

Factors associated with mental health service use during the pandemic: Initiation and barriers

International Journal of
Social Psychiatry
2024, Vol. 70(1) 59–69
© The Author(s) 2023



Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/00207640231194489
journals.sagepub.com/home/isp



Helen-Maria Vasiliadis^{1,2} , Jessica Spagnolo^{1,2},
Marie-Josée Fleury^{3,4}, Jean-Philippe Gouin^{5,6}, Pasquale Roberge^{7,8},
Mary Bartram^{9,10}, Sébastien Grenier^{6,11}, Grace Shen-Tu¹²,
Jennifer E. Vena¹² and JianLi Wang¹³

Abstract

Background: Scarce are the studies focusing on initiation of new mental health service use (MHSU) and distinguishing individuals who have sought services but have been unsuccessful in accessing these.

Aims: Assessing the factors associated with initiating new MHSU as compared to no MHSU due to self-reported no need, no MHSU due to health system and personal barriers and MHSU using resources already in place.

Methods: The sample included participants ($n = 16,435$) in the five established regional cohorts of the Canadian Partnership for Tomorrow's Health (CanPath) who responded to the CanPath COVID-19 health surveys (May–December 2020 and January–June 2021). Multinomial regression analyses were carried out to study MHSU since the pandemic (March 2020) as a function of predisposing, enabling and need factors. Analyses were carried out in the overall sample and restricted to those with moderate and severe symptoms (MSS) of depression and/or anxiety ($n = 2,237$).

Results: In individuals with MSS of depression and/or anxiety, 14.4% reported initiating new MHSU, 22.0% had no MHSU due to barriers and personal reasons and 36.7% had no MHSU due to self-reported no need. Age, living alone, lower income, a decrease in income during the pandemic and health professional status were associated with MHSU. Younger adults were more likely to initiate MHSU during the pandemic than older adults who reported not being comfortable to seek mental health care or self-reported no need. Individuals living alone and with lower income were more likely to report not being able to find an appointment for mental health care.

Conclusions: Awareness campaigns focusing on older adults that explain the importance of seeking treatment is needed, as well as sensitising health professionals as to the importance of informing and aiding individuals at risk of social isolation and lower socio-economic status as to available mental health resources and facilitating access to care.

Keywords

Barriers, mental health service use, initiating new use of services, depression, anxiety, inequities

¹Département des sciences de la santé communautaire, Université de Sherbrooke, Sherbrooke, QC, Canada

²Centre de recherche Charles-Le Moyne, Longueuil, QC, Canada

³Douglas Mental Health University Institute, Verdun, QC, Canada

⁴McGill University, Montreal QC, Canada

⁵Department of Psychology, Concordia University, Montreal, QC, Canada

⁶Centre de recherche de l'Institut universitaire de gériatrie de Montréal, Montreal, QC, Canada

⁷Département de médecine de famille et de médecine d'urgence, Université de Sherbrooke, Sherbrooke, QC, Canada

⁸Centre de recherche du Centre hospitalier universitaire de Sherbrooke, Sherbrooke, QC, Canada

⁹Mental Health Commission of Canada, Ottawa, ON, Canada

¹⁰School of Public Policy & Administration, Carleton University, Ottawa, ON, Canada

¹¹Département de psychologie, Université de Montréal, Montréal, QC, Canada

¹²Alberta's Tomorrow Project, Cancer Research & Analytics, Cancer Care Alberta, Alberta Health Services, Calgary, AB, Canada

¹³Department of Community Health and Epidemiology, Dalhousie University, Halifax, NS, Canada

Corresponding author:

Helen-Maria Vasiliadis, Département des sciences de la santé communautaire, Université de Sherbrooke, boul. de l'Université, Sherbrooke QC 2500, J1K 2R1, Canada.

Email: helen-maria.vasiliadis@usherbrooke.ca

Introduction

Global estimates during the COVID-19 pandemic showed an increase in the prevalence of anxiety and depression in comparison to the pre-pandemic era (Canadian Centre on Substance Use and Addiction and the Mental Health Commission of Canada, 2022; Mental Health Research Canada, 2022) and increased psychological distress over the first year of the pandemic (Gouin et al., 2023; Matovic et al., 2023). While mental health service needs increased during the pandemic (Nagata et al., 2022), data suggests that even with a shift to virtual consultations, 19% of individuals with mental health symptoms accessed virtually and 11% accessed in-person mental health treatment services (Canadian Centre on Substance Use and Addiction and the Mental Health Commission of Canada, 2021). Understanding barriers to access mental health services and associated factors is important not only for improving mental health services delivery but also for better preparation of future pandemics.

Studies during the first waves of the pandemic showed that socio-demographic factors and health inequities were associated with decreased mental health service utilisation (Asmundson et al., 2020; Coley & Baum, 2022; Miconi et al., 2020; Moyser, 2020; Public Health Agency of Canada, 2022). An overview of barriers to mental health care in Canada prior to the pandemic showed that the most important barriers were related to long wait times, not knowing where to get help and financial reasons such as the cost of services and issues of affordability (Moroz et al., 2020). With telehealth replacing in-person mental health consultations and giving access not otherwise possible during the lockdown, it does not seem that virtual care fully replaced in-person access or was able to keep pace with increasing needs during the pandemic; and this, despite the Canadian government giving hundreds of millions of dollars to virtual mental health supports and services (Smith, 2020). Among Canadians using mental health services prior to the pandemic, close to 59% reported still having mental health supports during the first wave of pandemic, while 41% did not (Mental Health Research Canada, 2020). Reports during the early phase as compared to prior to the pandemic showed that 4% versus 22% of Canadians consulted a mental health professional in person, 3% versus 4% consulted via online video, and 3% versus 5% consulted by telephone (Mental Health Research Canada, 2020). Barriers to patient uptake of virtual mental health care included technological, language, privacy and socio-economic barriers (Palmer et al., 2022; Siegel et al., 2021; Simon et al., 2022).

An important research gap in the literature is that mental health service use (MHSU) is usually assessed as use versus no use, ignoring individuals who have sought services but have been unsuccessful in accessing services. A better understanding of the personal, financial and health

system barriers to MHSU during the pandemic is needed to better elucidate inequities in mental health care access given the health service changes that may persist post-pandemic. In a large Canadian sample of community living adults and older adults, the aim of the current study was to examine, according to Andersen's model (Andersen, 1995) of health care use, the predisposing (e.g. socio-demographic), enabling (e.g. employment, economic) and need (e.g. health status) factors associated with MHSU up until the third wave of the pandemic in Canada. Assessing the factors associated with MHSU and barriers to MHSU (i.e. not receiving care) will help better characterise population subgroups with unmet mental health care needs, and in turn guide public health policies that aim to strengthen equitable access to mental health services.

