After a Large-Scale Social Media Campaign: Population-Based Interrupted Time-Series Analysis. *JMIR Ment Heal*. 2018;5(2):e27.
72. Strudwick G, Sockalingam S, Kassam I, Sequeira L, Bonato S, Youssef A, et al. Digital Interventions to Support Population Mental Health in Canada During the COVID-19 Pandemic: Rapid Review. *JMIR Ment Heal*. 2021;8(3):e26550.
73. Hawke LD, Sheikhan NY, MacCon K, Henderson J. Going virtual: youth attitudes toward and experiences of virtual mental health and substance use services during the COVID-19 pandemic. *BMC Health Serv Res*. 2021;21(1):340.
74. Frye WS, Gardner L, Campbell JM, Katzenstein JM. Implementation of telehealth during COVID-19: Implications for providing behavioral health services to pediatric patients. *J Child Heal Care*. 2022;26(2):172–84.
75. Palinkas LA, De Leon J, Salinas E, Chu S, Hunter K, Marshall TM, et al. Impact of the COVID-19 pandemic on child and adolescent mental health policy and practice implementation. *Int J Environ Res Public Health*. 2021;18(18):9622.
76. Birnbaum ML, Candan K, Libby I, Pascucci O, Kane J. Impact of online resources and social media on help-seeking behaviour in youth with psychotic symptoms. *Early Interv Psychiatry*. 2016;10(5):397–403.
77. Allemang B, Cullen O, Schraeder K, Pintson K, Dimitropoulos G. Recommendations for youth engagement in Canadian mental health research in the context of COVID-19. *J Can Acad Child Adolesc Psychiatry*. 2021/05/01. 2021 May;30(2):123–30.
78. Badawy SM, Radovic A. Digital Approaches to Remote Pediatric Health Care Delivery During the COVID-19 Pandemic: Existing Evidence and a Call for Further Research. *JMIR Pediatr Parent*. 2020 Jun 25;3(1):e20049–e20049.
79. Doan BT, Yang YB, Romanchych E, Grewal S, Monga S, Pignatiello T, et al. From Pandemic to Progression: An Educational Framework for the Implementation of Virtual Mental Healthcare for Children and Youth as a Response to COVID-19. *J Contemp Psychother*. 2021;51(1):1–7.
80. Nicholas J, Bell IH, Thompson A, Valentine L, Simsir P, Sheppard H, et al. Implementation lessons from the transition to telehealth during COVID-19: a survey of clinicians and young people from youth mental health services. *Psychiatry Res*. 2021;299:113848.
81. Pretorius C, Chambers D, Coyle D. Young People's Online HelpSeeking and Mental Health Difficulties: Systematic Narrative Review. *J Med Internet Res*. 2019;21(11):e13873.
82. Groves RM, Cialdini RB, Couper MP. Understanding The Decision to Participate in a Survey. *Public Opin Q*. 1992 Jun 9;56(4):475–95.
83. Patten SB, Kutcher S, Streiner D, Gratzler D, Kurdyak P, Yatham L. Population mental health and COVID-19: why do we know so little?. *Can J Psychiatry*. 2021 Sep;66(9):782-4.
84. Althubaiti A. Information bias in health research: definition, pitfalls, and adjustment methods. *J Multidiscip Healthc*. 2016 May 4;9:211–7.
85. Boyle MH, Georgiades K. Disorders of childhood and adolescence In Cairney J. & Streiner D.(Eds.), *Mental disorders in Canada: An epidemiological perspective*. Toronto, ON: University of Toronto Press. 2009.