




ORIGINAL ARTICLE

Impacts of the COVID-19 pandemic on youth mental health among youth with physical health challenges

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Abstract

Aim: To examine mental health in conjunction with physical health during the COVID-19 pandemic among youth with physical health conditions compared to those without.

Methods: A cross-sectional survey of 622 youth aged 14 to 28 was conducted. Analyses were conducted to understand the changes in mental and physical health among youth in four groups: (a) participants with a friend or family member diagnosed with COVID-19, (b) participants with symptoms associated with COVID-19, (c) participants with atopic conditions (asthma and allergies), and (d) participants with other preexisting physical health conditions.

Results: Many participants with physical health concerns met screening criteria for an internalizing disorder, which was significantly higher than the rate found among participants without physical health conditions. Significantly greater declines in self-reported mental health were observed during the COVID-19 period compared to 3 months earlier among youth reporting physical health concerns compared to those without physical health concerns. Substance use does not appear to have been affected.

Conclusions: Mental health concerns are highly prevalent among youth with physical health concerns, and also appear to be exacerbated by the COVID-19 pandemic. Physical health concerns appear to constitute risk factors for heightened mental health responses to the pandemic situation. System planners striving to adapt mental health services to meet social/physical distancing recommendations are urged to consider youth with physical health conditions and ensure that adequate integrated mental health and physical health supports are available to them.

KEYWORDS

COVID-19, mental health, pandemic, physical health, substance use, youth

1 | INTRODUCTION

Coronavirus disease (COVID-19) was declared a pandemic by the World Health Organization on 11 March 2020 (World Health

Organization, 2020), and has led to intensive social interventions around the world. Stay-at-home orders, quarantines, and social distancing have all had considerable impacts on the day-to-day lives of people of all ages.

Mental health is a key concern during the COVID-19 pandemic, as expressed in a plethora of commentary and opinion articles emerging (Duan & Zhu, 2020; Ho, Chee, & Ho, 2020; Holmes et al., 2020; Yao, Chen, & Xu, 2020). Emerging research from China has found appreciable negative mental health impacts during the COVID-19 pandemic (Wang et al., 2020), and that mental health impacts may be more severe among adults under the age of 35 (Huang & Zhao, 2020). Another Chinese study found high rates of mental health impacts among children confined to their home due to the pandemic (Xie et al., 2020). Our study, conducted in Canada, found that youth aged 14 to 28 with and without preexisting mental health challenges experienced an increase in mental health concerns in the early phases of COVID-19, but did not experience increases in substance use (Hawke et al., 2020). Mental health service disruptions were substantial, as was the unmet need for mental health support.

Youth are a particularly vulnerable group during public health crises, including youth with preexisting mental health concerns (Holmes et al., 2020; Perrin, McCabe, Everly Jr., & Links, 2009). Mental health and substance use disorders are highly prevalent among youth, affecting about 20% of youth in Canada (Boyle & Georgiades, 2009), and many adult mental health disorders developing initially during adolescence (Kessler et al., 2007). This developmental period is also the peak age of onset for substance use, which can lead to substance use disorders in adulthood (Boak, Elton-Marshall, Mann, & Hamilton, 2020; Young et al., 2002). In the context of COVID-19, key developmental milestones facing youth, such as school completion, labour market engagement, social relationships, and autonomous decision-making (Arnett, 2004) have been disrupted. This may place young people at particular risk for the development of mental health and substance use concerns during this time. The impacts of pandemic response strategies on youth mental health therefore require research and any necessary subsequent mitigating action.

The relationship between mental and physical health during the COVID-19 period also merits attention. A recent study in China found higher rates of depression among those who had been infected with COVID-19 and recovered, but not in people under quarantine or the general public (Zhang et al., 2020). Another study found more vicarious trauma among the general public than among medical teams providing direct care for patients with COVID-19, who thereby were at risk of exposure to the virus (Li et al., 2020). Numerous reports have raised concerns about mental health and anxiety during COVID-19 among individuals with preexisting physical health conditions (Hao et al., 2020; Kosir et al., 2020; Mukhtar & Mukhtar, 2020; Tsamakidis et al., 2020).