Methods

Survey data

This study relied on data from adults participating in the five established regional cohorts of the Canadian Partnership for Tomorrow's Health (CanPath) (formerly Canadian Partnership for Tomorrow Project, CPTP), British Columbia Generations Project (BCGP), Alberta's Tomorrow Project (ATP), Ontario Health Study (OHS), Quebec's CARTaGENE (CaG) and Atlantic Partnership for Tomorrow's Health (Atlantic PATH). Recruitment and study design of CanPath has been detailed previously (Canadian Partnership for Tomorrow's Health, 2020b; Dummer et al., 2018). The present sample consists of close to 20,000 CanPath participants who were recruited to collect antibodies to SARS-CoV-2 and also includes populations that were at higher risk of exposure to the virus including individuals living in urban and rural underserved communities and long-term care homes (CanPath) (Canadian Partnership for Tomorrow's Health, 2020a). Data from a health and lifestyle questionnaire administered prior to the COVID-19 pandemic (in 2018) was used along with data collected from health questionnaires during the first and second as well as third wave of the pandemic (May to December 2020 and January to June 2021). Copies of the questionnaires are available via CanPath (www.canpath.ca). Only participants with complete data on the variables of interest for all three timepoints were included ($n=16,435$). The study was approved by the institutional research ethics board of the CISSS Montréal-Centre (#2021-563). Written informed consent was obtained from all participants included in the study.

Measures. The dependent variable of interest (MHSU) was based on self-reports assessed during the 2021 health survey by asking respondents whether they had accessed mental health services since March 2020, with responses

categorised into six mutually exclusive groups: no, did not need it; no, was not comfortable seeking services; no, was not able to get appointment (i.e. regular mental health professional was not accepting appointments or could not find mental health professional who was accepting new clients); no, could not afford or lost health benefits; yes, using mental health services the individual already had in place; yes, individual started using new mental health services.

Predisposing factors considered were age, categorised into groups (35–44 years, 45–54 years, 55–64 years and ≥ 65 years), sex (male, female) and race/ethnicity categorised by whether the respondent identified as Caucasian (White) (yes/no). Health behaviours included current smoking (yes/no), past-year cannabis use (yes/no) and past-year average weekly alcohol consumption (almost daily [6–7 times/week], less than daily [≤ 5 times/week], never). Finally, the cohort the participant was recruited into (BCGP, ATP, OHS, CaG, Atlantic PATH) was also included.

Enabling factors included total household income before taxes (prior to the pandemic); self-reported decrease in income during the pandemic (yes/no); whether respondents worked as a medical professional (e.g. physician, nurse, hospital employee, first responder, pharmacist, with exposure to patients, yes/no); or an essential service provider (e.g. grocery store attendant, public transit, police, security with regular exposure to members of the public (yes/no). Respondents were asked about delays in seeing a healthcare professional for a new health problem (yes/no).

Need factors included presence of moderate or severe symptoms (MSS) of anxiety and depression, the presence of a chronic physical condition and having had COVID-19. The 7-item Generalized Anxiety Disorder scale (GAD-7, score range 0–21) was used in all surveys and a cut-off ≥ 10 was used to identify the presence of MSS of anxiety (Spitzer, Kroenke, Williams, & Löwe, 2006). The 8-item Patient Health Questionnaire Depression Scale (PHQ-8, score range 0–24) was used to assess a positive screen of depression and a cut-off ≥ 10 was used to identify the presence of MSS of depression (Kroenke et al., 2009). The presence of MSS of depression and/or anxiety was defined as a positive screen for anxiety and depression at either 2020 or 2021 survey. The presence of a chronic physical condition was based on self-reported lifetime physician diagnosis of cancer, diabetes, heart and circulatory conditions, cardiovascular disorder, respiratory system conditions, gastrointestinal diseases, liver or pancreatic conditions, renal disease, kidney conditions, neurological conditions, bone and joint conditions, and immune system conditions. Self-reported suspicion of ever having had COVID-19 was also assessed and categorised as ‘yes, no, don’t know’.

Analyses. Descriptive statistics and group comparisons were based on chi-square statistics. Multinomial regression analyses were carried out to assess study factors associated with MHSU in the overall sample ($n=16,435$) as well as in the sample restricted to participants reporting MSS of depression and/or anxiety during the pandemic (i.e. positive screen in either 2020 or 2021) ($n=2,237$). Adjusted odds ratios (OR) and 95% confidence intervals (CI) were computed to determine the strength of associations. Analyses were carried out using SAS version 9.4 (SAS Institute, 2013).

Results

Study sample characteristics are presented in Table 1. In the overall sample, 13.2% of participants reported MHSU and 6.3% reported no MHSU due to barriers and personal reasons and 80.4% reported no MHSU due to self-reported no need. When looking at individuals reporting MSS of depression and/or anxiety, 14.4% initiated new MHSU, 26.9% used mental health services they had already in place, 22.0% had no MHSU due to barriers and personal reasons and 36.7% had no MHSU due to self-reported no need.

Factors associated with MHSU in the overall sample

The multivariate analyses on the association between predisposing, enabling and need factors associated with MHSU in the overall sample are presented in Table 2. The findings show that age, sex, smoking and past-year cannabis use among the predisposing factors; income, reported decrease in income during the pandemic, change in work since the pandemic, being in the health profession, and delay in health care for new health problem among the enabling factors; and the presence of a physical disorder and reporting MSS of depression and/or anxiety among the need factors was associated with MHSU.

The multivariate analyses on the association between predisposing, enabling and need factors associated with MHSU in the sample restricted to participants reporting the presence of MSS of depression and/or anxiety during the pandemic ($n=2,237$) are presented in Table 3.

No MHSU due to self-reported no need as compared to initiating new MHSU

Among the predisposing factors studied, smokers were twice more likely and participants in the ≥ 65 -year, 55- to 64-year, and 45- to 54-year age groups were between 3 and 10 times more likely, as compared to those in the ≤ 44 -year age group, to report no MHSU due to self-reported no need than initiating new MHSU. Past-year cannabis users were

Table 1. Study sample characteristics according to mental health service use (MHSU).

