

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

Ashley Radomski

Knowledge Institute on Child and Youth Mental Health and Addictions

Paula Cloutier

CHEO Research Institute

William Gardner, Kathleen Pajer

CHEO Research Institute; University of Ottawa

Nicole Sheridan

CHEO Research Institute

Purnima Sundar

Knowledge Institute on Child and Youth Mental Health and Addictions

Mario Cappelli

Knowledge Institute on Child and Youth Mental Health and Addictions; CHEO Research Institute

Ashley Radomski, Knowledge Institute on Child and Youth Mental Health and Addictions and CHEO Research Institute, Ottawa, Ontario; Paula Cloutier, CHEO Research Institute, Ottawa, Ontario; William Gardner, CHEO Research Institute and School of Epidemiology & Public Health, University of Ottawa, Ottawa, Ontario; Kathleen Pajer, CHEO Research Institute and Department of Psychiatry, University of Ottawa, Ottawa, Ontario; Nicole Sheridan, CHEO Research Institute, Ottawa, Ontario; Purnima Sundar, Knowledge Institute on Child and Youth Mental Health and Addictions, Ottawa, Ontario; Mario Cappelli, Knowledge Institute on Child and Youth Mental Health and Addictions and CHEO Research Institute, Ottawa, Ontario.

Ashley Radomski is now only at the CHEO Research Institute, Ottawa, Ontario, Canada.

This research was funded by the Knowledge Institute on Child and Youth Mental Health and Addictions. At the time of the study, Dr. Radomski was also funded by a CIHR Health Systems Impact Post-Doctoral Fellowship Award. We acknowledge and thank our communications team, Kerry Mortimer (Mortimer Marketing), Stayci Keetch (CHEO Research Institute), Brooke Eboule and

ABSTRACT

We investigated young people's mental health (MH) and preferences for future MH services early in the Covid-19 pandemic to support user-centered service planning and delivery. We administered a web-based survey to young people living in Ontario. Logistic regressions identified predictors of worsening MH and service preferences among a sample of 1341 participants. 61.1% reported worse MH since the pandemic. Worsening MH was significantly associated with one MH and five sociodemographic factors. Participants' MH and service preferences aligned well with clinical practice guidelines in that those with a greater self-reported MH need preferred more intensive MH services.

Keywords: youth, young adult, Covid-19, mental health, mental health services

RÉSUMÉ

Nous avons étudié la santé mentale des jeunes de même que leurs préférences pour les futurs services de santé mentale aux premiers stades de la pandémie de Covid19 afin de soutenir la planification et la prestation de services axés sur l'utilisateur. Nous avons mené un sondage sur le Web auprès de jeunes vivant en Ontario. Des régressions logistiques ont été utilisées pour déterminer les prédicteurs d'une détérioration de la santé mentale et des préférences en matière de services auprès d'un échantillon de 1 341 participants. Parmi eux, 61,1 % des répondants ont signalé que leur santé mentale était moins bonne depuis le début de la pandémie. La détérioration de la santé mentale était associée à un problème de santé mentale et à 5 facteurs sociodémographiques. Les préférences des participants en matière de santé mentale et de services concordaient bien avec les lignes directrices relatives aux pratiques cliniques auprès de ceux présentant des problèmes de santé mentale autodéclarés plus importants, et qui ont besoin de services de santé mentale plus intensifs.

Mots clés : jeunesse, jeune adulte, virus de la Covid-19, santé mentale, services de santé mentale

The number of people whose mental health (MH) may be affected by coronavirus disease 2019 (Covid-19) is expected to be greater than those who are physically affected (Holmes et al., 2020; Xiang et al., 2020). Disaster exposure, including epidemics, can increase post-traumatic stress, anxiety, and sadness, which can lead to an increase in MH disorders (Fegert et al., 2020). Preliminary research has demonstrated that young people (those less than 25 years old) are particularly vulnerable to the psychological impacts of Covid-19 (Mazza et al., 2020; Mucci et al., 2020). The immediate and long-term psychological effects of this global situation on this group cannot be ignored as young people account for 42% of our world's population (World Health Organization, 2020a). This vulnerability is concerning due to the pre-existing decline in the MH of young people from high-income countries within the last decade, including Canada (Potrebny et al., 2017; Wiens et al., 2020). Physical distancing and suspension of schooling in response to the pandemic may introduce additional stressors that further compound young people's pre-existing MH concerns (Brown et al., 2017). Negative emotions are appearing in healthy, well-adjusted young people, creating a new sub-group

Geneviève Gagnon (Knowledge Institute on Child and Youth Mental Health and Addictions), for assistance with participant recruitment. We also thank Tyrus Crawford (CHEO Research Institute) for translating the survey into the web-based platform.

Correspondence concerning this article should be addressed to Mario Cappelli, Knowledge Institute on Child and Youth Mental Health and Addictions, 695 Industrial Avenue, Ottawa, ON K1G 0Z1. Email: cappelli@cymha.ca

of MH patients, as well as exacerbating symptoms in those currently suffering from MH disorders, leading to a deterioration in their well-being (Mucci et al., 2020).

