Original quantitative research

Access to mental health support, unmet need and preferences among adolescents during the first year of the COVID-19 pandemic

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Abstract

Introduction: The COVID-19 pandemic has had widespread effects on adolescent mental health. However, little is known about support-seeking, unmet need and preferences for mental health care among adolescents.

Methods: The Youth Development Instrument (YDI) is a school-administered survey of adolescents (N = 1928, mean age = 17.1, SD = 0.3) across British Columbia, Canada. In this cohort, we assessed the characteristics of accessed mental health supports, prevalence of unmet need and preferences for in-person versus internet-based services.

Results: Overall, 40% of adolescents obtained support for mental health, while 41% experienced unmet need. The most commonly accessed supports were family doctors or pediatricians (23.1%) and adults at school (20.6%). The most preferred mode of mental health care was in-person counselling (72.4%), followed by chat-based services (15.0%), phone call (8.1%) and video call (4.4%). The adjusted prevalence of accessing support was elevated among adolescents with anxiety (adjusted prevalence ratio [aPR] = 1.29, 95% CI: 1.10–1.51), those who used alcohol (1.14, 1.01–1.29), gender minorities (1.28, 1.03–1.58) and sexual minorities (1.28, 1.03–1.45). The adjusted prevalence of unmet need was elevated among adolescents with depression (1.90, 1.67–2.18), those with anxiety (1.78, 1.56–2.03), females (1.43, 1.31–1.58), gender minorities (1.45, 1.23–1.70) and sexual minorities (1.15, 1.07–1.23).

Conclusion: Adolescents of gender or sexual minority status and those with anxiety were more likely than others to have discussed mental health concerns and also to have reported unmet need. The most common sources of support were primary health care providers and adults at school, while the most and least preferred modes of support were in-person and video call services, respectively.

Keywords: *mental health services, unmet need, depression, anxiety, substance use*

Highlights

- Among adolescents, during the COVID-19 pandemic, the most commonly accessed mental health supports were primary care providers and adults at school.
- The most preferred mode of mental health care was in-person counselling, while the least preferred mode was video calling.
- There was particular unmet need for mental health support among adolescents with depression, those with anxiety, gender minorities and sexual minorities.
- Future interventions should target these underserved groups, emphasizing the role of primary care, school-based interventions and in-person service options.

Introduction

Adolescent mental health and substance use have been areas of substantial concern during the COVID-19 pandemic,[1] as there have been documented increases in major depressive disorder, generalized anxiety, drinking and cannabis use since April 2020.[2,3] During the pandemic, a substantial proportion of adolescents began using substances primarily in solitude,[3] and it is estimated that nearly half of teens experienced an increase in depressive or anxious symptoms.[4]

To date, a large body of literature has examined the characteristics associated with poor adolescent mental health during this period,[5] identifying both risk and protective factors.[1,6] Some studies have further examined access to mental health services during the pandemic through administrative records, including pediatric

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emergency department visits[7,8] and specialist mental health referrals.[9,10] These studies provide key information regarding mental health service provision during the pandemic, as they are not limited by response bias or participant recall. However, there is limited evidence surrounding access to less emergent or specialist forms of mental health support, such as family doctors or teachers.

Few studies have examined adolescents in the general population rather than solely adolescent patients included in administrative records.[11] This is an important gap, as administrative records do not allow for assessment of unmet need, since they include only adolescents who have already accessed care. Administrative records also do not allow for calculation of the prevalence of support-seeking in a general adolescent sample, since they are limited to patient participants and to particular forms of mental health support.

There is also limited evidence around adolescent perceptions of virtual mental health care, which rapidly increased during the pandemic.[12,13] Despite virtual care becoming more accessible, it is unknown how adolescents feel about online services, or which forms of virtual support they most prefer. One online survey found that a majority of young people with internalizing disorders would be willing to consider virtual services;[4] however, this study included young adults up to 29 years of age and did not measure actual access to support. Thus, despite the pandemic revealing vulnerabilities in youth mental health, there remain clear gaps in our understanding of adolescent support-seeking, unmet need and preferences regarding mental health services.

