

# The impact of COVID-19 on the mental health of Canadian children and youth

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## Abstract

Children and youth flourish in environments that are predictable, safe, and structured. The COVID-19 pandemic has disrupted these protective factors making it difficult for children and youth to adapt and thrive. Pandemic-related school closures, family stress, and trauma have led to increases in mental health problems in some children and youth, an area of health that was already in crisis well before COVID-19 was declared a global pandemic. Because mental health problems early in life are associated with significant impairment across family, social, and academic domains, immediate measures are needed to mitigate the potential for long-term sequelae. Now more than ever, Canada needs a national mental health strategy that is delivered in the context in which children and youth are most easily accessible—schools. This strategy should provide coordinated care across sectors in a stepped care framework and across a full continuum of mental health supports spanning promotion, prevention, early intervention, and treatment. In parallel, we must invest in a comprehensive population-based follow-up of Statistics Canada's Canadian Health Survey on Children and Youth so that accurate information about how the pandemic is affecting all Canadian children and youth can be obtained. It is time the Canadian government prioritizes the mental health of children and youth in its management of the pandemic and beyond.

**Key words:** children, youth, mental health, schools, COVID-19

## Introduction

The COVID-19 pandemic has caused unprecedented educational and social disruptions to students worldwide. At the beginning of the pandemic, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) estimated school closures in 138 countries, which impacted 80% of children globally (Phelps and Sperry 2020). Two months into the pandemic, this rate increased to 188 countries affecting 1.7 billion students worldwide (UNESCO 2020). Heading into the second year of the pandemic, UNESCO's COVID-19 global monitoring of school closures indicated that half of the world's students were still affected by partial or full school closures (UNESCO 2021). In Canada, 5.7 million children and youth attending elementary and secondary school have been impacted by school closures (Statistics Canada 2021).

Although school closures have caused major disruptions, even when schools remained open, the experience of schooling has been fundamentally altered. For example, to contain the spread of COVID-19, changes have been made to the ways in which the curriculum is delivered in Canada. In

## OPEN ACCESS

Citation: Vaillancourt T, Szatmari P, Georgiades K, and Krygsman A. 2021. The impact of COVID-19 on the mental health of Canadian children and youth. FACETS 6: 1628–1648. doi:[10.1139/facets-2021-0078](https://doi.org/10.1139/facets-2021-0078)

Handling Editor: Jules M. Blais

Received: June 21, 2021

Accepted: July 21, 2021

Published: September 29, 2021

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Published by: Canadian Science Publishing

some provinces and territories, parents of elementary school students have been offered the choice to have their child learn in-person or virtually, while students in secondary school have been presented with a blended learning model that includes class cohorts attending school part of the time in person and the other part virtually. Full-time e-learning is also available to older students in some areas of the country. In other areas, in-person attendance is the expectation with few exceptions (e.g., high risk or living with high-risk individuals). However, the provision of in-person, blended, or full-time virtual learning has also depended on the local and provincial risk levels of COVID-19 infection. All provinces and territories have developed contingency plans as risk fluctuates in their local community. Other changes have also been made to ensure the health and safety of students. Social distancing measures have been implemented in classes and during recess and breaks, substantially decreasing the amount of time students are able to interact with their peers (and teachers). Mandatory mask wearing has been implemented in most schools across Canada, as has the establishment of smaller cohorts of students, although variability exists across provinces and communities depending on the level of risk. For example, for mandatory mask wearing, there is some variation in the grade at which masks are required across the country (e.g., Ontario: grades 1–12; Alberta: grades 4–12), which also changes depending on location (e.g., required on buses) and on community level of risk tolerance. These interruptions have been dynamic; not a single static adjustment, but rather an ongoing series of adjustments that varied across and within provinces and territories.

Although these changes were advised to prevent further infections, they are not inconsequential. Virtually all aspects of children's development have been affected. Of note are the disruptions in areas of skill development that are fundamental to optimal growth and wellness. Students' learning and academic achievement have been negatively affected (Davies and Aurini 2021), especially for learners who were academically vulnerable before the pandemic (Whitley et al. 2021). Children and youth are now moving and playing less at school (and in their communities) than before the pandemic (McNamara 2021), which has had "immediate collateral consequences" on their development (Moore et al. 2020), including their mental health (Kang et al. 2021).