	Overall N = 16,435	Mental health service use (n = 16,435)				p value
		No MHSU, no need N = 13,220 (80.4%)	No MHSU for various reasons N = 1,035 (6.3%)	MHSU – using resources already in place N = 1,501 (9.1%)	MHSU – initiating new services N = 679 (4.1%)	
Predisposing factors						
Age group						<.0001
≤44 years	533 (3.2%)	283 (53.1%)	67 (12.6%)	103 (19.3%)	80 (15.0%)	
45–54 years	2,428 (14.8%)	1,605 (66.1%)	255 (10.5%)	364 (15.0%)	204 (8.4%)	
55–64 years	4,947 (30.1%)	3,849 (77.8%)	350 (7.1%)	517 (10.4%)	231 (4.7%)	
≥65 years	8,527 (51.9%)	7,483 (87.8%)	363 (4.2%)	517 (6.1%)	164 (1.9%)	
Sex						<.0001
Male	5,786 (35.2%)	5,033 (87.0%)	297 (5.1%)	302 (5.2%)	154 (2.7%)	
Female	10,649 (64.8%)	8,187 (76.9%)	738 (6.9%)	1,199 (11.3%)	525 (4.9%)	
Race/ethnicity (visible minority)						.88
Caucasian	15,255 (92.8%)	12,284 (80.5%)	953 (6.3%)	1,390 (9.1%)	628 (4.1%)	
Non-Caucasian	1,180 (7.2%)	936 (79.3%)	82 (7.0%)	111 (9.4%)	51 (4.3%)	
Lives alone						<.0001
Yes	2,612 (15.9%)	1,957 (74.9%)	219 (8.4%)	322 (12.3%)	114 (4.4%)	
No	13,823 (84.1%)	11,263 (81.5%)	816 (5.9%)	1,179 (8.5%)	565 (4.1%)	
Current smoking						.0001
Yes	606 (3.7%)	449 (74.1%)	55 (9.1%)	84 (13.8%)	18 (3.0%)	
No	15,829 (96.3%)	12,771 (80.7%)	980 (6.2%)	1,417 (8.9%)	661 (4.2%)	
Past-year cannabis use						<.0001
Yes	1,410 (8.6%)	938 (66.5%)	152 (10.8%)	212 (15.0%)	108 (7.7%)	
No	15,025 (91.4%)	12,282 (81.7%)	883 (5.9%)	1,289 (8.6%)	571 (3.8%)	
Past year average weekly alcohol consumption						<.0001
Never	2,315 (14.1%)	1,766 (76.3%)	175 (7.5%)	273 (11.8%)	101 (4.4%)	
Less than daily (≤5 times/week)	11,695 (71.2%)	9,405 (80.4%)	728 (6.2%)	1,051 (9.0%)	511 (4.4%)	
Almost daily (6–7 times a week)	2,425 (14.7%)	2,049 (84.5%)	132 (5.4%)	177 (7.3%)	67 (2.8%)	
CanPath regional cohorts						<.0001
British Columbia Generations Project (BCGP)	3,079 (18.7%)	2,451 (79.6%)	186 (6.0%)	297 (9.7%)	145 (4.7%)	
Alberta's Tomorrow Project (ATP)	954 (5.8%)	776 (81.3%)	67 (7.0%)	72 (7.6%)	39 (4.1%)	
Ontario Health Study (OHS)	6,619 (40.3%)	5,098 (77.0%)	499 (7.5%)	720 (10.9%)	302 (4.6%)	
Quebec's CARTaGENE (CaG)	2,873 (17.5%)	2,520 (87.7%)	114 (4.0%)	149 (5.2%)	90 (3.1%)	
Atlantic PATH	2,910 (17.7%)	2,375 (81.6%)	169 (5.8%)	263 (9.0%)	103 (3.6%)	
Enabling factors						
Total household income in year prior to pandemic						<.0001
< \$24,999	514 (3.1%)	373 (72.6%)	51 (9.9%)	65 (12.6%)	25 (4.9%)	
\$25,000–\$49,999	1,784 (10.9%)	1,434 (80.4%)	141 (7.9%)	156 (8.7%)	53 (3.0%)	
\$50,000–\$74,999	2,678 (16.3%)	2,192 (81.9%)	159 (5.9%)	233 (8.7%)	94 (3.5%)	
\$75,000–\$99,999	2,701 (16.4%)	2,175 (80.5%)	174 (6.5%)	224 (8.3%)	128 (4.7%)	
≥\$100,000	6,296 (38.3%)	5,000 (79.4%)	364 (5.8%)	627 (10.0%)	305 (4.8%)	
Not reported	2,462 (15.0%)	2,046 (83.1%)	146 (5.9%)	196 (8.0%)	74 (3.0%)	
Decrease in income during pandemic						<.0001
Yes	2,756 (16.8%)	1,914 (69.4%)	303 (11.0%)	364 (13.2%)	175 (6.4%)	
No	13,679 (83.2%)	11,306 (82.7%)	732 (5.3%)	1,137 (8.3%)	504 (3.7%)	

(Continued)

Table 1. (Continued)

	Overall N=16,435	Mental health service use (n = 16,435)				p value
		No MHSU, no need N= 13,220 (80.4%)	No MHSU for various reasons N= 1,035 (6.3%)	MHSU – using resources already in place N= 1,501 (9.1%)	MHSU – initiating new services N= 679 (4.1%)	
Medical or other professional with exposure to patients						<.0001
Yes	1,655 (10.1%)	1,234 (74.6%)	116 (7.0%)	201 (12.1%)	104 (6.3%)	
No	14,780 (89.9%)	11,986 (81.1%)	919 (6.2%)	1,300 (8.8%)	575 (3.9%)	
Essential worker with exposure to public						<.0001
Yes	1,457 (8.9%)	1,086 (74.5%)	124 (8.5%)	163 (11.2%)	84 (5.8%)	
No	14,978 (91.1%)	12,134 (81.0%)	911 (6.1%)	1,338 (8.9%)	595 (4.0%)	
Work change since pandemic						
Yes	5,120 (31.2%)	3,607 (70.4%)	433 (8.5%)	708 (13.8%)	372 (7.3%)	<.0001
No	11,315 (68.8%)	9,613 (85.0%)	602 (5.3%)	793 (7.0%)	307 (2.7%)	
Delay in health care for new health problem						<.0001
Yes	2,278 (13.9%)	1,504 (66.0%)	302 (13.3%)	323 (14.2%)	149 (6.5%)	
No	14,157 (86.1%)	11,716 (82.8%)	733 (5.2%)	1,178 (8.3%)	530 (3.7%)	
Need factors						
Presence of MSS of anxiety and/or depression						<.0001
Yes	2,237 (13.6%)	821 (36.7%)	492 (22.0%)	601 (26.9%)	323 (14.4%)	
No	14,198 (86.4%)	12,399 (87.3%)	543 (3.8%)	900 (6.3%)	356 (2.5%)	
The presence of a chronic physical disorder						<.0001
Yes	4,997 (30.4%)	3,860 (77.3%)	333 (6.7%)	516 (10.3%)	288 (5.8%)	
No	11,438 (69.6%)	9,360 (81.8%)	702 (6.2%)	985 (8.6%)	391 (3.4%)	
Suspicion of having had COVID-19						<.0001
Yes	611 (3.7%)	422 (69.1%)	57 (9.3%)	82 (13.4%)	50 (8.2%)	
No	14,633 (89.0%)	11,920 (81.5%)	863 (5.9%)	1,293 (8.8%)	557 (3.8%)	
Don't know	1,191 (7.3%)	878 (73.7%)	115 (9.7%)	126 (10.6%)	72 (6.0%)	

less likely to report no MHSU due to self-reported no need than initiating new MHSU. Among the enabling factors studied, those who reported change in work status were less likely to report no MHSU due to self-reported no need. Among the need factors studied, individuals reporting no MHSU due to self-reported no need than initiating new MHSU, were close to four times less likely to report a physical chronic condition.