We therefore sought to assess the prevalence of accessing mental health support by adolescents in British Columbia during the first year of the COVID-19 pandemic, as well as characteristics associated with support-seeking and unmet mental health care needs. We further sought to identify the main sources of mental health support and the preferred delivery format for mental health services by adolescents during the first year of the COVID-19 pandemic. Using this information, we aimed to comment on the optimal setting, mode of delivery and target populations for adolescent mental health interventions during and after the pandemic period.

The context: school responses to COVID-19 in British Columbia

Unlike many other Canadian provinces and US states, British Columbia maintained mostly in-person learning throughout the winter and spring of 2021,[14] allowing for in-person survey delivery. However, like elsewhere across the globe, adolescent extracurriculars, recreational activities and social gatherings were prohibited. In June 2020, the provincial government invested CAD 5 million towards the expansion of mental health resources,[15] the majority of which went to developing e-mental health interventions.[13,15,16] However, it is unknown how adolescents felt about this care model, or how well digital services served mental health needs.

Methods

Ethics approval

This study was approved by the UBC Behavioural Research Ethics Board.

Setting and participants

The Youth Development Instrument (YDI) is an in-school, computerized survey of secondary school students, conducted in partnership with select school districts in British Columbia (BC), the Human Early Learning Partnership at the University of British Columbia (HELP-UBC) and clinical, community, youth and government advisors. The YDI measures well-being and development in a general population sample of students enrolled at BC secondary schools. In this setting, schools maintained mostly in-person learning throughout the winter and spring of 2021, allowing for in-person survey delivery. From February to June 2021, high schools within selected school districts invited Grade 11 students to participate in the study during a designated delivery day or week. Due to small class sizes, one independent school additionally surveyed students in Grades 10 and 12 (n = 50). Overall, the mean age was 17.1 years (standard deviation = 0.3), with 99.9% of the sample falling between the ages of 16 and 18 years.

Procedures

Data for the YDI were collected from February to June 2021 and included all eligible students in six participating school districts and one independent high school. Two months prior to survey delivery,

participating schools were provided with an administration guide to maximize implementation consistency. At least one month prior to survey delivery, passive consent letters were distributed to student parents and guardians with the aim of limiting systemic selection bias. Students additionally provided assent after reviewing complete information about the study and having the opportunity to ask follow-up questions.

Most participants completed the survey online using school or personal devices during class hours. Four schools additionally emailed a link to a virtual survey for students who were absent during in-school delivery (n = 32). The survey was administered using the University of British Columbia Survey Tool hosted by Qualtrics, and took an average of 45 minutes to complete. All data were stored with Population Data BC, a multi-university data and education repository for individual-level data with robust privacy, confidentiality and security protocols.

Measures

Outcomes

Access to mental health support was assessed using the stem question "In the past 6 months, did you see or talk to anyone from the following places about any concerns you may have had about your mental health?" Response options were "Family doctor or pediatrician's office," "Walk-in clinic," "Urgent care clinic, hospital or emergency room," "Agency that provides mental health care or addiction services for children or adolescents," "A psychiatrist, a psychologist, a social worker or some other type of counsellor" and "Teacher, adult or counsellor at school." Students with a positive response to one or more of these options were categorized as having accessed a mental health support in the last six months.

Unmet mental health care need was assessed using the question "In the past 6 months, was there ever a time when you felt you might need professional help for mental health concerns (i.e. problems with emotions, attention, behaviours or use of drugs or alcohol) but you did not seek help?" Students who responded "Yes" were categorized has having unmet mental health care needs.

Additionally, students were asked to rank their preferred delivery format for receiving

mental health care, including in-person, phone call, Internet (including website and online chat/text) and video call.

Mental health and substance use indicators

Depression and anxiety were measured using validated screening tools used frequently in population surveys and clinical settings: the Patient Health Questionnaire 8 (PHQ-8) and the Generalized Anxiety Disorder Questionnaire 2 (GAD-2). Respondents who scored ≥ 10 on the PHQ-8 screened positive for depression, while those who scored ≥ 3 on the GAD-2 screened positive for anxiety.[17,18] Alcohol and cannabis use were measured using the questions "How many times in the last 4 weeks have you drunk alcohol (wine, liquor, beer, coolers)?" and "How many times in the last 4 weeks have you smoked cannabis (marijuana)?" Potential responses included "Never done this," "Not in the last 4 weeks," "One or a few times," "Weekly," "Most days," and "Almost every day." Consistent with prior studies,[8,19] any alcohol or cannabis use was defined using a cut-off of "One or a few times," while near-daily alcohol or cannabis use was defined using a cut-off of "Most days."[19,20]