## Child and youth mental health before the pandemic

Since COVID-19 was declared a pandemic, many have raised significant concerns about a growing "mental health crisis" among young people. Multiple commentaries have been written in the press (e.g., "From Depression to Self-harm, Teens are Struggling During COVID-19" (Abma 2021); "Is a Mental Health Crisis the Next Pandemic?" (Abrams 2021)) and in scientific journal editorials about how COVID-19 is causing a mental health calamity in children and youth (Bhatia 2020; Cénat and Dalexis 2020; Golberstein et al. 2020; Jiao et al. 2020; Kumar and Nayar 2021; Liu et al. 2020). But even before the pandemic, Canada's children and youth were not faring well relative to other economically advanced countries in terms of mental health and happiness (UNICEF 2020). For example, Canada ranked 31st out of 38 high-income countries on measures of well-being (defined as feeling positive and being in good mental health). Canada's ranking on physical health was also dismal—30th. But it is Canada's ranking on teen suicide rates, 35th out of 38 countries, that really highlights our systemic failure. Adolescent and young adult suicide data from Statistics Canada (2019b) underscores that this risk is not equally shared. Adolescent boys from First Nation and Métis communities and Inuit regions are particularly vulnerable, thus Indigenous-led life promotion and suicide prevention programming must be a part of any child and youth mental health strategy.

The poor performance of Canada on UNICEF's (2020) latest report card is an all too familiar story. Whilst many countries are showing improvement in the percentage of adolescents reporting mental health issues in the past decade, Canada is showing little if any improvement (UNICEF 2019, 2020). In fact, for the past three decades, one in five Canadian children and youth have met diagnostic criteria for at least one mental disorder (Breton et al. 1999; Offord et al. 1987), a rate that is consistent

with more recent data. The six-month prevalence estimates for DSM-IV defined mental disorders from the 2014 Ontario Child Health Study indicates that 18%–22% of children and adolescents are affected (Georgiades et al. 2019).

Having this many Canadian children and youth with impaired health for this long is a national failure (Vaillancourt et al. 2020), one that should have set off a public alarm like the one raised by the current pandemic. After all, we have known for some time that mental health problems are the leading cause of health-related burden in youth and the leading cause of disability worldwide in adults (Copeland et al. 2015; Whitford et al. 2013). Moreover, poor mental health contributes to significant difficulty with schoolwork and educational behaviour like paying attention and self-regulation (Duncan et al. 2021). It also affects children's relationships with caregivers, peers, and teachers (Whitley et al. 2018; Vaillancourt and Boylan 2021) and is linked to morbidity and mortality (e.g., Walker et al. 2015). Mental health difficulties in children and youth are entrenched—existing across a variety of contexts—and persistent. Between 50% and 75% of mental health disorders in adulthood begin before the age of 15 (Kim-Cohen et al. 2003; Kessler et al. 2001; 2007). The continuity of psychopathology is well illustrated in a recent study by Krygsman and Vaillancourt (2021) who found that Canadian youth from the general population who followed an elevated trajectory of social anxiety symptoms from ages 10 to 18 years were 20 times more likely to be depressed, 16 times more likely to have social anxiety disorder, 16 times more likely to have agoraphobia, and 13 times more likely to have generalized anxiety disorder in adulthood compared with those who followed a low trajectory of social anxiety symptoms across childhood and adolescence.

The persistence of mental health problems highlights the urgent need to intervene early. Unfortunately, only around one-quarter of affected Canadian children receive mental health services, and these services are typically afforded to those with severely impairing mental disorders (Georgiades et al. 2019; Mental Health Commission of Canada 2017). It also highlights the need for Canada to create a national strategy that emphasizes children's mental well-being as important for life success, in addition to academic attainment, an area in which Canada has excelled (OECD 2016). This strategy should aspire to coordinate care across sectors in a stepped care framework<sup>1</sup> and across a full continuum of mental health supports spanning promotion, prevention, early intervention, and treatment. Of note, this strategy must include culturally sensitive services and supports delivered in schools and embedded within the broader community, which includes strong safety nets, with close connections to community mental health and hospital care for children and youth requiring more intensive service. As Vaillancourt et al. (2020) pointed out, this can only be done by a federal government that works with the provinces and territories to implement and evaluate evidence-based practice and policy. Such a partnership also requires input from school boards who understand firsthand the challenges of their respective, local communities. This type of partnership is a very important component of effective connection and intervention that is facilitated when care is provided within a community.