No MHSU for reason not comfortable seeking mental health support as compared to initiating new MHSU

Among the predisposing factors studied, smokers were twice more likely and participants in the ≥ 65 -year, 55- to 64-year and 45- to 54-year age groups were between two four times more likely, as compared to those in the ≤ 44 -year age group, to report no MHSU due to not being comfortable seeking

mental health support than initiating new MHSU. Among the enabling factors studied, those who reported change in work status were less likely whereas those reporting a delay in health care for a new health problem were more likely to report no MHSU due to not being comfortable seeking mental health support than initiating new MHSU. Among the need factors studied, individuals reporting no MHSU due to not being comfortable seeking mental health support than initiating new MHSU, were close to three times less likely to report a physical chronic condition.

No MHSU due to financial barriers as compared to initiating new MHSU

Among participants with MSS of depression or anxiety during the pandemic, none of the predisposing, enabling and need factors studied were significantly associated with MHSU.

Table 2. Multivariable analyses on the association between need, enabling and predisposing factors associated with mental health service use (MHSU) in overall sample (n = 16,435).

	MHSU – using resources already in place vs. initiating new MHSU	No MHSU – could not find appointment vs. initiating new MHSU	No MHSU – financial barriers vs. initiating new MHSU	No MHSU – not comfortable vs. initiating new MHSU	No MHSU – no need vs. initiating new MHSU
Predisposing factors					
Age group					
≤44 years	Reference	Reference	Reference	Reference	Reference
45–54 years	1.512 (1.068–2.140)	1.308 (0.685–2.498)	1.954 (0.810–4.711)	1.706 (1.110–2.622)	2.174 (1.581–2.988)
55–64 years	1.860 (1.313–2.633)	0.910 (0.474–1.750)	1.828 (0.756–4.420)	2.140 (1.397–3.280)	3.679 (2.679–5.054)
≥65 years	2.496 (1.703–3.660)	1.154 (0.579–2.299)	2.148 (0.849–5.437)	2.802 (1.768–4.440)	8.055 (5.689–11.405)
Sex (female vs. Male)	1.273 (1.013–1.599)	0.658 (0.448–0.967)	0.713 (0.447–1.139)	0.759 (0.591–0.976)	0.712 (0.584–0.868)
Race/ethnicity: Caucasian vs. non-Caucasian	0.994 (0.695–1.420)	0.751 (0.418–1.349)	0.938 (0.436–2.015)	1.007 (0.667–1.522)	0.871 (0.633–1.199)
Lives alone (yes vs. no)	1.155 (0.893–1.493)	1.250 (0.814–1.920)	1.081 (0.622–1.881)	1.099 (0.819–1.474)	0.832 (0.657–1.053)
Current smoking (yes vs. no)	2.336 (1.377–3.962)	1.045 (0.435–2.510)	1.301 (0.460–3.677)	2.206 (1.239–3.927)	2.061 (1.242–3.419)
Past-year cannabis use (yes vs. no)	0.909 (0.699–1.182)	1.100 (0.702–1.724)	0.934 (0.530–1.648)	0.772 (0.568–1.050)	0.578 (0.454–0.737)
Past year average weekly alcohol consumption					
Never	Reference	Reference	Reference	Reference	Reference
Less than daily (≤5 times/week)	0.781 (0.603–1.012)	0.871 (0.551–1.375)	0.871 (0.507–1.496)	0.901 (0.668–1.216)	0.948 (0.748–1.203)
Almost daily (6–7 times a week)	0.918 (0.632–1.334)	1.506 (0.801–2.832)	0.657 (0.277–1.555)	1.125 (0.738–1.714)	1.176 (0.837–1.652)
Enabling factors					
Total household income in year prior to pandemic					
< \$24,999	0.955 (0.574–1.592)	4.967 (2.308–10.689)	2.054 (0.834–5.057)	0.857 (0.468–1.571)	0.847 (0.530–1.354)
\$25,000–\$49,999	1.089 (0.754–1.574)	6.972 (3.921–12.399)	1.837 (0.909–3.713)	1.222 (0.806–1.854)	1.140 (0.816–1.592)
\$50,000–\$74,999	0.991 (0.740–1.327)	2.783 (1.605–4.827)	0.940 (0.475–1.857)	1.065 (0.761–1.491)	0.953 (0.733–1.239)
\$75,000–\$99,999	0.757 (0.581–0.987)	1.532 (0.873–2.691)	0.950 (0.519–1.742)	0.987 (0.730–1.334)	0.778 (0.617–0.982)
≥ \$100,000	Reference	Reference	Reference	Reference	Reference
Not reported	1.048 (0.768–1.429)	2.306 (1.263–4.210)	0.930 (0.447–1.935)	1.345 (0.951–1.903)	1.123 (0.850–1.483)
Decrease in income during pandemic (yes vs. no)	1.026 (0.824–1.279)	2.511 (1.733–3.639)	1.085 (0.666–1.768)	1.169 (0.910–1.503)	0.817 (0.670–0.998)
Medical or other professional with exposure to patients (yes vs. no)	0.928 (0.712–1.209)	0.584 (0.325–1.049)	0.372 (0.157–0.880)	0.949 (0.696–1.294)	0.869 (0.685–1.102)
Essential worker with exposure to public (yes vs. no)	0.960 (0.721–1.280)	0.805 (0.466–1.389)	0.824 (0.418–1.623)	1.143 (0.827–1.580)	0.940 (0.727–1.215)
Work change since pandemic (yes vs. no)	0.913 (0.740–1.125)	0.666 (0.455–0.974)	0.629 (0.392–1.007)	0.684 (0.538–0.870)	0.559 (0.464–0.673)
Delay in health care for new health problem (yes vs. no)	1.026 (0.817–1.287)	1.480 (1.000–2.192)	1.616 (1.021–2.556)	1.577 (1.229–2.024)	0.778 (0.632–0.958)
Need factors					
Presence of MSS of anxiety or depression (yes vs. no)	0.761 (0.628–0.921)	0.818 (0.575–1.164)	1.123 (0.735–1.716)	1.095 (0.879–1.364)	0.107 (0.089–0.128)
The presence of a chronic physical disorder (yes vs. no)	0.687 (0.554–0.852)	0.425 (0.278–0.650)	0.612 (0.377–0.992)	0.502 (0.389–0.648)	0.382 (0.314–0.464)
Suspicion of having had COVID-19					
Yes	0.820 (0.565–1.190)	1.208 (0.645–2.264)	1.279 (0.599–2.733)	0.652 (0.410–1.035)	0.763 (0.545–1.070)
No	Reference	Reference	Reference	Reference	Reference
Don't know	0.815 (0.596–1.114)	0.966 (0.549–1.699)	1.669 (0.936–2.976)	1.054 (0.744–1.493)	0.878 (0.665–1.160)