Demographic characteristics

Demographic characteristics included gender, ethnicity, sexual orientation and socioeconomic status. Gender was identified by asking participants "How do you describe your gender?", with response options "Boy" (reference), "Girl" and "In another way." Ethnicity was identified by asking participants to choose from a list of options consistent with those listed in the Canadian census. We used responses to this question to define three broad ethnicity categories: White (reference), Asian and Other. These categories were chosen because they were the largest ethnicity categories in our sample, as well as in British Columbia as a whole.[21] An a priori decision to use three categories was made in light of sample size and methodological considerations around the need to preserve degrees of freedom in statistical analyses.

Sexual orientation was identified using the question stem "Do you identify as:" with response options "Heterosexual/ straight," "Gay/lesbian," "Bisexual/pansexual," "Asexual," "Queer," "Questioning/ unsure" and "If none of the above (or if you would like to choose multiple categories), please specify: __." Due to sample

size considerations, sexual orientation was dichotomized to heterosexual and sexual minorities.

Socioeconomic status was measured using the revised six-item Family Affluence Scale, a continuous scale that has been validated in numerous youth samples.[22,23]

Statistical analysis

As students were surveyed within their given high schools, the data in the current study were clustered by school. To account for this clustering, data were analyzed using a modified Poisson regression, as described by Zou et al.[24] This model specifies a log link function with a Poisson distribution and robust standard errors in order to approximate the risk ratio when outcome prevalence exceeds 20%, as is the case in the current study. As our study was cross-sectional, the use of modified Poisson regression allowed for the calculation of adjusted prevalence ratios, which describe the relative adjusted prevalence of an outcome in one exposure group versus another.

We tested the crude and adjusted associations of mental health conditions, substance use and demographic characteristics with (1) accessing any mental health care support and (2) reporting any unmet mental health care need during the COVID-19 pandemic. Mental health conditions included depression and anxiety, while substance use included past-month drinking and cannabis use. Demographic characteristics included gender (male, female, other), sexual orientation (heterosexual, sexual minority), ethnicity (White, Asian, other), and family affluence (continuous Family Affluence Scale score). Adjusted models controlled for all other mental health and demographic characteristics. Adjusted estimates were therefore derived from one of two models: one examining all predictors and having accessed mental health support, and one examining all predictors and self-identified unmet need. All statistical analyses were conducted using SAS version 9.4 (SAS Institute Inc., Cary, NC, US) and considered two-tailed differences of $p < 0.05$ statistically significant.

Results

Of the 3795 adolescents invited to participate in the study, 2350 completed the survey (response rate = 61.9%). After removing outliers (i.e. participants with average response times under 2 seconds,

n = 44) and those with missing exposure or outcome data (n = 378), the final sample included 1928 students (82.0% of all respondents) from 31 unique high school programs. Overall, included participants had a higher proportion of girls (47.5% vs. 37.3% among excluded participants) and higher scores on the Family Affluence Scale (3rd quartile = 38.6% vs. 31.8%, 4th quartile 17.2% vs. 13.5%). There were no other significant differences between included and excluded participants (data available upon request from the authors). Sample characteristics are presented in Table 1.

What was the prevalence of mental health conditions and substance use among adolescents during the COVID-19 pandemic?

Overall, 39.7% of the sample screened positively for depression, 43.7% screened positively for generalized anxiety, 26.8% reported using alcohol in the past month, 2.0% reported using alcohol near daily in the past month, 16.8% reported using cannabis in the past month and 7.3% reported using cannabis near daily in the past month. Among adolescents who drank in the past month, 7.4% did so on a near-daily basis, while among adolescents who smoked cannabis, 43.3% did so on a near-daily basis. Compared to males, depression and anxiety were more common among females (depression: 50.8% vs. 27.0%; anxiety: 60.3% vs. 25.8%) and gender minority students (depression: 79.6% vs. 27.0%; anxiety: 79.6% vs. 25.8%). Depression and anxiety were also more common among students who reported belonging to a sexual minority group compared to heterosexual students (depression: 65.1% vs. 32.6%; anxiety: 68.4% vs. 36.8%). A detailed breakdown of mental health and substance use by demographic characteristics is presented in Table 2.

