A Comparison of Psychiatric Concerns in Canadian Adolescents Across School Modalities
During the COVID-19 Pandemic

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There is evidence that Canadian adolescents face elevated psychiatric concerns during the COVID-19 pandemic¹. Due to the inherent physical health risks of the pandemic, school boards across Canada, following guidance from provincial health officers, have opted to implement different schooling modalities. Some have used hybrid models in which students attend school partly in-person and partly online. Online-only models have been selected by some students or implemented during lockdowns. With the increased psychiatric concerns of adolescents in mind, there is an ongoing discussion regarding whether schooling in-person during the pandemic may be a protective factor against higher psychiatric symptoms². Some have argued that a return to in-person schooling is critical for improved mental health. However, to date, there is little to no data available on whether attending school in-person, online, or in a hybrid model may be associated with different rates of psychiatric problems among youth. The purpose of this study was to examine whether rates of psychiatric problems are differentially represented in Canadian youth attending school in-person, entirely online, or in a hybrid model.

Method

Adolescents ($N=547$; 49.6% female, 69.7% White, $M_{\text{age}}=15.56$, $SD=1.39$) were recruited via social media between 11/15/2020 and 03/31/2021 and completed an online survey (demographics in Table 1). Participants indicated whether they had attended school online, in-person, or in a hybrid model since September 2020. They completed the Ontario Child Health Study Scales (OCHS)–Youth Version³, a measure designed to assess recent psychiatric concerns among youth ages 12 to 17. Of interest for this study are the OCHS depression ($\alpha = .87$), generalized anxiety ($\alpha = .87$), attention problems/hyperactivity ($\alpha = .79$), conduct problems ($\alpha = .74$), and oppositionality ($\alpha = .72$) scores, which rates were analyzed across schooling modalities.

Results

Of the total number of participants, 41.9% reported attending school on a hybrid model, 34.6% reported attending school in-person only, and 23.5% reported attending school online only. There was no association between school modality and ethnicity [$X^2(12)=19.80, p=.07$] or gender [$X^2(4)=3.97, p=.41$]. A significant association between school modality and province of residence [$X^2(20)=115.20, p<.001$]. Upon examination, more youth in Ontario, Alberta, and Manitoba were attending school online all day, while Maritime provinces and British Columbia appeared to have more youth in-person. The magnitude of this association was moderately strong, Cramer's $V=.31$. In terms of degree of psychiatric concerns, 47.9% of participants reported meeting the cut off for clinically significant levels of Major Depressive Disorder, 35.6% for Generalized Anxiety Disorder, 21.3% for Attention-Deficit/Hyperactivity Disorder, 4.2% for Conduct Disorder, and 19.8% for Oppositional Defiant Disorder.

A one-way multivariate analysis of covariance (one-way MANCOVA) was used to determine the effect of school modalities on psychiatric symptoms, while introducing gender, school grade, province of residence, and number of weeks since the beginning of the pandemic as covariates. Results from the one-way MANCOVA showed that there was no statistical difference between school modalities on the combined psychiatric symptoms tested after controlling for the effect of the covariates, $F(10, 1068)=1.20, p=.28$, Wilks' $\Lambda=.98$, partial $\eta^2=.01$. Given this null finding, univariate comparisons were not examined.

Discussion

Understanding whether adolescents are experiencing increased psychiatric concerns based on school modality can inform supports that may be beneficial as the COVID-19 pandemic

continues. Our results did not identify a relationship between school modality and psychiatric concern, suggesting that youth mental health has been broadly and negatively impacted by the pandemic independent of the way youth attend school. The very high rates of psychiatric concerns, particularly depression and anxiety, also suggest that increased mental health supports are needed to support our young students.

Under normal circumstances, attending school in-person would mean an adolescent has social interactions with friends, teachers, and mentors. The onset of COVID-19 has resulted in a shift in how school is administered including mask mandates, lack of social contact, and limited opportunities for meaningful interactions with teachers and peers. For adolescents in all school modalities, they are faced with ongoing stressors such as health anxiety and stress from being confined at home with their family which has been associated with increased psychiatric problems.⁴ Our results suggest that addressing adolescent mental health is likely more complex than a return to in-person school, particularly with the restrictions currently in place.

Several limitations merit discussion. The study is a cross-sectional design, which does not allow for comparisons across different waves of the pandemic. The study also utilizes an online convenience sample which may have attracted youth who were high risk for mental health problems, and limits the generalizability (e.g., those without internet).

Despite these limitations, our results add to the literature on the mental health of Canadian adolescents who are attending school online, in-person, or in a hybrid model. Further, our results suggest there is a need for others conducting research on adolescents during COVID-19 to examine differences across school modalities to inform policy makers decision process.

Data access: The data are not available because participants did not consent to their data being disclose to third parties.

Declaration of Conflicting Interests: The authors declare that there are no conflict of interest.

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Table 1.*Demographics of the present sample (N = 547)*

Scale	%/M (SD)
Age	15.56 (1.39)
Gender	
Female	49.6%
Male	44.3%
Trans/ Nonbinary individuals	6.0%
Ethnicity	
White	69.7%
Asian (East and Southeast)	13.5%
Indigenous/Metis/First Nations	4.0%
Black	5.3%
Other/Mixed	6.2%
Lives with	
Parents	93.6%
Foster/ Group/ Other	6.4%
Family composition	
Two caregivers	68.9%
One caregiver	26.0%
Other	4.8%
Province	
Alberta	16.3%
British Columbia	14.7%
Manitoba	4.4%
New Brunswick	4.0%
Newfoundland	1.8%
Northwest Territories	.2%
Nova Scotia	2.6%
Ontario	44.1%
Prince Edward Island	1.1%

Quebec	6.4%
Saskatchewan	4.4%