It is promising that emerging research demonstrates less susceptibility to COVID-19 infection among youth, and less susceptibility to severe outcomes when infected (Lee, Hu, Chen, Huang, & Hsueh, 2020; Liao et al., 2020). Nevertheless, youth with preexisting physical health conditions may be more concerned about COVID-19, potentially increasing the risk for mental health challenges in this group. Health anxiety may be more prevalent during the pandemic (Asmundson & Taylor, 2020).

This study examines mental health, substance use, and physical health among youth during the COVID-19 pandemic. The study focuses

on the pandemic's impacts on both young people with preexisting physical health conditions and on those who have COVID-19-related symptoms or who know someone with a diagnosis of COVID-19.

2 | METHOD

This cross-sectional survey evaluated self-reported mental health, substance use, physical health, and other concerns among youth. Youth were defined as adolescents and young adults between the ages of 14 and 29 years (Statistics Canada, 2019).

2.1 | Participants

A sample of 622 youth (age range 14-28 years; $M = 20.6$, $SD = 2.4$) participated in the study. The sample was recruited from existing participant pools in four studies operating out of the Centre for Addiction and Mental Health in Toronto, Ontario, Canada. This included a clinical cohort of youth participating in mental health and substance use research in Toronto, Ontario (Hawke, Koyama, & Henderson, 2018; Henderson et al., 2017; $N = 276$) and a nonclinical cohort of youth participating in a longitudinal cohort study across Ontario (Henderson et al., 2019; $N = 346$). More details on the participants and procedures can be found in the companion manuscript presenting the initial mental health and substance use findings (Hawke et al., 2020).

2.2 | Procedure

An email invitation was sent to youth between 8 and 29 April 2020, containing a web link directing them to the survey in REDCap software (Harris et al., 2009). After providing informed consent, participants completed a series of self-report questionnaires (20 min). The recruitment period began approximately 3 weeks after a state of emergency was declared in Ontario, Canada. Reminder emails were sent approximately every 2 days. An honorarium of \$15 was provided. Research Ethics Board approval was obtained from the Centre for Addiction and Mental Health.

2.3 | Measures

Self-report questionnaires included demographic information and the questionnaires described below.

2.3.1 | CoRonavlrUS Health Impact Survey (CRISIS)

The NIMH-developed CRISIS tool, Youth Self-Report Baseline version 0.1, was used. Questions included perceived emotional health, substance use, and physical health retrospectively at 3 months prior to the COVID-19 pandemic and in the past 2 weeks. Participants also

reported on preexisting physical health conditions, the experience of symptoms associated with COVID-19 and COVID-19 diagnoses. Ten mental health items on a five-point Likert scale were averaged into a mental health subscale (Cronbach's alpha = .88). Eight substance use items on a five-point Likert scale were averaged into a substance use subscale (Cronbach's alpha = .64). Physical health was a single question answered on a five-point scale (excellent to poor). Participants endorsing any symptoms associated with COVID-19 (fever, shortness of breath, cough, or sore throat) were categorized into a COVID-19 symptoms group. One item regarding fatigue was removed due to the association between fatigue and depression. This was not intended to be diagnostic of COVID-19, but rather was used to explore the hypothesis that COVID-19 related anxiety would be increased in this population. The preexisting physical health conditions checklist in the CRISIS survey included endorsement of heart problems, kidney problems, allergies, asthma, immune disorder, diabetes or high blood sugar, cancer, arthritis, epilepsy or seizures, serious stomach or bowel problems, or obesity. The allergies and asthma items were analysed separately from other physical health symptoms as atopic symptoms, given the association of respiratory symptoms with COVID-19 (Centres for Disease Control and Prevention, 2020). Youth with physical health concerns were defined as either (a) having COVID-19-related symptoms (COVID-19 symptoms group); (b) reporting a physical health concern (physical health group); (c) reporting allergies and/or asthma

(atopic group); (d) having knowledge of a friend or family member with a COVID-19 diagnosis (COVID-19 diagnosis group; Merikangas et al., 2020).

2.3.2 | GAIN-Short Screener

The GAIN-SS, version 3, is a brief self-report screener that identifies the likelihood of meeting criteria for an internalizing disorder, externalizing disorder, or substance use disorder, or requiring services for crime/and violence issues (Dennis, Feeney, & Titus, 2013; Dennis et al., 2013). Ratings range from never (0) to past month (3); 3 past-month endorsements indicate a high likelihood of meeting diagnostic criteria or requiring services in that domain. The GAIN-SS is validated among youth (Dennis, Chan, & Funk, 2006).