What was the prevalence of accessing support and unmet mental health care need among adolescents? Which mode of mental health support was most preferred?

Of the sample, 40.3% accessed a mental health support in the past six months, while 59.7% did not. Similarly, 40.8% experienced unmet need for mental health care, while 59.2% did not. Mental health support was accessed by approximately half of those who screened positive for depression, anxiety, past-month drinking or past-month cannabis use. Unmet need

TABLE 1
Sample characteristics, Grade 11 adolescents in British Columbia, Canada, February to June, 2021

Characteristic	Frequency n (%)
Gender	
Male	959 (49.7)
Female	915 (47.5)
Gender minority	54 (2.8)
Ethnicity	
White	1040 (53.9)
Asian	462 (24.0)
Other	426 (22.1)
Sexuality	
Heterosexual	1510 (78.3)
Sexual minority	418 (21.7)
Family Affluence Score quartile[a]	
Quartile 1	313 (16.2)
Quartile 2	539 (28.0)
Quartile 3	744 (38.6)
Quartile 4	332 (17.2)
Total	**1928**

Data source: Youth Development Instrument survey.

[a] Higher quartiles indicate higher levels of family affluence.

was reported by nearly 70% of adolescents with depression or anxiety, 55% of adolescents with past-month drinking and 60% of adolescents with past-month cannabis use. Overall, the most commonly accessed supports were family doctors or pediatricians (23.1%); teachers, adults or counsellors at school (20.6%); and mental health professionals (14.9%). The most preferred mode of mental health care was in-person counselling (72.4%), followed by Internet (including website and online chat/text; 15.0%), phone call (8.1%) and video call (4.4%). A detailed breakdown of mental health support access and unmet need by mental health status is presented in Table 3.

Which adolescent characteristics were associated with accessing support?

In adjusted analyses, anxiety was associated with a 29% increase in the prevalence of accessing mental health support (adjusted prevalence ratio [aPR] = 1.29, 95% CI: 1.11–1.51), while alcohol use was associated with a 14% increase in the prevalence of accessing mental health support (1.14, 1.01–1.29). Neither depression (1.11, 0.96–1.28) nor cannabis use

TABLE 2
Prevalence of mental health and substance use by demographic characteristics among Grade 11 adolescents in British Columbia during the first year of the COVID-19 pandemic (N = 1928)

Characteristic	Frequency, n (%)					
	Depression	Anxiety	Past-month alcohol use		Past-month cannabis use	
			Any use	Near-daily use	Any use	Near-daily use
Gender						
Male	257 (27.0)	247 (25.8)	206 (21.5)	26 (2.7)	151 (15.7)	79 (8.2)
Female	465 (50.8)	552 (60.3)	298 (32.6)	12 (1.3)	160 (17.5)	58 (6.3)
Gender minority	43 (79.6)	43 (79.6)	13 (24.1)	0 (0.0)	12 (22.2)	3 (5.6)
Ethnicity						
White	427 (41.1)	481 (46.3)	346 (33.3)	21 (2.0)	199 (19.1)	81 (7.8)
Asian	142 (30.7)	155 (33.5)	36 (7.8)	3 (0.6)	21 (4.5)	5 (1.1)
Other	196 (46.0)	206 (48.4)	135 (31.7)	14 (3.3)	103 (24.2)	54 (12.7)
Sexuality						
Heterosexual	493 (32.6)	556 (36.8)	389 (25.8)	27 (1.8)	218 (14.4)	92 (6.1)
Sexual minority	272 (65.1)	286 (68.4)	128 (30.6)	11 (2.6)	105 (25.1)	48 (11.5)
Family affluence score quartile[a]						
Quartile 1	138 (44.1)	147 (47.0)	77 (24.6)	9 (2.9)	75 (24.0)	37 (11.8)
Quartile 2	233 (43.2)	244 (45.3)	138 (25.6)	6 (1.1)	95 (17.6)	42 (7.8)
Quartile 3	269 (36.2)	309 (41.5)	198 (26.6)	13 (1.7)	109 (14.7)	47 (6.3)
Quartile 4	125 (37.7)	142 (42.8)	104 (31.3)	10 (3.0)	44 (13.3)	14 (4.2)
Total	**765 (39.7)**	**842 (43.7)**	**517 (26.8)**	**38 (2.0)**	**323 (16.8)**	**140 (7.3)**

Data source: Youth Development Instrument survey.