Recent studies on the Covid-19 pandemic indicate an increase in young peoples' self-reported MH concerns (Fegert et al., 2020; Findlay et al., 2020). These MH concerns are likely to persist beyond the pandemic itself (Mucci et al., 2020). As behavioural and safety restrictions lift and young people return to school or work, a surge in referrals and demand for MH services is likely to occur (Mucci et al., 2020). This surge will challenge the MH care system, which is already suffering from a shortage in MH services (Kowalewski et al., 2011). Rapid service delivery is particularly important because the more quickly care is provided, the better the outcomes (Xiang et al., 2020). If the MH care system is to meet the demands of the predicted surge for young people, we must know who to help, what they need, and how to deliver services. Sociodemographics and history of MH problems can help identify who has been negatively affected by Covid-19 and collecting data on the preferences for services can help inform delivery plans. In addition, asking young people if, and what, MH support they need may yield additional benefits, such as the ability to deliver services that are acceptable to users, thereby improving the likelihood of their use, provide young people with a greater sense of control in a time of uncertainty, and better align with evidence-based, user-centred healthcare service planning recommendations (Omeni et al., 2014).

Therefore, we surveyed 12- to 25-year-olds to accomplish the following objectives: (1) examine whether young people perceived that their MH had changed since Covid-19; (2) determine their preferences for different types of future MH services; (3) identify predictors of a decline in MH; and (4) explore associations between self-reported MH and preferred types of future services.

METHODS

Study Design. We conducted a cross-sectional, observational study using a web-based survey of young people.

Study Setting. Our study was conducted in the province of Ontario—Canada's most populated province (with nearly 15,000,000 residents; Statistics Canada, 2016).

Participants. Young people were included if they reported their age to be between 12 and 25 years, indicated which region of Ontario in which they lived, and selected a language preference of English or French.

Participant Recruitment. Recruitment took place between April 24 and May 8, 2020, using convenience sampling methods through social media and email distribution networks. All recruitment materials were available in English and French. Paid advertisements were designed for young people based on our inclusion criteria and were executed using the social media platforms (Facebook, Instagram, Twitter) of a children's hospital (Children's Hospital of Eastern Ontario [CHEO]) and regular posts were displayed on the social media platforms of a provincial organization supporting child and youth MH service delivery (Facebook, LinkedIn, Twitter; the Ontario Centre of Excellence for Child and Youth Mental Health). Partnering community child and youth MH and addictions agencies (e.g., Lead Agency Consortium, regional youth support centres) were contacted via email requesting they share the recruitment materials among their contacts. Study information was also distributed by email through researchers' personal networks.

Our sample size was based on population data of 2.5 million young people between the ages of 12 and 25 in Ontario (Statistics Canada, 2016). With a 3% margin of error and 95% confidence interval, we required 1,067 survey respondents. Based on previous research (Chu & Snider, 2013), we estimated a 20% response rate; therefore, we targeted 5,335 young people through social media ads.

Web-Based Survey. The 73-item, web-based survey was designed by our research team of clinician-scientists, clinical and health systems researchers, and an epidemiologist. The survey was based on adapted-versions of previously published mood (Spitzer et al., 2006) and Covid-19 questionnaires (Cao et al., 2020; Lee, 2020), and relevant literature (World Health Organization, 2020b). The items reported in this study covered participants' sociodemographics, pre-existing and current MH disorder symptoms, history of previous MH treatment, and preferences for types of future MH services. Given the urgency of the pandemic context, the survey was rapidly developed and piloted with five young people prior to the study launch and was considered comprehensible (Flesch-Kincaid Reading Level was 3.6), of acceptable length, and to have good face validity. The usability and technical functionality of the survey site was tested by the research team prior to recruitment. The survey was available in English or French, could be completed by any visitor accessing the site, and responses were non-mandatory and anonymous.

Participant Consent and Survey Administration. The survey was voluntary and open to the public during the two-week recruitment period which began five weeks after the provincial government declared a state of emergency. The survey was administered through the Research Electronic Data Capture (REDCap) web application (Harris et al., 2009). Before taking the survey, participants were prompted to read a study information letter that included a description of the study, voluntary participation, the benefits and risks of the study, and data handling and privacy procedures. Participants were then required to enter their age and preferred language to begin the survey. Participants were informed that their consent to participate in the study was inferred upon final submission of their survey responses. Inclusion in a lottery to win a \$100 Amazon gift card was offered to all participants completing the survey. If participants were interested in entering the draw, they were asked to share their email address. These were stored separately from their survey responses.

Ethics Approval. The study was approved by the CHEO research ethics board (Protocol No: 20/34X). The study information letter was considered an acceptable form of implied consent for participation.

Variables. *Sociodemographic characteristics.* Self-reported data on age, gender, preferred language, employment status, living situation, provincial region of residence, and perceived economic status were collected.