^aAdjusted for all study variables and regional cohort.

Table 3. Multivariable analyses on the association between need, enabling and predisposing factors associated with mental health service use (MHSU) in individuals with moderate or severe symptoms (MSS) of depression and/or anxiety (n=2,237).

	MHSU – using resources already in place vs. initiating new MHSU	No MHSU – could not find appointment vs. initiating new MHSU	No MHSU – financial barriers vs. initiating new MHSU	No MHSU – not comfortable vs. initiating new MHSU	No MHSU – no need vs. initiating new MHSU
Predisposing factors					
Age group					
≤44 years	Reference	Reference	Reference	Reference	Reference
45–54 years	1.689 (1.034–2.757)	1.644 (0.655–4.124)	2.026 (0.616–6.668)	1.901 (1.036–3.488)	2.802 (1.621–4.842)
55–64 years	2.186 (1.330–3.592)	1.315 (0.518–3.336)	1.732 (0.516–5.808)	2.589 (1.411–4.751)	4.421 (2.556–7.648)
≥65 years	3.084 (1.762–5.398)	1.101 (0.387–3.131)	2.786 (0.790–9.828)	3.983 (2.053–7.729)	10.222 (5.619–18.593)
Sex (female vs. male)	1.263 (0.877–1.820)	0.778 (0.422–1.435)	0.598 (0.305–1.172)	0.751 (0.509–1.107)	0.903 (0.637–1.279)
Race/ethnicity: Caucasian vs. non-Caucasian	1.045 (0.601–1.817)	0.890 (0.352–2.253)	0.993 (0.317–3.114)	1.111 (0.582–2.122)	0.696 (0.410–1.183)
Lives alone (yes vs. no)	1.117 (0.759–1.642)	2.122 (1.105–4.076)	0.781 (0.344–1.775)	1.312 (0.855–2.014)	0.888 (0.604–1.305)
Current smoking (yes vs. no)	2.176 (1.112–4.257)	1.024 (0.333–3.149)	1.015 (0.265–3.897)	2.278 (1.098–4.726)	1.999 (1.015–3.937)
Past-year cannabis use (yes vs. no)	1.015 (0.705–1.460)	1.257 (0.669–2.360)	0.960 (0.450–2.047)	0.694 (0.451–1.067)	0.547 (0.372–0.804)
Past year average weekly alcohol consumption					
Never	Reference	Reference	Reference	Reference	Reference
Less than daily (≤5 times/week)	0.837 (0.586–1.197)	0.849 (0.441–1.633)	0.721 (0.358–1.452)	1.074 (0.708–1.630)	1.346 (0.934–1.941)
Almost daily (Six to seven times a week)	1.118 (0.646–1.933)	1.612 (0.636–4.084)	1.068 (0.376–3.030)	1.809 (0.995–3.288)	1.660 (0.964–2.858)
Enabling factors					
Total household income in year prior to pandemic					
<\$24,999	1.024 (0.512–2.046)	2.168 (0.713–6.597)	2.738 (0.828–9.054)	0.607 (0.260–1.417)	0.907 (0.452–1.820)
\$25,000–\$49,999	1.008 (0.589–1.723)	3.708 (1.610–8.537)	2.630 (0.999–6.922)	1.020 (0.560–1.858)	1.350 (0.805–2.264)
\$50,000–\$74,999	0.772 (0.500–1.191)	1.557 (0.704–3.445)	1.215 (0.485–3.045)	0.824 (0.505–1.344)	0.805 (0.527–1.229)
\$75,000–\$99,999	0.865 (0.582–1.285)	0.917 (0.389–2.161)	0.943 (0.377–2.362)	1.046 (0.671–1.630)	0.713 (0.478–1.063)
≥\$100,000	Reference	Reference	Reference	Reference	Reference
Not reported	0.928 (0.572–1.505)	1.248 (0.492–3.163)	1.016 (0.337–3.064)	1.191 (0.706–2.010)	1.044 (0.656–1.661)
Decrease in income during pandemic (yes vs. no)	1.025 (0.745–1.411)	3.104 (1.798–5.360)	0.944 (0.469–1.900)	1.102 (0.767–1.582)	0.740 (0.535–1.023)
Medical or other professional with exposure to patients (yes vs. no)	1.101 (0.733–1.655)	0.785 (0.352–1.750)	0.490 (0.144–1.673)	1.213 (0.764–1.924)	1.016 (0.672–1.536)
Essential worker with exposure to public (yes vs. no)	1.163 (0.745–1.814)	0.869 (0.374–2.018)	1.707 (0.723–4.030)	1.595 (0.987–2.577)	1.288 (0.830–2.000)
Work change since pandemic (yes vs. no)	0.872 (0.636–1.196)	0.660 (0.378–1.152)	0.711 (0.359–1.407)	0.580 (0.407–0.827)	0.661 (0.484–0.904)
Delay in health care for new health problem (yes vs. no)	1.011 (0.740–1.381)	1.347 (0.773–2.348)	1.156 (0.610–2.193)	1.414 (1.003–1.993)	0.986 (0.723–1.345)
Need factors					
The presence of a chronic physical disorder (yes vs. no)	0.665 (0.486–0.911)	0.446 (0.241–0.826)	0.656 (0.338–1.275)	0.341 (0.235–0.496)	0.272 (0.197–0.377)
Suspicion of having had COVID-19					
Yes	0.820 (0.491–1.368)	0.800 (0.321–1.996)	0.420 (0.095–1.858)	0.885 (0.492–1.591)	0.920 (0.553–1.529)
No	Reference	Reference	Reference	Reference	Reference
Don't know	0.865 (0.553–1.352)	0.864 (0.372–2.004)	1.222 (0.521–2.867)	1.045 (0.634–1.722)	1.028 (0.663–1.593)

^aAdjusted for all study variables and regional cohort.