[a] Higher quartiles indicate higher levels of family affluence.

TABLE 3
**Prevalence of accessing mental health care services and unmet need among adolescents
with mental health concerns during the first year of the COVID-19 pandemic**

	Frequency, n (%)				
	Depression	**Anxiety**	**Past-month alcohol use**	**Past-month cannabis use**	**Total**
Accessed any mental health services	386 (50.5)	430 (51.1)	254 (49.1)	168 (52.0)	**777 (40.3)**
Type of service accessed[a]					
Family doctor or pediatrician	216 (28.8)	240 (29.0)	149 (29.3)	97 (30.5)	**440 (23.1)**
Walk-in clinic	109 (14.7)	113 (13.8)	80 (15.8)	62 (19.6)	**218 (11.5)**
Urgent care clinic, hospital or emergency room	78 (10.6)	78 (9.6)	63 (12.5)	42 (13.3)	**144 (7.6)**
Youth mental health agency	100 (13.7)	105 (13.0)	58 (11.6)	47 (14.9)	**145 (7.7)**
Psychiatrist, psychologist or social worker	192 (25.6)	199 (24.1)	108 (21.4)	77 (24.2)	**283 (14.9)**
Teacher, adult or school counsellor	204 (27.2)	221 (26.6)	135 (26.4)	86 (27.0)	**392 (20.6)**
Number of services accessed					
0 services	379 (49.5)	412 (48.9)	263 (50.9)	155 (48.0)	**1151 (59.7)**
1 service	152 (19.9)	180 (21.4)	98 (19.0)	60 (18.6)	**355 (18.4)**
2 services	77 (10.1)	95 (11.3)	55 (10.6)	34 (10.5)	**183 (9.5)**
3+ services	157 (20.5)	155 (18.4)	101 (19.5)	74 (22.9)	**239 (12.4)**
Reported unmet need for mental health services	535 (69.9)	564 (67.0)	284 (54.9)	190 (58.8)	**787 (40.8)**
Preferred mode of mental health care					
In-person	376 (72.9)	427 (72.9)	254 (75.1)	164 (75.2)	**949 (72.4)**
Phone call	43 (8.3)	42 (7.2)	33 (9.8)	16 (7.3)	**106 (8.1)**
Website, online chat or text	78 (15.1)	88 (15.0)	35 (10.4)	31 (14.2)	**197 (15.0)**
Video call	19 (3.7)	29 (4.9)	16 (4.7)	7 (3.2)	**58 (4.4)**
Total	**765 (39.7)**	**842 (43.7)**	**517 (26.8)**	**323 (16.8)**	**1928**

Data source: Youth Development Instrument survey.

[a] Cells may not add to totals due to the ability of participants to choose multiple options, and to missing data.

(1.12, 0.96–1.31) was significantly associated with accessing mental health support (Table 4).

With respect to demographic characteristics, gender minority status was associated with a 28% increase in the prevalence of accessing mental health support compared to males (aPR = 1.28, 95% CI: 1.03–1.59), while sexual minority status was associated with a 23% increase in accessing support compared to heterosexuals (1.23, 1.04–1.45). The adjusted prevalence of accessing mental health support was not significantly elevated among females compared to males (1.17, 1.00–1.38), minority ethnicities (Asian vs. White: 0.92, 0.78–1.08; Other vs. White: 1.02, 0.90–1.16) or adolescents with lower family affluence (0.99, 0.96–1.01; Table 4).

Which adolescent characteristics were associated with unmet mental health care needs?

In adjusted analyses, depression was associated with a 90% increase in the prevalence of reporting unmet need (aPR = 1.91, 95% CI: 1.67–2.18), while anxiety was associated with a 78% increase in the prevalence of reporting unmet need (1.78, 1.55–2.03). Neither alcohol use (1.11, 0.98–1.25) nor cannabis use (1.09, 0.97–1.22) was significantly associated with unmet need for mental health care (Table 4).