2.4 | Analyses

Demographics were examined based on clinical vs nonclinical sample, and sample was then included as a control variable in subsequent analyses. Four groups of youth with different physical health concerns were established as described above: (a) atopic group (N = 266); (b) physical health group (N = 166); (c) COVID-19 symptoms group

Demographic characteristic	Clinical		Nonclinical	
	N	%	N	%
Gender				
Man/boy	75	27.2	129	37.3
Woman/girl	179	64.9	210	60.7
Another gender	22	8.0	7	2.0
Ethnic origin/background				
Caucasian	173	63.1	207	59.8
Asian (East and Southeast)	17	6.2	48	13.9
South Asian	12	4.4	35	10.1
Black (African, Caribbean, North American)	9	3.3	19	5.5
Indigenous	2	0.7	5	1.4
Multiple	35	12.8	13	3.8
Other background	26	9.5	19	5.5
Born in Canada	239	86.9	306	88.4
First language English	257	93.5	308	89.0
Student	172	62.5	223	64.4
Highest level of education				
Less than high school	94	34.3	13	3.8
High school diploma	61	22.3	79	22.9
Some college, university, or technical school	82	29.9	146	42.3
Postsecondary diploma or certification	37	13.5	107	31.0
Employed before COVID-19	145	52.7	240	69.8
Employed now	56	20.5	123	35.8

TABLE 1 Demographic characteristics by sample

($N = 179$); and (d) COVID-19 diagnosis group ($N = 52$); there were no participants in our sample who reported receiving a positive diagnosis of COVID-19 and analyses therefore focused on those with a diagnosed friend or family member. Separate hierarchical logistic regression analyses were conducted with control variables in block 1 (controls: retrospective ratings of mental health, substance use, and physical health, respectively, 3 months prior to the survey, and clinical vs nonclinical sample); in the second block were the current mental health, substance use, and physical health variables as predictors of the identified physical health groups. Analyses of the CRISIS survey mental health scale were rerun including only the two anxiety-related items (ie, worries and anxiety) to explore whether anxiety was differentially associated with physical health groups. Additional hierarchical logistic regression analyses were conducted with GAIN-SS subscales predicting the four physical health groups, controlling for sample in block 1. Odds ratios (and 95% confidence intervals) were calculated. Analyses were conducted in SPSS version 25.

3 | RESULTS

Demographic characteristics are presented in Table 1, by original sample type (ie, recruited from clinical vs nonclinical cohorts). The distribution of gender was different between the clinical and nonclinical samples, $\chi^2(2) = 16.859, P < .001, \phi = .17$, as was education level, $\chi^2(3) = 108.914, P < .001, \phi = .42$, pre-COVID-19 employment $\chi^2(1) = 18.874, P < .001, \phi = -.18$, and current employment $\chi^2(1) = 17.172, P < .001, \phi = -.17$. There was no significant difference in ethnicity, or whether they were born in Canada, spoke English as a first language, or were a student. The rate of mental health and substance use challenges across the clinical and nonclinical cohorts is described in detail in a companion manuscript (Hawke et al., 2020).

In terms of physical health challenges, allergies or asthma was reported by 266 participants (42.8%). A total of 166 participants (26.7%) reported at least one other preexisting physical health condition. This included 21 participants (3.4%) with heart problems 72 participants (11.6%) with obesity, five (0.8%) with kidney problems, 22 (3.5%) with immune disorders, two (0.3%) with cancer, 13 (2.1%) with arthritis, nine (1.4%) with epilepsy or seizures, and 50 (8.0%) with serious stomach or bowel problems. A total of 179 participants (28.8%) reported one or more symptom associated with COVID-19 and 52 participants (8.4%) reported having a friend or family member who was diagnosed with COVID-19. There was no significant difference between the clinical and nonclinical samples for asthma/allergies, $\chi^2(1) = 0.419, P = .517, \phi = .03$, a preexisting physical health condition $\chi^2(1) = 3.560, P = .059, \phi = .08$, or reporting that a friend or family member had a diagnosis of COVID-19, $\chi^2(1) = 2.063, P = .151, \phi = .06$. However, participants in the clinical sample were significantly more likely to report experiencing at least one symptom associated with COVID-19, $\chi^2(1) = 13.449, P < .001, \phi = .15$.