Mental health. Our primary MH variable was young peoples' self-reported change in MH since Covid-19: "Since the Covid-19 outbreak, my MH has gotten: much worse, somewhat worse, no change, somewhat better, or much better." Ratings were classified into two categories: (1) "worse": "much worse" or "somewhat worse," or (2) "same or better": "no change," "somewhat better," or "much better." Participants were also asked whether they were already receiving MH support or services: "I have a current mental health diagnosis or concern that I get help for." Participants could respond "Yes" or "No."

Preferences for future services. Participants could indicate up to three MH services they would be interested in using in the future. The continuum of future MH services were organized into three types, based on a stepped-care model of disaster relief MH treatment for children and youth (McDermott & Cobham,

2014). The premise for a stepped-care model is that the type of service (step) delivered matches the individual's symptoms or level of distress (intensity). The three service types, from lowest to highest intensity, were: (1) "information and wellness" for health literacy or promotion, (2) "online self-help" for prevention or risk-reduction, and (3) "provider-based services" for targeted therapies (Table 1).

Table 1
Types of Mental Health Services and Supports

Service Type	Mental Health Services and Supports
Information and wellness	Online meditation or relaxation videos A Covid-19 informational website Short videos teaching skills to manage my MH Mindful colouring sheets that can be printed for use
Online self-help	An online program or smartphone app that can teach me MH self-management skills An online discussion board where young people can post how they are feeling and how they are coping Following supportive and positive social media posts
Provider-based services	Video, telephone, or online chat sessions with a doctor Video, telephone, or online chat sessions with a counsellor or therapist A visit to my doctor at the clinic (in person) Medication

Statistical Analysis

We created two subgroups of participants based on those who reported "yes" to currently having a MH diagnosis or concern they were getting help for ("getting help for their MH") and those who reported "no." We used logistic regression to examine the association of whether participants reported deteriorating MH with participant sociodemographics and whether participants were currently getting support for their MH. Three additional logistic regressions were carried out in which each of the three service types was regressed on whether the participant was currently getting help for their MH and participant self-reported change in MH since Covid-19. We report regression results using adjusted odds ratios with 95% confidence intervals. Analyses were conducted using SPSS Version 26 and R Version 4.0.0.

RESULTS

Participants

Recruitment and inclusion. The survey website received 3,181 visitors. Of these, 1,569 young people began the survey, generating a survey view rate of 49.3% (1,569/3,181), and 1,512 respondents met eligibility criteria and submitted the survey, producing a 47.5% (1,512/3,181) eligibility rate. Of the eligible respondents, 171 (11.3%) were missing data for one or more variables, and therefore were dropped from our analysis. In total, 1,341 eligible young people were retained, leading to an 88.7% (1,341/1,512) participation rate.

Sociodemographics. Participants' mean age was 18.3 years (SD 3.5). Most young people preferred communicating in English (over 97%), lived with their families (over 80%), and were either from families that were economically "somewhat well-off" or "well-off" (over 85%) (Table 2). Those currently getting help for their MH ($n = 387$) were more likely to be older (between 18 to 25 years), employed, living alone, identifying as female, and perceiving their family to be "not at all well-off," compared to those not getting help for their MH ($n = 954$). We also observed differences regarding where participants were living across the province according to whether they were getting MH help.

Mental health. Almost a third (28.9%) of young people reported currently getting help for their MH (Table 2). Although most young people (61.1%) reported that their MH had worsened since Covid-19 began, those currently getting help for their MH were more likely to report this worsening than those not getting help (74.2% vs. 55.9% respectively).

Preferences for types of future mental health services. Nearly 30% of participants (29.1%) reported that they did not currently need MH services. But nearly all (92.4%) gave us information about what services they might consider helpful in the future (Table 2). Young people getting help for their MH were more likely to prefer provider-based services and less likely to prefer online information and wellness support compared to those not getting any help.

Sociodemographics and Pandemic-Related Change in Mental Health

Table 3 displays the logistic regression of deterioration in MH as predicted by sociodemographic characteristics and whether young people were getting help for their MH. Participants were more likely to report that their MH had become worse if they were older, female, employed, living in the Northern region of the province, perceived their family to be less economically advantaged, and if they were currently getting help for their MH.

Associations between Mental Health and Preferences for Future Mental Health Services

Figure 1 presents the proportions of participants who chose each type of service or support as a function of whether they were currently getting support for their MH or whether their MH had worsened since the start of Covid-19. Table 4 presents results from three logistic regressions involving the data in Figure 1. Those who were not currently getting help for their MH were more likely to prefer online sources of information and self-help supports for help in the future. Participants who were getting MH help preferred provider-based services, as did those who reported that their MH had worsened since the pandemic.