This national strategy must include “school-based mental health” as a first step along a continuum of care pathway. Schools are the societal institution responsible for child and youth development, which includes educating the whole child. This education not only includes numeracy, literacy, and science competencies but also social-emotional competence (Vaillancourt et al. 2021a). Academic achievement cannot be disconnected from mental health. Poor mental health has a detrimental impact on education-related outcomes such as lower academic achievement, lower school engagement, and higher school drop-out (Whitley et al. 2018). Schools represent a prominent sector for a national child and youth mental health strategy given the established relationship teachers, administrators, and

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<sup>1</sup>Stepped care models provide first line interventions that are accessible, convenient, and cost effective (Salloum et al. 2016).

support staff have with children, youth, and their families in our communities. The role of these caring adults cannot be underestimated. Studies regularly demonstrate that the most consistent asset of children and youth is a strong positive bond with a competent adult, which is often a teacher (Luthar et al. 2000; Sanders et al. 2016). Accordingly, schools and school boards play a vital role in the promotion of mental health, especially in the context of the pandemic (National Academies of Sciences, Engineering, and Medicine [NASEM] 2021). Schools have the capacity to increase awareness about mental health, identify students who are at-risk, provide prevention and early intervention services, and connect students with community services (Halladay et al. 2020; Kutcher and Wei 2020; NASEM 2021; Ontario Ministry of Education 2013).

Schools are also a natural partner for a national child and youth mental health strategy because they are, in fact, already doing the job (e.g., School Mental Health Ontario) and doing it well (Knopf et al. 2016; O'Connor et al. 2018; Sanchez et al. 2018). Schools are often the first point of contact for students with mental health concerns and the most common setting for the provision of mental health services in Canada (Georgiades et al. 2019) and elsewhere (Costello et al. 2014; Green et al. 2013; Merikangas et al. 2011; Ryan et al. 2014). In the United States, 35% of adolescents received their mental health services exclusively in the school setting (Ali et al. 2019). In Canada, there is a strong and growing network across provinces related to school mental health where ideas and innovations are shared and contextualized (see Mental Health Commission of Canada 2013). Several provinces have established infrastructure, strategic directions, implementation support teams, curriculum-embedded wellness promotion and social emotional skill development, educator mental health literacy and training, and protocols for school-based stepped care to advance culturally responsive evidence-based practices in school mental health. One notable concern with the pandemic is that students are being disconnected from these important mental health resources by virtue of schools being closed or adopting blended learning approaches. Being disconnected from teachers when schools are closed is especially problematic for at-risk children and youth, who benefit enormously from their relationship with teachers (Vaillancourt et al. 2021a; Westheimer and Schira Hagerman 2021). Indeed, teachers are an important “protective asset” for students (Sanders et al. 2016; Sanchez et al. 2018).

All mental health services in Canada need greater investment (McGrath et al. 2020), and school-based mental health services offer significant promise and an important return on investment as a first step in a stepped-care model (Kutcher and Wei 2020). Stepped-care models provide a framework for the delivery of mental health services such that the first step requires the least resources, and then depending on the response to treatment, other steps are mobilized, as needed, to ensure further resources are offered to a child or youth on their mental health journey. The pandemic has acutely highlighted a failed health care model in Canada whereby the bulk of mental health services have been provided by schools, and thus, if children and youth are not in school, they often turn to tertiary care in emergency rooms (ER) or hospitals in its place. In other words, without a gate keeper to provide the initial and least intensive service, the most expensive source of care and possibly the less effective for the presenting concerns, is accessed. This is well illustrated during the pandemic whereby, with school closures being a common occurrence, many hospitals are reporting increases in ER visits for mental health concerns. For example, Toronto Hospital for Sick Children has seen a 120% increase in ER visits during the pandemic for mental health concerns (P. Szatmari, personal communication, May 2021). Since January 2021, the Children's Hospital of Eastern Ontario reported an “unprecedented” number of young patients admitted to the hospital “in the throes of severe mental health crisis that left them suicidal” (Payne 2021). This issue is not unique to Ontario. According to Children's Healthcare Canada (2021), children's hospitals “are experiencing, on average, double the number of admissions following attempted suicide, a three-fold increase in admissions related to substance use, and a 60% increase in the number of admissions related to eating disorders”. In the United States, the Centres for Disease Control and Prevention (2020) noted a 24% increase in mental