In terms of demographic characteristics, atopic symptoms were reported significantly more often by participants who were born in Canada ($\chi^2(1) = 6.820, P = .009, \phi = .11$) and who spoke English as a

first language ($\chi^2(1) = 6.474, P = .011, \phi = -.10$); the remaining demographic characteristics were not significant. Other preexisting health conditions were associated with older age ($t[614] = 2.303, P = .021$), a gender outside of the binary ($\chi^2(2) = 13.110, P = .001, \phi = .15$), and not being a student ($\chi^2(1) = 7.812, P = .005, \phi = .11$). There were no differences in demographic characteristics of youth who were in the COVID-19 diagnosis group vs those who were not, with the exception of marginally more youth reporting a diagnosis in their circles if their first language is not English ($\chi^2(1) = 4.754, P = .029, \phi = .09$). The COVID-19 symptoms group was only associated with less current employment if symptoms were present ($\chi^2(1) = 6.126, P = .013, \phi = -.10$).

The current mental health, substance use, and physical health of the four physical health groups are reported in Table 2, without control variables. Youth in the atopic group reported significantly more mental health concerns ($P = .003$) than youth without atopic symptoms. Youth in the physical health group reported significantly more mental health concerns ($P < .001$) and significantly poorer self-rated

TABLE 2 Mental health, substance use, and physical health ratings of youth across the four groups of different physical health concerns, with nonparametric significance tests

Asthma/allergies (atopic group)					
	Yes (N = 265)		No (N = 355)		P
	M	SD	M	SD	
Mental health	3.40	0.78	3.21	0.81	.003
Substance use	1.54	0.61	1.47	0.56	.143
Physical health	2.99	1.09	3.06	1.12	.818
Other preexisting physical health condition (physical health group)					
	Yes (N = 166)		No (N = 454)		P
	M	SD	M	SD	
Mental health	3.53	0.80	3.20	0.78	<.001
Substance use	1.54	0.62	1.49	0.56	.369
Physical health	3.44	1.04	2.88	1.10	<.001
Friend/family diagnosis group with COVID-19 (diagnosis group)					
	Yes (N = 52)		No (N = 568)		P
	M	SD	M	SD	
Mental health	3.33	0.78	3.29	0.80	.558
Substance use	1.53	0.59	1.50	0.58	.819
Physical health	3.06	1.00	3.03	1.12	.727
Symptoms associated with COVID-19 (symptoms group)					
	Yes (N = 178)		No (N = 442)		P
	M	SD	M	SD	
Mental health	3.53	0.75	3.19	0.80	<.001
Substance use	1.53	0.58	1.46	0.58	.002
Physical health	3.31	1.12	2.92	1.08	.001

Note: Bonferroni-corrected P values within each group are .017 to conclude significance.

TABLE 3 Logistic regression prediction of health group membership based on mental health, substance use, and physical health, controlling for pre-COVID-19 status and sample

	B	SE	Wald (World Health Organization, 2020)	P	OR (95% CI)
Asthma/allergies (atopic group)					
Mental health	0.278	0.117	5.682	.017*	1.321 (1.051, 1.660)
Substance use	0.320	0.274	1.358	.244	1.377 (0.804, 2.358)
Physical health	−0.056	0.095	0.340	.560	0.946 (0.785, 1.140)
Other preexisting physical health condition (physical health group)					
Mental health	0.412	0.133	9.664	.002	1.510 (1.165, 1.959)
Substance use	0.390	0.308	1.602	.206	1.477 (0.807, 2.703)
Physical health	0.338	0.110	9.471	.002	1.403 (1.131, 1.740)
Friend/family diagnosis group with COVID-19 (diagnosis group)					
Mental health	−0.035	0.205	0.030	.862	0.965 (0.646, 1.442)
Substance use	−0.760	0.433	3.080	.079	0.468 (0.200, 1.093)
Physical health	−0.099	0.174	0.322	.570	0.906 (0.644, 1.274)
Symptoms associated with COVID-19 (symptoms group)					
Mental health	0.389	0.130	8.929	.003	1.475 (1.143, 1.904)
Substance use	−0.378	0.293	1.659	.198	0.685 (0.386, 1.218)
Physical health	0.334	0.106	9.915	.002	1.397 (1.135, 1.720)

Note: Bonferroni-corrected *P* values within each group are .017 to conclude significance.