No MHSU due to health system barriers as compared to initiating new MHSU

Among the predisposing factors studied participants living alone were twice more likely to report no MHSU due to health system barriers such as not being able to find an appointment than initiating new MHSU. Among the enabling factors, participants reporting a decrease in income from prior to the pandemic were three times more likely and those reporting income between \$25,000 and \$49,999 were close to four times more likely, as compared to the \geq \$100,000 income category, to report no MHSU due to not being able to find an appointment than initiating new MHSU. Among the need factors studied, those reporting the presence of chronic physical disorders were twice less likely to report not being able to find an appointment.

MHSU of resources individuals already had in place as compared to initiating new MHSU

Among the predisposing factors studied, smokers were twice more likely and participants in the ≥ 65 -year, 55- to 64-year and 45- to 54-year age groups were between two and three times more likely, as compared to those in the ≤ 44 -year age group, to report MHSU of resources already in place than initiating new MHSU. Among the need factors studied, individuals reporting a physical chronic condition were less likely to report MHSU of resources already in place than initiating new MHSU.

Discussion

The current study examined the predisposing, enabling and need factors associated with initiating new MHSU during the first eighteen months of the COVID-19 pandemic in a large Canadian sample of adults. This study extends past literature by identifying correlates of initiating new MHSU as compared to MHSU of resources already in place and the absence of MHSU due to health system, financial and personal barriers, and the self-reported absence of need. Among the factors studied, there were differences in predisposing, enabling and need factors associated with MHSU.

Since the beginning of the pandemic (March 2020), 13.2% of the current study sample reported MHSU, similar to the 12% reported in a Canadian general population poll carried out one year following the start of the pandemic (Canadian Centre on Substance Use and Addiction and the Mental Health Commission of Canada, 2021). Further, when looking at the reasons for not accessing mental health services in the current study, 17.2% could not afford it or had lost health benefits due to being laid off or reduced working hours and 10.6% could not get an appointment. Among the individuals reporting no MHSU despite perceiving a need during the pandemic, 72.2%

reported personal reasons such as not comfortable seeking help. This is similar to a Canadian survey late in 2020 showing that 78.5% of Canadians reporting personal reasons as a barrier to mental health care (Statistics Canada, 2021).

In the context of important health service disruptions, shifting from in-person to virtual mental health care, and increased demand and limited access to mental health treatment during the pandemic (Asmundson et al., 2020; Canadian Institute for Health Information, 2022b; Duden et al., 2022; Mental Health Research Canada, 2020), few population studies have focused on the factors associated with initiating MHSU. A Danish study conducted prior to the pandemic showed that primary care patients having screened positive for depression and initiating mental healthcare within the year were more likely females and to report more severe impairment in mental health, while education, occupation and income differences were not observed (Geyti et al., 2020). A Veterans Health Administration study in the USA showed that individuals initiating psychotherapy or antidepressant treatment within 3 months of a positive screen for depression were more likely to be females, to report anxiety or post-traumatic stress disorder, to be married, and to be younger than 44 years as compared to older age groups (Cornwell et al., 2021).

Our findings, in individuals with MSS of depression and/or anxiety add to the present literature by observing that adults living alone, experienced a reduction in income from prior to during the pandemic or had lower income, were more likely to report no MHSU due to health system barriers (i.e. not being able to get an appointment with health professional) as compared to initiating new MHSU. Physical distancing measures and fear of infection leading to changes in work status and social isolation during the pandemic may have increased the perceived need for mental health care in individuals living alone (Spagnolo et al., 2022). Barriers to accessing healthcare among individuals with mental health problems have been previously reported across many countries including Canada (Corscadden et al., 2018). An earlier Canadian population-based study similarly showed that 22% of adults with either depression or an anxiety disorder reported barriers in accessing mental health care (Wang, 2006). The most common barriers reported among individuals perceiving a need but not seeking services include structural barriers such as financial barriers and lack of availability of mental health services (Andrade et al., 2014; Wang, 2006).

In the current study 4.6% of the overall sample and 15.9% of individuals with MSS of depression and/or anxiety reported no MHSU due to not being comfortable to seek mental health care. As compared to initiating new MHSU, these individuals were more likely in older age groups than the younger age group (≤ 44 years), smoke and report delay in healthcare for a new health problem.

Further, 1.1% in the overall sample and 2.5% of individuals with MSS of depression and/or anxiety reported no MHSU due to financial barriers.

The current study findings also showed that among individuals reporting MSS of depression and/or anxiety during the pandemic, adults aged 44 years and younger as compared to all other older age groups, also reporting cannabis use and a physical chronic condition, and change in work status were more likely to initiate MHSU than report no MHSU due to no need. These findings may reflect increased perceived mental health burden in these individuals. Contrary to earlier studies (Cornwell et al., 2021; Geyti et al., 2020), we did not find sex differences in initiating MHSU in individuals with MSS of depression and/or anxiety. This may in part be due to the fact that the majority (80%) of participants reporting MSS of depression and/or anxiety were female.

The strength of the current study includes available data on socio-demographic, economic, lifestyle factors and symptoms of depression and anxiety from prior to during the pandemic, minimising the risk of information and recall bias, in a large Canadian sample recruited in CanPath's longitudinal regional cohorts, spanning a number of provinces. Another strength of the current study was that we were able to study in more detail the factors associated with MHSU and specifically be able to distinguish between initiating new MHSU and using resources individual already had in place, as well as distinguishing no MHSU due to no need from no MHSU due to barriers or personal reasons (not being comfortable). A limitation of the current study was that we were not able to distinguish the type of health professionals consulted or sought for services (i.e. family physician or general practitioner, psychiatrist, mental health professional such as psychologist, psychotherapist/counsellor) or whether this was in the public or private sector. Furthermore, the present study did not assess whether the reported MHSU was for in person or virtual mental health care, which may have further clarified whether this modality is a facilitator or barrier of MHSU for different subgroups of the population. Finally, participants of the regional cohorts were more likely women, white, reported higher level education, and were retired and therefore results may not be generalisable to the general Canadian population. Participants however were similar in their reporting of chronic physical conditions to the Canadian general population (Dummer et al., 2018).