With respect to demographic characteristics, the prevalence of unmet need for mental health support was 43% higher among females compared to males (aPR = 1.43, 95% CI: 1.30–1.58), 45% higher among gender minority adolescents compared to males (1.45, 1.23–1.70) and 15% higher among sexual minorities compared to heterosexual students (1.15, 1.08–1.23). Compared to White students, Asian students had a 33% lower prevalence of unmet need (0.67, 0.60–0.76). The prevalence of unmet need was not significantly different for other minority ethnicities (0.98, 0.92–1.04) or adolescents with lower family affluence (0.99, 0.97–1.01; Table 4).

Discussion

This study examined the association of varying mental health and demographic characteristics with (1) accessing mental health support, and (2) experiencing unmet need for mental health care among adolescents in BC, Canada, during the COVID-19 pandemic.

In addition to examining access and unmet need, we descriptively examined which forms of mental health support were most commonly used, and which modes of mental health care were most preferable to adolescents. We highlight five major findings:

1. Symptoms of depression and anxiety were extremely common, with approximately 40% of adolescents screening positive for each of these conditions. High-frequency cannabis use was also common, with 43% of adolescents who used cannabis in the past month reporting smoking on a near-daily basis.

TABLE 4
TABLE 4
**Prevalence ratios for accessing mental health care services and reporting unmet
need among adolescents during the first year of the COVID-19 pandemic**

	Prevalence ratio, n (95% CI)			
	Outcome			
	Accessing services		Unmet need	
	Unadjusted	Adjusted[a]	Unadjusted	Adjusted[a]
Mental health concerns				
Depression	1.50 (1.37–1.64)**	1.11 (0.96–1.28)	3.23 (2.86–3.64)**	1.91 (1.67–2.18)**
Anxiety	1.60 (1.47–1.74)**	1.29 (1.11–1.51)**	3.26 (2.89–3.68)**	1.78 (1.55–2.03)**
Alcohol use	1.33 (1.20–1.46)**	1.14 (1.01–1.29)*	1.54 (1.32–1.80)**	1.11 (0.98–1.25)
Cannabis use	1.37 (1.22–1.54)**	1.12 (0.96–1.31)	1.58 (1.36–1.83)**	1.09 (0.97–1.22)
Demographic characteristics				
Gender				
Female vs. male	1.39 (1.24–1.56)**	1.17 (1.00–1.38)	2.16 (1.89–2.47)**	1.43 (1.30–1.58)**
Gender minority vs. male	1.89 (1.53–2.35)**	1.28 (1.03–1.59)*	3.14 (2.53–3.90)**	1.45 (1.23–1.70)**
Ethnicity				
Asian vs. White	0.79 (0.68–0.93)**	0.92 (0.78–1.08)	0.53 (0.45–0.63)**	0.67 (0.60–0.76)**
Other vs. White	1.07 (0.94–1.22)	1.02 (0.90–1.16)	1.06 (0.97–1.17)	0.98 (0.92–1.04)
Sexual orientation				
Sexual minority vs. heterosexual	1.52 (1.32–1.74)**	1.23 (1.04–1.45)*	1.95 (1.79–2.13)**	1.15 (1.08–1.23)**
Family affluence[b]	0.98 (0.94–1.01)	0.99 (0.96–1.01)	0.97 (0.94–1.00)	0.99 (0.97–1.01)

Data source: Youth Development Instrument survey.

Abbreviation: CI, confidence interval.

[a] Adjusted for depression, anxiety, alcohol use, cannabis use, gender, ethnicity, sexual orientation and family affluence score.

[b] Higher quartiles indicate higher levels of family affluence.

* $p < 0.05$.

** $p < 0.01$.

2. The most commonly accessed mental health supports were family doctors or pediatricians, followed by adults at school, highlighting the importance of primary care and school-based interventions in addressing adolescent mental health.

3. The most preferred mode of mental health care delivery was in-person (72%), while the least preferred mode was video call (4%), suggesting that video call–based counselling services may not be the ideal e-health intervention for addressing adolescent needs.

4. Adjusting for covariates, the rate of accessing mental health support was significantly elevated among adolescents with anxiety, past-month drinking, gender minority status and nonheterosexual orientation.

5. Adjusting for covariates, the rate of unmet mental health need was significantly elevated among adolescents with depression, anxiety, female gender, nonbinary gender and nonheterosexual orientation, suggesting that these groups are in need of more targeted mental health intervention during the pandemic.