health related ER visits for 5–11-year olds and a 31% increase for 12–17-year olds at the beginning of the pandemic (Leeb et al. 2020). In Western Australia, a 104% increase in ER visits and admissions was observed at the beginning of the pandemic for children with anorexia nervosa compared with the three previous years (Haripersad et al. 2021). In Ontario, which has had the longest school closures of any province or territory in Canada (Vaillancourt et al. 2021a), admissions for eating disorders were 223% above capacity in June for the province's five paediatric hospitals (Kohly 2021).

As mentioned, the increases in tertiary care access are driven in part<sup>2</sup> by pandemic-related stressors including school closures, underscoring again the role that schools play in the promotion, early identification, and intervention of mild to moderate mental health concerns. The Ottawa Community Pediatricians Network noted that “when schools are open, children are able to get more support”, but when schools are closed, pediatricians see “a surge of mental health disorders within their practices” (Payne 2021). Although troubling, it is important to bear in mind that the mental health system for children and youth has been at a breaking point for years. For example, between 2009 and 2017, the rate of ER visits in Ontario for mental health care increased by 47% and with the largest increase found for children and youth age 10–21 years (>90%; ICES 2021).

Focusing on school-based mental health also complies with the World Health Assembly's comprehensive mental health action plan, which advocated for providing “comprehensive, integrated and responsive mental health and social care services in community-based settings” (WHO 2013 p. 11; our underline). It is also in keeping with the Mental Health Strategy of Canada, which explicitly advocates for the importance of “schools for universal mental health promotion, and stigma reduction, as well as for early recognition of mental health problems” (Mental Health Commission of Canada 2013, p.1). Equipping schools to lead in child and youth mental health requires more resources and more training than is currently available. Regarding resources, although the Canadian Government's latest Federal Budget (Government of Canada 2021) has allocated historic investment in children by financing, for example, an affordable universal childcare program, when it comes to the mental health of children and youth, the budget falls short. Indeed, according to *Children's Healthcare Canada and the Pediatric Chairs of Canada* (2021), the budget is “insufficient to meet the urgent and growing demands for complex healthcare interventions to address the crisis in child and youth mental health”. Because all children and youth in Canada are exposed to a notable stressor (i.e., the pandemic), the need for adequate mental health funding for this vulnerable population has never been greater. The science on adverse childhood experiences cannot be ignored. Negative or adverse experiences in childhood can derail potential. Children exposed to early and ongoing trauma are more likely to have physical health problems, to die earlier, to underachieve academically, and are more likely to have impaired mental health and relationships (Afifi et al. 2010; Almuneef et al. 2016; Anda et al. 2007; Barra et al. 2018; Campbell et al. 2016; Crouch et al. 2018; Cunningham et al. 2014; Dong et al. 2004; Dube et al. 2009, 2001; Levenson 2016; Rothman et al. 2010; Sachs-Ericsson et al. 2017) that persist well into adulthood (Anda et al. 2001, 2007; Baiden et al. 2017; Bellis et al. 2014; Dietz et al. 1999; Fuller-Thomson et al. 2013; Rossegger et al. 2009; von Sneidern et al. 2017). This sequelae and loss should matter to all of us. Healthy children are inextricably linked to a healthy nation. The reverse is also true.