In conclusion, the findings of the present study showed that younger adults were more likely to initiate MHSU via new services during the pandemic than older adults. The decreased odds of initiating new MHSU during the pandemic by older adults may reflect the increased difficulty in finding new mental health resources for older adults or that virtual mental health consultations offered during the pandemic may have seen a limited uptake in older age

groups. Further, older adults were up to ten times more likely to report no MHSU due to not feeling the need and not being comfortable to seek care. This finding underscores the importance of informing older adults about the various treatments available for anxiety and depression. Awareness campaigns focusing on older adults underlying the importance of seeking treatment for their anxiety and depression and to explain the process of available effective treatments such as psychotherapy may help in improving acceptability. With a better understanding of the different treatments available, they might be more willing and comfortable to seek help for their mental health problem. Future studies should also aim towards better documenting the use of virtual mental health care and associated perceived barriers in older adults (Harerimana et al., 2019). Furthermore, health system barriers such as not being able to find an appointment were present in individuals living alone and with lower socio-economic status and this in individuals reporting MSS of depression and/or anxiety. Social isolation and lower socio-economic status have been associated with difficulties in navigating the health care system suggesting the importance of informing at risk individuals as to the different available health services in their area and aiding in scheduling appointments if necessary, and ensuring continuity of care and communication between professionals to support patient care (Canadian Institute for Health Information, 2022a). Health policies should go further in improving access to mental health care at the individual level by improving structural and organisational barriers such as removing any financial or insurance reimbursement barriers to mental health service use. General practitioners and health professionals in proximity to the community should also identify individuals with anxiety and depression living alone which may be more at risk of unmet mental health service needs. Future research should focus on better describing the factors associated with the type of mental health professionals consulted in both the public and private health sectors.

Acknowledgements

The data used in this research were made available by CanPath – Canadian Partnership for Tomorrow's Health (formerly the Canadian Partnership for Tomorrow Project) including 5 regional cohorts of the British Columbia Generations Project, Alberta's Tomorrow Project, Ontario Health Study, CARTaGENE, and Atlantic Partnership for Tomorrow's Health – and the COVID-19 Immunity Task Force and Public Health Agency of Canada. CanPath is supported by the Canadian Partnership Against Cancer and Health Canada, BC Cancer, Genome Quebec, Centre Hospitalier Universitaire (CHU) Sainte-Justine, Dalhousie University, Ontario Institute for Cancer Research, Alberta Health, Alberta Cancer Foundation, and Alberta Health Services. The views expressed herein represent the views of the authors and not of CanPath, the regional cohorts or its funders. The authors would like to thank Nolwenn Noisel for her collaboration in obtaining funding for the study

and Catherine Lamoureux-Lamarche, MSc, PhD, for preparing the manuscript for submission.

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The current project was funded by a Canadian Institutes of Health Research (CIHR) grant (#02211-000). The funder had no role in the study design, data collection, analysis and interpretation, draft and revision of the paper nor in the decision to submit for publication. J. Spagnolo is currently funded by a CIHR Fellowship (2022-2025) and previously received funding from a FRQ-S Postdoctoral Training Fellowship (2020-2022). S. Grenier is funded by a FRQ-S Senior salary award.

ORCID iD

Helen-Maria Vasiliadis  <https://orcid.org/0000-0003-0186-6060>

Data availability

Data from CanPath participants are available through a data access process. More information can be obtained via <https://can-path.ca/>.

References

- Andersen, R. M. (1995). Revisiting the behavioral model and access to medical care: Does it matter? *Journal of Health and Social Behavior*, 36(1), 1–10.
- Andrade, L. H., Alonso, J., Mneimneh, Z., Wells, J. E., Al-Hamzawi, A., Borges, G., Bromet, E., Bruffaerts, R., de Girolamo, G., de Graaf, R., Florescu, S., Gureje, O., Hinkov, H. R., Hu, C., Huang, Y., Hwang, I., Jin, R., Karam, E. G., Kovess-Masfety, V., . . . Kessler, R. C. (2014). Barriers to mental health treatment: Results from the WHO World Mental Health surveys. *Psychological Medicine*, 44(6), 1303–1317.
- Asmundson, G. J. G., Blackstock, C., Bourque, M. C., Brimacombe, G., Crawford, A., Deacon, S. H., McMullen, K., McGrath, P. J., Mushquash, C., Stewart, S. H., & Stinson, J. (2020). Easing the disruption of COVID-19: Supporting the mental health of the people of Canada—October 2020—An RSC Policy Briefing. *Facets*, 5(1), 1071–1098.
- Canadian Centre on Substance Use and Addiction and the Mental Health Commission of Canada. (2021). *Mental health and substance use during COVID-19: Spotlight on income, employment, and access*.
- Canadian Centre on Substance Use and Addiction and the Mental Health Commission of Canada. (2022). *Mental health and substance use during COVID-19 final summary report: Regional spotlight and key characteristics*.
- Canadian Institute for Health Information. (2022a). *Navigation of mental health and substance use services*. Retrieved June 13, 2023, from https://yourhealthsystem.cihi.ca/hsp/inbrief?lang=en&_ga=2.14416311.1677926545.1621952073-1408688920.1607697689#!/indicators/098/navigation-of-mental-health-and-substance-use-services/mapC1;mapLevel2/
- Canadian Institute for Health Information. (2022b). *Virtual care: Use of physician mental health services in Canada*. Retrieved May 9th, 2023, from <https://www.cihi.ca/en/virtual-care-use-of-physician-mental-health-services-in-canada#:~:text=The%20proportion%20of%20these%20services,%2C%20they%20accounted%20for%2057%25.>
- Canadian Partnership for Tomorrow's Health. (2020a). *Canada's COVID-19 Immunity Task Force funds national CanPath study looking at seroprevalence of COVID-19 antibodies among high-risk populations*. Retrieved June 15, 2023, from <https://canpath.ca/en/2020/10/covid-19-immunity-task-force-funds-canpath-study/>
- Canadian Partnership for Tomorrow's Health. (2020b). *COVID-19 initiatives*. Retrieved April 20, 2022, from <https://can-path.ca/en/covid-19-initiatives/>
- Coley, R. L., & Baum, C. F. (2022). Trends in mental health symptoms, service use, and unmet need for services among US adults through the first 8 months of the COVID-19 pandemic. *Translational Behavioral Medicine*, 12(2), 273–283.
- Cornwell, B. L., Szymanski, B. R., Bohnert, K. M., & McCarthy, J. F. (2021). Treatment initiation following positive depression screens in primary care: A propensity score-weighted analysis of integrated mental health services. *Journal of General Internal Medicine*, 36(2), 561–563.
- Corscadden, L., Levesque, J. F., Lewis, V., Strumpf, E., Breton, M., & Russell, G. (2018). Factors associated with multiple barriers to access to primary care: An international analysis. *International Journal for Equity in Health*, 17(1), 28.
- Duden, G. S., Gersdorf, S., & Stengler, K. (2022). Global impact of the COVID-19 pandemic on mental health services: A systematic review. *Journal of Psychiatric Research*, 154, 354–377.
- Dummer, T. J. B., Awadalla, P., Boileau, C., Craig, C., Fortier, I., Goel, V., Hicks, J. M., Jacquemont, S., Knoppers, B. M., Le, N., & McDonald, T. (2018). The Canadian partnership for tomorrow project: A pan-canadian platform for research on chronic disease prevention. *CMAJ*, 190(23), E710–E717.
- Geyti, C., Christensen, K. S., Dalsgaard, E. M., Bech, B. H., Gunn, J., Maingal, H. T., & Sandbaek, A. (2020). Factors associated with non-initiation of mental healthcare after detection of poor mental health at a scheduled health check: A cohort study. *BMJ Open*, 10(10), e037731.
- Gouin, J. P., MacNeil, S., de la Torre-Luque, A., Chartrand, E., Chadi, N., Rouquette, A., Boivin, M., Côté, S., & Geoffroy, M. C. (2023). Depression, anxiety, and suicidal ideation in a population-based cohort of young adults before and during the first 12 months of the COVID-19 pandemic in Canada. *Canadian Journal of Public Health*, 114(3), 368–377.
- Harerimana, B., Forchuk, C., & O'Regan, T. (2019). The use of technology for mental healthcare delivery among older adults with depressive symptoms: A systematic literature review. *International Journal of Mental Health Nursing*, 28(3), 657–670.
- Kroenke, K., Strine, T. W., Spitzer, R. L., Williams, J. B., Berry, J. T., & Mokdad, A. H. (2009). The PHQ-8 as a measure of current depression in the general population. *Journal of Affective Disorders*, 114(1–3), 163–173.