**P* = .0168.

TABLE 4 Logistic regression prediction of physical health group membership based on internalizing, externalizing, and substance use disorder, controlling for sample

	Health interest group		Not in health interest group		B	SE	Wald (World Health Organization, 2020)	P	OR (95% CI)
	N	%	N	%					
Asthma/allergies (atopic group)									
Internalizing disorder	149	58.4	171	49.0	0.391	0.173	5.089	.024	1.478 (1.053, 2.075)
Externalizing disorder	75	29.4	89	25.5	0.188	0.191	0.967	.325	1.207 (0.830, 1.754)
Substance use disorder	35	13.7	37	10.6	0.277	0.265	1.091	.296	1.319 (0.785, 2.217)
Other preexisting physical health condition (physical health group)									
Internalizing disorder	100	62.9	220	49.4	0.492	0.197	6.242	.012	1.636 (1.112, 2.407)
Externalizing disorder	52	32.7	112	25.2	0.289	0.209	1.918	.166	1.335 (0.887, 2.011)
Substance use disorder	18	11.3	54	12.1	−0.258	0.303	0.722	.396	0.773 (0.427, 1.400)
Friend, family diagnosed with COVID-19 (diagnosis group)									
Internalizing disorder	26	50.0	294	53.3	−0.277	0.304	0.829	.363	0.758 (0.418, 1.376)
Externalizing disorder	15	28.8	149	27.0	−0.034	0.332	0.011	.918	0.966 (0.504, 1.854)
Substance use disorder	9	17.3	63	11.4	0.325	0.413	0.622	.430	1.385 (0.617, 3.110)
Symptoms associated with COVID-19 (symptoms group)									
Internalizing disorder	117	67.6	203	47.1	0.730	0.196	13.906	<.001	2.076 (1.414, 3.048)
Externalizing disorder	65	37.6	99	23.0	0.559	0.202	7.697	.006	1.750 (1.178, 2.598)
Substance use disorder	29	16.7	43	10.0	0.321	0.273	1.379	.240	1.379 (0.807, 2.356)

Note: Bonferroni-corrected *P* values within each group are .017 to conclude significance.

physical health ($P < .001$) than those without physical health conditions. There were no differences between youth in the COVID-19 diagnosis group and those who were not, in terms of mental health ($P = .558$), substance use ($P = .819$), or physical health ratings

($P = .727$). However, youth in the COVID-19 symptoms group reported significantly more mental health concerns ($P < .001$), higher substance use ($P = .002$), and poorer self-rated mental health ($P = .001$) than those without COVID-19-related symptoms.

Table 3 presents the results of logistic regression analyses of self-rated mental health, substance use, and physical health predicting each of the four physical health groups, controlling for sample and pre-COVID-19 ratings of mental health, substance use, and physical health. In the atopic group, a greater mental health impact was found compared to youth without atopic symptoms ($P = .0168$, $OR = 1.321$ [1.051, 1.660]). In the physical health group, a significant association was found between self-rated mental health ($P = .002$, $OR = 1.510$ [1.165, 1.959]) and physical health ($P = .002$, $OR = 1.403$ [1.131, 1.740]) compared to youth without other preexisting health concerns. No significant relationship was observed between mental health, substance use, or physical health and the COVID-19 diagnosis group. In the COVID-19 symptoms group, a significant association was found with mental health ($P = .003$, $OR = 1.475$ [1.143, 1.904]) and physical health ($P = .002$, $OR = 1.397$ [1.135, 1.720]) compared to youth without any COVID-19 symptoms. Further, when isolating anxiety from the other mental health variables (two items, worries and anxiety) and re-running the above analyses, no changes were noted in the conclusions.

GAIN-SS results demonstrate high rates of internalizing disorders in the sample as a whole. Significant associations were found between internalizing disorders and preexisting physical health conditions ($P = .012$), as well as COVID-19-related symptoms ($P < .001$; Table 4). Internalizing disorders were marginally associated with atopic symptoms, but this association was not statistically significant after the Bonferroni correction ($P = .024$). Externalizing disorders were also more frequent among those in the COVID-19 symptoms group. Substance use disorders were not associated with the identified groups.