Regarding training, the *Canadian Teachers' Federation* (2012) conducted a study with the aim of assessing barriers to the provision of mental health services for students and the level of preparedness to address student mental health concerns. Most teachers (>90%) recognized that student mental health issues were a serious concern. Barriers to student mental health services were also identified,

<sup>2</sup>The reasons for increased ER visits (and admissions) likely vary and are not solely driven by school closures, as such, these associations will require a closer investigation once more data become available.



including not having enough school-based mental health professionals (88.6%), professional training for staff to deal with their students' mental health issues (87.4%), or funding for school-based mental health services (84.7%). Other barriers included a lack of community-based mental health professionals (77.65%), coordination between schools and community (74.7%), and referral options in the community (67.0%), as well as not prioritizing students' mental health (54.1%). These gaps in knowledge highlight that if teachers, alongside administrators, support staff, and school mental health professionals are to continue to be the stewards of children's mental health, then they need far more support in this role (Kutcher et al. 2013; Kutcher and Wei 2020; NASEM 2021). The stakes are too high to have education provide this valuable service without appropriate guidance about best practices in school-based mental health.

Finally, investing in school-based mental health services helps level the playing field. Schools can provide professional services to all school-aged children regardless of their family's access to care in community mental health settings. Schools can also provide care that is more spatially or temporally accessible and "provide the greatest ease of access for the largest number of young people" (Kutcher and Wei 2020, p 174). For example, with neighbourhood schools, caregivers do not have to travel far to access care for their child. Care can also be accessed during the school day which reduces the need for caregivers to miss work for these mental health appointments. Providing care in schools can also help reduce stigma because the care provided is more discrete. Providing care in schools also means that school-based mental health care workers familiar with the community are the ones providing the service. These individuals are more likely to be culturally sensitive and meet the needs of students in their context, capitalising on known community resources to build resilience. Schools are also more likely to provide "youth friendly" services that can be "seamlessly linked to primary health care providers" (Kutcher and Wei 2020, p 174). Finally, because health care is publicly funded in Canada, mental health services are limited. Thus, many services are accessed by youth (or families) with resources like private health insurance and higher family income. This inequity partially explains why socioeconomically disadvantaged children and youth are overly represented when it comes to mental health problems. The burden is in fact 25%–39% higher for Canadian children and youth from low-income families (Guhn et al. 2020; see also Knopf et al. 2016).

## Child and youth mental health during the pandemic<sup>3</sup>

Canada needs a national child and youth mental health strategy. This was apparent before the pandemic, and since COVID-19 was declared a pandemic, this need has become even more pronounced. Factors like the lack of contact with peers and teachers, the fear of health and death of family members, and the decreased structure in daily living seem to have contributed to increased anxiety, depression, and behavioural problems in many children and youth (Fegert et al. 2020). Cross-sectional studies examining the mental health of children and youth in the context of COVID-19 from around the world appear to support this assumption (e.g., Duan et al. 2020; Liang et al. 2020; Ma et al. 2021; Marques de Miranda et al. 2020; Orgilés et al. 2021; Tang et al. 2021; Xie et al. 2020; Yeasmin et al. 2020; Zhou et al. 2020). These studies consistently suggest that children and youth are not doing well during the pandemic. For example, a systematic review of 12 eligible studies ( $N = 12\,626$  children and adolescents) reported that COVID-19 did have an impact on mental health (Nearcho et al. 2020; see also Loades et al. 2020). Another systematic review of 16 eligible studies on adolescent mental health and found "evidence to support the potential negative impact of the pandemic on adolescent mental health" (Jones et al. 2021). Crowdsourced data suggests that most (57%) Canadian youth age 15–17 years have experienced a decline in perceived mental health (Children First 2020). Results from two cross-sectional studies conducted in the spring of 2020 and

<sup>3</sup>We provide a systematic review and synthesis of the current state of knowledge up until 20 July 2021.

the fall of 2020 on over 2000 Canadian children and youth age 9–16 years found that more youth were bored (34%), worried (27%), and sad (15%) during the pandemic than before the pandemic (Maximum City 2021). Many youth (>75%) also felt worried about the pandemic and concerned that they were missing out on important life events. Not all the news was somber from this report. Over a quarter of the youth surveyed (26%) felt that the pandemic had some positive effects on their lives including more time to spend with their family and more time to pursue their interests. In a study of youth (age 10–19 years) in the Netherlands, with two time points (May 2020 and November 2020), tension and depression increased during the pandemic, particularly for younger youth and those exposed to more stressors (Green et al. 2021). In a Canadian study of children and youth (age 6–18 years for parent reports and 10–18 years for self-reports), Cost et al. (2021) found that, although 67%–70% of children and youth “experienced deterioration in at least one mental health domain”, the mental health of some improved (19%–31%) during COVID-19. Cost et al. (2021) also found the rates of deterioration were greatest for those with a pre-existing diagnosis and among children who perceived greater stress from being socially isolated. This is consistent with other cross-sectional studies examining COVID-19 in children and youth with pre-existing mental health problems as well as other pre-existing vulnerabilities like physical health problems (Hawke et al. 2020), neurodevelopmental conditions (e.g., Asbury et al. 2020; Sciberras et al. 2020; Theis et al. 2021), and those living in adverse socio-economic circumstances (Whitehead et al. 2021) and in racialized communities (Ezell et al. 2021). There is nothing new here, differential exposure and vulnerability have been reliably associated with differential outcomes (Cicchetti and Rogosch 1996).