Table 2
Participant Sociodemographics, Mental Health, and Preferences for Future Services

Characteristic	Category	All Participants (N = 1,341)	Currently getting help for their mental health ^a		P value
			Yes (N = 387)	No (N = 954)	
Age	18 to 25	615 (45.9)	237 (61.2)	378 (39.6)	0.00
	12 to 17	726 (54.1)	150 (38.8)	576 (60.4)	
Gender	Female	981 (73.2)	300 (77.5)	681 (71.4)	0.00
	Male	310 (23.1)	52 (13.5)	258 (27.0)	
	Other	50 (3.7)	35 (9.0)	15 (1.6)	
Preferred language	French	32 (2.4)	12 (0.3)	20 (2.1)	0.275
	English	1,309 (97.6)	375 (97.0)	934 (97.9)	
Employment status	Employed	437 (32.6)	147 (38.0)	290 (30.4)	0.012
	Lost job due to Covid-19	264 (19.7)	78 (20.2)	186 (19.5)	
	Unemployed	640 (47.7)	162 (41.8)	478 (50.1)	
Living situation	Living alone	60 (4.5)	32 (8.3)	28 (2.9)	0.00
	Living with others	111 (8.3)	40 (10.3)	71 (7.4)	
	Living with family	1170 (87.2)	315 (81.4)	855 (89.6)	
Region of residence	Northern	67 (5.0)	21 (5.4)	46 (4.8)	0.00
	Eastern	411 (30.6)	150 (38.8)	261 (27.4)	
	Western	93 (6.9)	33 (8.5)	60 (6.3)	
	Central	770 (57.4)	183 (47.3)	587 (61.5)	
Perceived economic status of the family	Not at all well-off	121 (9.0)	54 (14.0)	67 (7.0)	0.00
	Somewhat well-off	515 (38.4)	152 (39.3)	363 (38.1)	
	Well-off	705 (52.6)	181 (46.8)	524 (54.9)	
Self-reported change in mental health since Covid-19	Worse	820 (61.1)	287 (74.2)	533 (55.9)	0.00
	Same or better	521 (38.9)	100 (25.8)	421 (44.1)	
Preference for online information and wellness support	Yes	792 (59.1)	192 (49.6)	600 (62.9)	0.00
	No	549 (40.9)	195 (50.4)	354 (37.1)	

Continued

Table 2 (continued)

Participant Sociodemographics, Mental Health, and Preferences for Future Services

Characteristic	Category	All Participants (N = 1,341)	Currently getting help for their mental health ^a		P value
			Yes (N = 387)	No (N = 954)	
Preference for online self-help support	Yes	809 (60.3)	221 (57.1)	588 (61.6)	0.124
	No	532 (39.7)	166 (42.9)	366 (38.4)	
Preference for a provider-based service	Yes	679 (50.6)	265 (68.5)	414 (43.4)	0.00
	No	662 (49.4)	122 (31.5)	540 (56.6)	

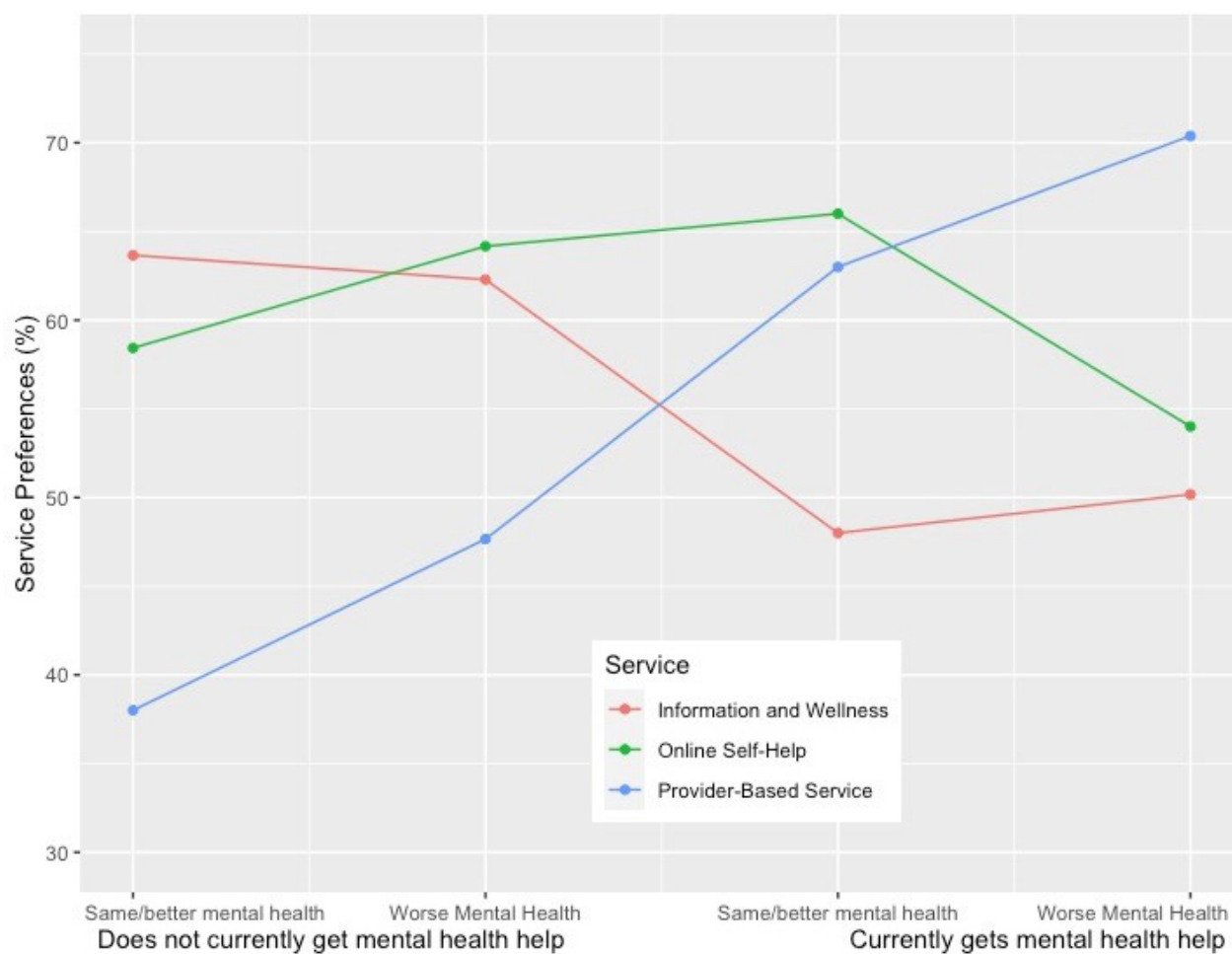
Note. ^a Participants reported whether they currently have a mental health diagnosis or concern that they get help for.