Overall, our results suggest a number of important recommendations for developing mental health interventions aimed at adolescents during and after the COVID-19 pandemic.

First, in order to reach the broadest range of youth, this study suggests that interventions should focus on primary care and school settings. Consistent with prior literature,[25-27] we found family physicians, pediatricians, teachers and school counsellors to be the most common sources of mental health support for adolescents. It is important that primary care providers be aware of this important role in adolescents' lives, and screen for mental health problems accordingly. Our finding that adults at school were common sources of mental health support may have been, in part, due to the relative inaccessibility of professional counselling services and the continuation of in-person classes in British Columbia during the pandemic. As stated above, British Columbia maintained mostly in-person learning throughout the winter and spring of 2021,[14] potentially mitigating some of the social isolation due to online-only learning for many secondary school students.[28] Nevertheless, rates of mental health problems were high in this sample, with nearly half of adolescents screening positively for anxiety or depression. Like primary care physicians, teachers and school counsellors remain an extremely important source of support for adolescents. Maintaining the availability of this support should be prioritized during and after the pandemic.

Second, our study provides recommendations regarding the mode of mental health care delivery best suited to adolescent populations. After in-person care, the most popular forms of service delivery were chat-based communication (including website, online chat and text) and phone calls.

The least preferred form of service delivery was video call, a finding that was consistent across adolescents with varying mental health concerns. Ironically, at the start of the pandemic in British Columbia, video call–based services saw some of the largest growth in funding and accessibility for adolescents.[13,15,16] This study suggests that text- and phone-based services may appeal to a wider range of this population.

Third, our results help provide recommendations for targeting and better customizing youth mental health interventions. Accessing mental health support was associated with anxiety, minority gender status and nonheterosexual orientation. However, experiencing unmet need for services was correlated with depression, anxiety, female gender, gender minority status and nonheterosexual orientation. These groups are consistent with those in other studies who suffered the greatest mental health consequences due to the COVID-19 pandemic.[4,5,29-31] This study further suggests that many of these adolescents are not accessing desired care, particularly females and those with depression, who were more likely than others to report unmet need but not more likely to access care.

Strengths and limitations

To our knowledge, this is one of the only studies to examine primary support-seeking by a general population sample of adolescents during the pandemic, or to assess self-identified unmet need for services.

Still, this study has several limitations. First, although all eligible students in participating secondary schools were included in the sampling frame, our initial sample of schools was drawn on the basis of convenience and included primarily adolescents aged 17. Therefore, this sample was not representative of the entire BC adolescent population. Additionally, it is possible that there was some response bias in favour of females and adolescents with higher family affluence scores, as these groups were less likely to have missing data in our sample. Still, the effect size of these differences was small, and there were no significant differences by ethnicity, sexuality, depression status, anxiety status, past-month alcohol use or past-month cannabis use.

Second, students were asked to recall whether they had accessed support or felt unmet need in the past six months, creating the potential for recall bias. It is possible that adolescents with symptoms of depression or anxiety were more likely to remember speaking to an adult about their problems. Some students may have underestimated their past-month substance use frequency, and we may not have accurately captured students who did not recognize their need for mental health support.

Third, while mood disorders were measured over the prior two weeks, support access and unmet need were measured over the prior six months. Students who received successful care, or recovered from mental health problems without receipt of care, were categorized as screening negatively for mental health problems in our dataset. Future studies should use longitudinal data to compare the relative success of different mental health supports.

Fourth, some students may have misreported information due to social desirability bias or fear of repercussions. To mitigate this, students were assured that their data would not be shared with their peers, parents or schools and were informed of safeguards used to ensure the privacy and security of their responses.

Fifth, since the study setting had only minor school closures during the COVID-19 pandemic, results may not be generalizable to adolescents who completed school from home throughout the pandemic. However, if in-person schooling is believed to be protective against poor mental health outcomes, our results may be interpreted as underestimating unmet need.

Conclusion

During the COVID-19 pandemic, adolescents with depression, anxiety, female gender, gender minority status and non-heterosexual orientation were at particular risk of experiencing mental health problems and unmet need. Future interventions should aim to expand outreach to these underserved groups, emphasizing the role of primary care, school-based interventions and in-person services. Virtual interventions should offer phone- and chat-based services, which were consistently more preferable to adolescents than video calling.

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