Although the decline in mental health of children and youth in Canada and worldwide during the pandemic is expected, it is important to note that some problems exist with these cross-sectional studies. Many published and preprint studies do not meet the standard of good research practices (Vaillancourt et al. 2021b). Specifically, providing definitive evidence about the magnitude of change using these types of data is incorrect, open to bias, and can be potentially harmful (Vaillancourt et al. 2021b). Cross-sectional pandemic data have often relied on retrospective recall approaches, which confound current mood states and experiences with the recall of past events. This is problematic because when perceptions of change and current stress are measured concurrently, it is difficult, if not impossible, to determine the true magnitude of change. Thus, cross-sectional data cannot be used to make concrete inferences about individuals or population change. Only longitudinal designs can be used to identify definitively individual differences in rates of change over time (Hofer et al. 2012). Moreover, in the absence of a randomized control trial, only longitudinal designs that include baseline data prior to the pandemic can be used to make inferences about causality.

There are few longitudinal studies examining changes in children’s mental health during the pandemic, even fewer studies with comparable population-based prepandemic baseline data, and none that are Canadian. Results from these limited studies suggest that there is a deterioration of mental health in some children and youth, but the results are not as striking as those promoted in the media. This hopeful appraisal could however be due to a survivorship (i.e., attrition) bias. Specifically, Czeisler et al. (2021) found that participants with subsequently missing data had higher depression and anxiety symptoms than those who complete more assessments. Czeisler et al. (2021) suggested that bias “could lead to overly optimistic interpretations of mental health trends over time” (p.1).

So what do longitudinal studies say about changes to children’s mental health during the pandemic? In a Canadian study of 184 adolescents from the community who were assessed on four occasions over the course of two years before the pandemic, and again during the pandemic, researchers found that “anxiety and depression scores were significantly higher than previous trajectories would have predicted” (De France et al. 2021). In an American study of 322 young adolescents

(mean age = 11.99 years), reductions in mental health problems were found for some youth who had elevated problems before the pandemic (Penner et al. 2021). Specifically, clinically significant reductions were found for internalizing, externalizing, and total problems. The conclusion drawn by the authors of this study was that “COVID-19 stay-at-home regulations may offer protective effects for youth mental health”, perhaps for those who find school to be a stressful experience. In another American study that combined two longitudinal samples ( $N = 224$ ) of children age 7–10 years and adolescents age 13–15 years, Rosen et al. (2021) found that internalizing and externalizing psychopathology increased substantially during the pandemic and that higher exposure to pandemic-related stressors moderated the association (more stressors = higher psychopathology). In China, Zhang et al. (2020) assessed 1241 youth before and during the pandemic and found increased odds of being depressed, engaging in nonsuicidal self-injury, suicidal ideation, suicide plans, and suicide attempts following the lockdown. In Norway, there was a small increase in anxiety and depression for adolescents (age 13–16 years;  $N = 3572$ ) and those living in lone-parent homes were more impacted (Hafstad et al. 2021). In Australia, Magson et al. (2021) compared adolescents’ mental health ( $N = 248$ ) one year before the pandemic and two months after government restrictions and online learning were implemented. As has been shown in other studies, increases in depressive symptoms and anxiety were found along with a decrease in life satisfaction. These effects were especially evident in girls. COVID-19 related worries, online learning difficulties, and increased conflict with parents were associated with increases in mental health problems. Depression and anxiety symptoms were examined in 12 longitudinal studies of adolescents ( $N = 1339$ ) from three countries (10 from the United States, 1 from Netherlands, and 1 from Peru; Barendse et al. 2021). Teens were assessed before the pandemic and during the first six months of the pandemic. Results indicated that depression symptoms increased significantly, whereas anxiety symptoms remained stable across time. Adolescents who were multiracial and under lockdown restrictions fared worse on mental health. Finally, Achterberg et al. (2021) assessed children ( $N = 151$ ; age 10–13 years) during the lockdown and four annual assessments prior to the pandemic in the Netherlands and found no changes in internalizing problems and a deceleration of the decrease in externalizing problems.