4 | DISCUSSION

This study, conducted during the early phases of the COVID-19 pandemic in Ontario, Canada, demonstrates that youth with preexisting physical health conditions and those with symptoms associated with COVID-19 report more impact on their mental health and physical health than those without. The presence of physical health concerns prior to COVID-19 is associated with more mental and physical health deterioration during the early time-period of the emergency measures. Similarly, those reporting symptoms associated with COVID-19 report more mental and physical health deterioration. Substance use, however, does not appear to be associated with physical health conditions. Although only a small proportion of youth report that someone among their friends or family has been diagnosed with COVID-19, this does not appear to substantially impact their mental or physical health concerns. This strengthens our understanding of the interconnected relationship between physical and mental health.

Anxiety, depression, and medical trauma are highly prevalent among youth with chronic medical conditions, with some studies suggesting that anxiety might in fact worsen the course of the medical condition (Cobham et al., 2020; Goodwin, Bandiera, Steinberg, Ortega, & Feldman, 2012; Greenley et al., 2010; Katon et al., 2007; Kovacs, Goldston, Obrosky, & Bonar, 1997). Several studies report that youth with physical health conditions and co-occurring mental health

challenges experience longer hospitalizations and more service utilization (Doupnik et al., 2016; Richardson, Russo, Lozano, McCauley, & Katon, 2008). The current study confirms the existence of mental health challenges in physically ill youth, which may be further exacerbated by the COVID-19 pandemic. The importance of evaluating mental health in youth with preexisting physical health conditions (Cobham et al., 2020) has increasingly become apparent; however deterioration in their mental health during the COVID-19 period, as noted in this study, highlights the need for greater attention to mental health. Study results further support the bidirectional relationship between mental and physical health.

During the COVID-19 pandemic, even one symptom typically associated with the common cold was associated with a significant deterioration in mental health, as well as reporting of poorer physical health by youth, thus suggesting the heightened levels of health anxiety in this cohort of our sample (Asmundson & Taylor, 2020). Higher rates of generalized anxiety disorder have also been noted during COVID-19 times, with higher rates among younger adults (<35 years of age) (Huang & Zhao, 2020). Although mental health does not appear to have been studied previously in association with symptoms consistent with COVID-19 among youth in particular, this study suggests that those experiencing symptoms typically associated with COVID-19 and the common cold may be particularly vulnerable to increased mental health concerns.

Youth with physical health concerns are a vulnerable population from both physical and mental health standpoints, although their mental health concerns are often not recognized (Katon, Richardson, Russo, Lozano, & McCauley, 2006; Parasuraman, Anglin, McLellan, Riley, & Mann, 2018). In this time of critical reforms of mental health service delivery due to distancing requirements related to COVID-19, system planners are urged to consider the mental health of youth with physical health conditions and ensure that both mental and physical health supports are available to them. In the emerging model of integrated youth mental health service hubs, physical health services are considered a core component (Hetrick et al., 2017; Settapani et al., 2019). The integration of physical and mental healthcare has been shown to provide substantial benefits for this population (Asarnow, Rozenman, Wiblin, & Zeltzer, 2015). Indeed, the Lancet Psychiatry Commission proposes the integration of physical and mental health services as a priority policy and service direction moving forward, acknowledging the importance of primary prevention and early intervention in low-barrier settings (Firth et al., 2019). Physical health service integration should continue to be prioritized as integrated service models adapt their service delivery mechanisms to respect social/physical distancing requirements during pandemic times and beyond, acknowledging the interplay between mental and physical health in the context of the COVID-19 pandemic.

4.1 | Limitations

This was a cross-sectional survey with retrospective reports of pre-COVID-19 mental and physical health, which may be subject to recall bias. Larger, more diverse, and longitudinal samples are required for

future analyses, as are samples of youth diagnosed with COVID-19 to examine mental health impacts among those who have acquired the disease. Data collection took place exclusively online and therefore would have been more likely to reach youth with more internet use, which may also affect COVID-19 responses given the proliferation of online information about the pandemic; similarly, the online recruitment method may have reduced the likelihood of reaching youth with the greatest mental and physical health challenges during the recruitment period.

5 | CONCLUSIONS

Mental health concerns are highly prevalent among youth with physical health concerns, and this relationship appears to be exacerbated in the context of the COVID-19 pandemic. Physical health concerns appear to constitute risk factors for heightened mental health responses to the pandemic situation. System planners striving to adapt mental health services to meet social/physical distancing recommendations are urged to consider youth with physical health conditions as a vulnerable population and ensure the adequate integration of mental health and physical health support.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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