Table 3
Participant-Reported Deterioration in Mental Health: Regression on Participant Sociodemographics and Current Receipt of Mental Health Support

Characteristic	Contrast	Adjusted OR	95% CI	p
Age	-	1.22	(1.00, 1.48)	0.047
Gender	Female versus Male	1.46	(1.12, 1.91)	0.005
	Other versus Male	1.76	(0.87, 3.55)	0.12
Employment status	Employed versus Unemployed	1.75	(1.32, 2.33)	<0.001
	Lost job due to Covid-19 versus Unemployed	1.31	(0.95, 1.80)	0.1
Living situation	Alone versus With family	1.16	(0.61, 2.20)	0.64
	With others versus With family	0.83	(0.52, 1.32)	0.43
Region of residence	Northern versus Other region	1.53	(1.01, 2.31)	0.046
Perceived economic status of the family	Linear ^a	1.50	(1.09, 2.07)	0.012
	Quadratic	1.08	(0.85, 1.36)	0.54
Currently getting help for their mental health	-	1.56	(1.29, 1.90)	<0.001

Note. Regression coefficients (*b* weights) are adjusted for all factors.

^aPerceived economic status of the family was organized in ascending order from “not at all well-off,” to “somewhat well-off,” to “well-off.”

Figure 1**Future Mental Health Service Preferences by Mental Health Status**

Note. Figure 1 presents the proportions of participants in each group who wanted each type of service or support. Participants could endorse a preference for more than one type of service, which is why the percentages within groups add to more than 100%.

Table 4
Logistic Regressions of Preferences for Service Types on Mental Health Status

Mental Health Status	Service Type		Online information and wellness support		Online self-help support		Provider-based service	
	Adjusted OR (95% CI)	p	Adjusted OR (95% CI)	p	Adjusted OR (95% CI)	p	Adjusted OR (95% CI)	p
Currently getting help for their mental health	0.51 (0.39, 0.65)	<0.001	0.73 (0.57, 0.95)	0.017	2.72 (2.08, 3.55)	<0.001		
Self-reported change in mental health since Covid-19	0.90 (0.70, 1.15)	0.39	0.99 (0.78, 1.27)	0.94	1.44 (1.13, 1.82)	0.003		

Note. Table 4 presents three logistic regressions. Each service type is regressed on whether the participant has a mental health diagnosis or concern they get help for and the participants' self-reported change in mental health since Covid-19.

DISCUSSION

Following the first month of the Covid-19 pandemic, we surveyed a self-selected sample of 12–25-year-olds about changes in their MH and preferences for future MH services. Almost two-thirds of participants reported that their MH had deteriorated during the pandemic. National and international literature report a decline in the MH of young people since the pandemic, with the psychosocial effects of Covid-19 disproportionately affecting young people (Findlay et al., 2020). Almost 30% of participants reported currently getting some form of help for a MH diagnosis or concern. This rate is somewhat higher than that found in the pre-pandemic literature (Gandhi et al., 2016), although the type(s) of MH support young people have received is not specified.