- Matovic, S., Grenier, S., Jauvin, F., Gravel, C., Vasiliadis, H.-M., Vasil, N., Belleville, S., Rainville, P., Dang-Vu, T. T., Aubertin-Leheudre, M., Knäuper, B., Dialahy, I. Z., & Gouin, J. P. (2023). Trajectories of psychological distress during the COVID-19 pandemic among community-dwelling older adults in Quebec: A longitudinal study. *International Journal of Geriatric Psychiatry, 38*(1), e5879.
- Mental Health Research Canada. (2020). *Mental Health During COVID-19 Outbreak Poll 2*. Retrieved July, 2022, from <https://static1.squarespace.com/static/5f31a311d93d0f2e28aaf04a/t/5f866fab9ec4b03a7a306890/1602645935216/MHRC+Poll+2+MH+Final+Public+Release+Oct+1+2020.pdf>
- Mental Health Research Canada. (2022). *Understanding the mental health of Canadians throughout COVID-19 and beyond: Poll #14*. Retrieved June 13, 2023, from https://static1.squarespace.com/static/5f31a311d93d0f2e28aaf04a/t/63763bbd5c30a0045cf4ae41/1668692926619/2022Nov17_MHRC+Mental+Health+During+COVID+Poll+14+Full+Report.pdf
- Miconi, D., Li, Z. Y., Frounfelker, R. L., Santavicca, T., Cénat, J. M., Venkatesh, V., & Rousseau, C. (2020). Ethno-cultural disparities in mental health during the COVID-19 pandemic: A cross-sectional study on the impact of exposure to the virus and COVID-19-related discrimination and stigma on mental health across ethno-cultural groups in Quebec (Canada). *BJPsych Open, 7*(1), e14.
- Moroz, N., Moroz, I., & D'Angelo, M. S. (2020). Mental health services in Canada: Barriers and cost-effective solutions to increase access. *Health Manage Forum, 33*(6), 282–287.
- Moyser, M. (2020). *The mental health of population groups designated as visible minorities in Canada during the COVID-19 pandemic*. Statistics Canada.
- Nagata, J. M., Ganson, K. T., Bonin, S. L., Twadell, K. L., Garcia, M. E., Langrock, O., Vittinghoff, E., Tsai, A. C., Weiser, S. D., & Abdel Magid, H. S. (2022). Prevalence and sociodemographic correlates of unmet need for mental health counseling among adults during the COVID-19 pandemic. *Psychiatric Services, 73*(2), 206–209.
- Palmer, C. S., Brown Levey, S. M., Kostiuik, M., Zisner, A. R., Tolle, L. W., Richey, R. M., & Callan, S. (2022). Virtual care for behavioral health conditions. *Primary Care, 49*(4), 641–657.
- Public Health Agency of Canada. (2022). *What did Canadians do for their mental health during the COVID-19 pandemic?*. Retrieved July, 2022, from <https://www.canada.ca/en/public-health/services/publications/diseases-conditions/what-did-canadians-do-for-mental-health-during-covid-19.html>
- SAS Institute. (2013). *The SAS system for Windows (Version 9.4)*.
- Siegel, A., Zuo, Y., Moghaddamcharkari, N., McIntyre, R. S., & Rosenblat, J. D. (2021). Barriers, benefits and interventions for improving the delivery of telemental health services during the coronavirus disease 2019 pandemic: A systematic review. *Current Opinion in Psychiatry, 34*(4), 434–443.
- Simon, M., Klein, C. S. C., Blom, T., Welge, J., Higdon, C., Fornari, V., Gashi, S., Correll, C., & DelBello, M. (2022). *Utilizing telemedicine for mental healthcare during COVID-19: Implications for post-pandemic policymaking* [Paper presentation]. The 2022 American Public Health Association Annual Meeting and Expo.
- Smith, C. (2020). Prime Minister Justin Trudeau announces \$240.5 million in funding for virtual mental-health supports and services. *Straight*. <https://www.straight.com/living/prime-minister-justin-trudeau-announces-2405-million-in-funding-for-virtual-mental-health>
- Spagnolo, J., Beauséjour, M., Fleury, M. J., Clément, J. F., Gamache, C., Sauvé, C., Couture, L., Fleet, R., Knight, S., Gilbert, C., & Vasiliadis, H. M. (2022). Perceptions on barriers, facilitators, and recommendations related to mental health service delivery during the COVID-19 pandemic in Quebec, Canada: A qualitative descriptive study. *BMC Primary Care, 23*(1), 32.
- 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.
- Statistics Canada. (2021). *Self-perceived mental health and mental health care needs during the COVID-19 pandemic* (No. 45-28-0001).
- Wang, J. (2006). Perceived barriers to mental health service use among individuals with mental disorders in the Canadian general population. *Medical Care, 44*(2), 192–195.