Sociodemographic differences between those currently getting help for their MH, or not, and the sociodemographic predictors of deteriorating MH, were consistent with pre-pandemic studies and available pandemic literature on MH risk factors (Canadian Mental Health Association, 2009; Mazza et al., 2020; Witt et al., 2003). Young people who reported they were already getting help for their MH and/or a worsening in their MH were older, female, were from a family that had a lower income, and lived in a northern community. Employed participants also reported deteriorating MH. This may reflect increased distress among young people who felt financial pressure to risk their health as “essential workers” (Mazza et al., 2020). Participants who reported getting help for their MH were more likely to report a decline in their MH. The relationship between a self-rated history of MH problems and pandemic-related changes in MH has been reported by others (Mazza et al., 2020). This relationship may be a key reason why the sociodemographics distinguished those who were currently getting help for this MH condition and those with deteriorating MH since Covid-19 were nearly identical. However, it may be that the sociodemographics identified by our analyses are useful indicators of MH more universally (Merikangas et al., 2009).

Over 90% of our sample, including those who reported not currently needing MH support, indicated their preferences for future MH support or services. Young people currently receiving help, and those who reported a deterioration of their MH during the pandemic, indicated a greater preference for seeing a doctor or counsellor, either virtually or in person. In contrast, young people who reported that their MH was the same or better since Covid-19 thought that they might want access to online information or self-help support. Young people’s preferences for future services align well with a stepped-care approach to child and youth MH care service delivery for disasters (McDermott & Cobham, 2014). Stepped-care has long been touted for its aim to balance service costs and treatment intensity with participant acceptability and benefit. In principle, stepped-care recommends that young people with greater MH needs (those with severe and complex presentations) receive care delivered by a specialized professional, and those with fewer needs (mild to moderate symptoms) be directed to less resource-intensive, specialized services. Young people’s service preferences, and the increasing pressure on our MH system, may serve as additional motivators to fully implement a stepped-care approach in our system as soon as possible (Moreno et al., 2020).

An inability to meet a surge in demand for MH care could have significant implications for young people who would benefit from early intervention (Xiang et al., 2020). Treatment is more effective when delivered within four months of a traumatic event (Newman et al., 2014). Disrupted or delayed intervention may place individuals at risk of psychosocial impairment and reduced quality of life that can extend for

months or years (Malla et al., 2018). To manage the surge in young people's MH needs and preferences for accessing services, a variety of service types need to be available.

The Covid-19 pandemic provides an opportunity to improve the scale and cost-effectiveness of different MH services or delivery strategies that have previously been delayed in their implementation—such as e-mental health or brief forms of psychotherapy (Torous et al., 2020). There is also an opportunity to examine the service responses implemented during the initial stage of the pandemic when planning for longer-term or more sustainable MH system changes. Becoming more apparent is the need to move beyond conventional approaches to service planning and promote greater inclusion of young people and their families in research (especially those who have been disproportionately affected by the pandemic, such as those from marginalized groups or living in rural or remote areas; Holmes et al., 2020; Moreno et al., 2020). Although strong evidence indicates that young people can participate in research and service planning, there is limited research exploring the views of young people regarding MH services in general, with research on user-centred service planning in the context of crisis or traumatic events being nearly nonexistent (McDermott & Cobham, 2014). However, available research shows that young people, their parents and healthcare providers often have different expectations of services, desired outcomes, preferred approaches to counselling or treatment, and knowledge of available services (Watsford & Rickwood, 2014). These findings illustrate the importance of including young people at all levels of health system planning for effective, acceptable, and timely service delivery.

FUTURE DIRECTIONS

The sociodemographic and MH characteristics we identified (e.g., low economic status, getting support for their MH) can be used to predict which young people are vulnerable and at highest risk for needing future care. We can apply this information to (1) prepare an efficient assessment and triage process to match young people with an appropriate service, (2) develop new or tailor existing services to ensure they are commensurate with young people's needs and preferences, (3) create opportunities for young people to participate in shared decision-making around their MH care and/or becoming active participants in MH service planning, and (4) guide the distribution of MH resources (e.g., personnel, infrastructure) based on higher risk young people (e.g., older age) and their communities (e.g., Northern location) and availability of existing services. Establishing a means for young people to transition between services, as their MH needs and preferences evolve, will also be important. This service delivery approach could map onto a stepped-care model (McDermott & Cobham, 2014). Research is required to assess the effectiveness of this approach and determine how to best monitor young people while receiving services. It is also important that we investigate the factors associated with MH stability or improvement in response to crises.

Not all young people will need or want to access MH services. It is common that a large proportion may experience no change or even an improvement in their MH in relation to a public health event, and will not go on to develop a decline in their MH (Sapienza & Masten, 2011). Nearly one-third of our participants reported that they do not currently need MH support. These young people may be considered resilient individuals, who generally have good to excellent MH, and can cope with life stressors using internal (e.g., growth mindset) and external (e.g., family support) strategies (Sapienza & Masten, 2011). Exploring ways

to promote or maintain resiliency in young people may also be an important public health strategy that can be part of the larger health systems response planning during Covid-19 and beyond.

Limitations

Due to the timeliness inherent in Covid-19 research, the survey did not undergo psychometric testing; however, young people who pilot tested the survey considered it to have good face validity. The self-reported deterioration in MH for some participants may reflect increased situational distress or fear, rather than a change in MH, and not all factors associated with MH were measured (e.g., family structure, adverse childhood experiences). Our findings still provide value because we are asking about preferences for future MH services that can guide service planning on a population-level, and not necessarily service planning for a specific subgroup of young people. However, we recognize that our sample is a self-selected population that may have been influenced by our recruitment strategy. In comparison with national census data (Statistics Canada, 2016), our sample was unrepresentative of provincial young people based on gender and geographical location, with a larger proportion of our sample identifying as female and living in Eastern Ontario. Also, we only included participants who could communicate in English and/or French; however, only 2.5% of the province's population do not speak either of these languages. It is also possible that participants were more concerned about MH issues than randomly selected young people (more than 20–25%), or that may have been more motivated to participate in the study, thereby limiting the generalizability of our findings. However, motivation is also a part of MH treatment initiation and commitment; therefore, it is useful to understand what services motivated young people may prefer. Lastly, although our efforts to include participants who had voluntarily responded to our primary outcome (change in MH) resulted in some missing data (11.3%), this proportion falls within acceptable, and not uncommon, limits of a cross-sectional survey study (Peng et al., 2007). Our use of listwise deletion in response to missing data is based on suggested practices in the literature.

CONCLUSION

Most young people in our sample reported a deterioration in their MH during the Covid-19 pandemic period as well as an interest in future services. Together these findings suggest there will be an increased demand for MH services in the coming months. Preferences around service types were associated with MH need, where those with greater need preferring more intensive, specialized services. Knowledge of these characteristics and preferences of young people can strategically inform MH service planning so that services are commensurate with their needs, both during and beyond the pandemic.

REFERENCES

- Brown, R. C., Witt, A., Fegert, J. M., Keller, F., Rassenhofer, M., & Plener, P. L. (2017). Psychosocial interventions for children and adolescents after man-made and natural disasters: A meta-analysis and systematic review. *Psychological Medicine*, 47(11), 1893–1905. <https://doi.org/10.1017/S0033291717000496>
- Canadian Mental Health Association. (2009). *Rural and Northern Community Issues in Mental Health*.
- Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Research*, 112934. <https://doi.org/10.1016/J.PSYCHRES.2020.112934>
- Chu, J. L., & Snider, C. E. (2013). Use of a social networking web site for recruiting Canadian youth for medical research. *Journal of Adolescent Health*, 52(6), 792–794. <https://doi.org/10.1016/j.jadohealth.2012.12.002>
- Fegert, J. M., Vitiello, B., Plener, P. L., & Clemens, V. (2020). 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 and Adolescent Psychiatry and Mental Health*, 14, 1–11.
- Findlay, L., Arim, R., & Statistics Canada. (2020). *Canadians report lower self-perceived mental health during the COVID-19 pandemic*.
- Gandhi, S., Chiu, M., Lam, K., Cairney, J. C., Guttman, A., & Kurdyak, P. (2016). Mental health service use among children and youth in Ontario: Population-based trends over time. *Canadian Journal of Psychiatry. Revue Canadienne de Psychiatrie*, 61(2), 119–124. <https://doi.org/10.1177/0706743715621254>
- Harris, P. A., Taylor, R., Thielke, R., Payne, J., Gonzalez, N., & Conde, J. G. (2009). Research electronic data capture (REDCap): A metadata-driven methodology and workflow process for providing translational research informatics support. *Journal of Biomedical Informatics*, 42(2), 377–381. <https://doi.org/10.1016/j.jbi.2008.08.010>
- Holmes, E. A., O'Connor, R. C., Perry, V. H., Tracey, I., Wessely, S., Arseneault, L., Ballard, C., Christensen, H., Cohen Silver, R., Everall, I., Ford, T., John, A., Kabir, T., King, K., Madan, I., Michie, S., Przybylski, A. K., Shafran, R., Sweeney, A., ... Bullmore, E. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: A call for action for mental health science. In *The Lancet Psychiatry* (Vol. 0, Issue 0). Elsevier Ltd. [https://doi.org/10.1016/S2215-0366\(20\)30168-1](https://doi.org/10.1016/S2215-0366(20)30168-1)
- Kowalewski, K., McLennan, J. D., & McGrath, P. J. (2011). A preliminary investigation of wait times for child and adolescent mental health services in Canada. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 20(2), 112–119.
- Lee, S. A. (2020). Coronavirus Anxiety Scale: A brief mental health screener for COVID-19 related anxiety. *Death Studies*, 44(7), 393–401. <https://doi.org/10.1080/07481187.2020.1748481>
- Malla, A., Shah, J., Iyer, S., Boksa, P., Joober, R., Andersson, N., Lal, S., & Fuhrer, R. (2018). Youth mental health should be a top priority for health care in Canada. *Canadian Journal of Psychiatry. Revue Canadienne de Psychiatrie*, 63(4), 216–222. <https://doi.org/10.1177/0706743718758968>
- Mazza, C., Ricci, E., Biondi, S., Colasanti, M., Ferracuti, S., Napoli, C., & Roma, P. (2020). A nationwide survey of psychological distress among Italian people during the COVID-19 pandemic: Immediate psychological responses and associated factors. *International Journal of Environmental Research and Public Health*, 17(9), 3165. <https://doi.org/10.3390/ijerph17093165>
- McDermott, B. M., & Cobham, V. E. (2014). A stepped-care model of post-disaster child and adolescent mental health service provision. *European Journal of Psychotraumatology*, 5(SUPPL), 24294. <https://doi.org/10.3402/ejpt.v5.24294>
- Merikangas, K. R., Nakamura, E. F., & Kessler, R. C. (2009). Epidemiology of mental disorders in children and adolescents. *Dialogues in Clinical Neuroscience*, 11(1), 7–20. <https://doi.org/10.2964/jsik.kuni0223>
- Moreno, C., Wykes, T., Galderisi, S., Nordentoft, M., Crossley, N., Jones, N., Cannon, M., Correll, C. U., Byrne, L., Carr, S., Chen, E. Y. H., Gorwood, P., Johnson, S., Kärkkäinen, H., Krystal, J. H., Lee, J., Lieberman, J., López-Jaramillo, C., Männikkö, M., ... Arango, C. (2020). How mental health care should change as a consequence of the COVID-19 pandemic. *The Lancet Psychiatry* (Vol. 7, Issue 9, pp. 813–824). Elsevier Ltd. [https://doi.org/10.1016/S2215-0366\(20\)30307-2](https://doi.org/10.1016/S2215-0366(20)30307-2)

- Mucci, F., Mucci, N., & Diolaiuti, F. (2020). Lockdown and isolation: Psychological aspects of COVID-19 pandemic in the general population. *Clinical Neuropsychiatry*, 17(2), 63–64. <https://doi.org/10.36131/CN20200205>
- Newman, E., Pfefferbaum, B., Kirlic, N., Tett, R., Nelson, S., & Liles, B. (2014). Meta-analytic review of psychological interventions for children survivors of natural and man-made disasters. In *Current Psychiatry Reports* (Vol. 16, Issue 9, pp. 1–10). Current Medicine Group LLC 1. <https://doi.org/10.1007/s11920-014-0462-z>
- Omeni, E., Barnes, M., MacDonald, D., Crawford, M., & Rose, D. (2014). Service user involvement: Impact and participation: A survey of service user and staff perspectives. *BMC Health Services Research*, 14(1). <https://doi.org/10.1186/s12913-014-0491-7>
- Peng, C., Harwell, M., Liou, S., Analysis, L. E.-R. data, & 2006, U. (2007). Advances in missing data methods and implications for educational research. In S. S. Sawilowsky (Ed.), *Real data analysis* (p. 3178). Information Age Pub.
- Potrebný, T., Wiium, N., & Lundegård, M. M.-I. (2017). Temporal trends in adolescents' self-reported psychosomatic health complaints from 1980–2016: A systematic review and meta-analysis. *PLOS ONE*, 12(11), e0188374. <https://doi.org/10.1371/journal.pone.0188374>
- Sapientza, J. K., & Masten, A. S. (2011). Understanding and promoting resilience in children and youth. *Current Opinion in Psychiatry*, 24(4), 267–273. <https://doi.org/10.1097/YCO.0b013e32834776a8>
- Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine*, 166(10), 1092–1097. <https://doi.org/10.1001/archinte.166.10.1092>
- Statistics Canada. (2016). *Census Profile, 2016 Census - Ontario, Canada*.
- Torous, J., Myrick, K. J., Rauseo-Ricupero, N., & Firth, J. (2020). Digital mental health and COVID-19: Using technology today to accelerate the curve on access and quality tomorrow. *JMIR Mental Health*, 7(3), e18848.
- Watsford, C., & Rickwood, D. (2014). Young people's expectations, preferences, and experiences of therapy: Effects on clinical outcome, service use, and help-seeking intentions. *Clinical Psychologist*, 18(1), 43–51. <https://doi.org/10.1111/cp.12034>
- Wiens, K., Bhattarai, A., Pedram, P., Dores, A., Williams, J., Bulloch, A., & Patten, S. (2020). A growing need for youth mental health services in Canada: Examining trends in youth mental health from 2011 to 2018. *Epidemiology and Psychiatric Sciences*, 29.
- Witt, W. P., Kasper, J. D., & Riley, A. W. (2003). Mental health services use among school-aged children with disabilities: The role of sociodemographics, functional limitations, family burdens, and care coordination. *Health Services Research*, 38(6p1), 1441–1466.
- World Health Organization. (2020a). *Coming of age: Adolescent health*. Adolescent Health.
- World Health Organization. (2020b). *Coronavirus disease (COVID-19) advice for the public*.
- Xiang, Y.-T., Yang, Y., Li, W., Zhang, L., Zhang, Q., Cheung, T., & Ng, C. H. (2020). Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *The Lancet Psychiatry*, 7(3), 228–229.