Taken together, although most longitudinal studies suggest a worsening of mental health in relation to the pandemic, the picture is still nuanced in terms of magnitude of change across different outcomes, age groups, gender, race, and other demographic features. Moreover, because most of the data were collected several months after the COVID-19 stay-at-home measures were enacted, it is important to reassess this now and again over time. Hawes et al. (2021) for example, found that symptoms of depression and anxiety peaked in 415 youth in the first spring of the pandemic and then decreased over the course of early summer. This re-assessment is also important given the mounting number of parental deaths (and those of other family members) in Canada and abroad. Although there are no comparable data for Canada, the estimated and projected parental deaths from the United States are striking. Models suggest “that each COVID-19 death leaves 0.078 children age 0–17 parentally bereaved” (Kidman et al. 2021). This represents a 17.5%–20.2% increase in parental deaths due to COVID-19.

Population-based studies also point to an increase in mental health difficulties in children and youth during the pandemic. In the United Kingdom, an increase from 10.8% in 2017 to 16.0% in July 2020 was found, with the highest prevalence of mental health problems found among adolescent girls (27.2%; Newlove-Delgado et al. 2021). In a nationally representative sample of German children age 7–17 years, the prevalence of mental health problems also increased from 9.9% (prepandemic) to 17.8% (between 26 May and 10 June 2020), with increases in anxiety being the most pronounced (14.9% vs. 24.1%; Ravens-Sieberer et al. 2021). Ravens-Sieberer et al. (2021) also found that, children with “low socioeconomic status, migration background and limited living space” suffered the most during the pandemic. In a population-based study of Icelandic adolescents ( $N = 59\,701$ ) assessed in



2016, 2018, and again in 2020, [Thorisdottir et al. \(2021\)](#) reported an increase in symptoms of depression and a worsening of mental well-being in all age groups during the pandemic compared with before the pandemic. Adolescent girls were found to be more affected than adolescent boys, consistent with results from [Newlove-Delgado et al. \(2021\)](#).

Not having a Canadian population-based longitudinal study of children and youth is problematic for a variety of reasons and arguably contributing to our children's mental health crisis ([Georgiades et al. 2021](#)). Because we do not have a national longitudinal study of children and youth, we cannot provide timely evidence on their health and well-being, nor can we accurately monitor the impact of the pandemic on our most vulnerable populations. In their policy brief on the impact of COVID-19 on children, the [United Nations \(2020\)](#) identified the need for "a rapid accumulation of data on the scale and nature of impacts among children" and yet a recent large-scale search of children's mental health research in the context of the pandemic found a "striking lack of research" on this topic ([Racine et al. 2020](#)). This gap in knowledge also renders us ill equipped to coordinate a national response to determine how Canadian children and youth are doing and what their current and future needs are. Such information is essential for helping policymakers make the best choices about where and how money should be spent to help children and their families. Continuity in data collection allows us to establish if we are doing the right things and doing them right—for all children. It also creates a unique opportunity to assess how COVID-19's impact may have differed across provinces and territories—including assessing the impact of diverse public health and policy responses.

Finally, the federal government needs to establish a policy framework for child and youth mental health and a national Children's Commissioner is needed to advise the Cabinet of Canada and contribute to all policies that impact children and youth. The Children's Commissioner would be responsible for ensuring that all federal legislation is in line with the framework and would provide an annual scorecard on what the government is doing in meeting its child and youth mental health objectives. These suggestions are consistent with best practice evidence. Systematic reviews of clinical practice guidelines in child and youth mental health (e.g., [Bennett et al. 2016](#)) find that the only guidelines to be consistently highly endorsed, according to international standards, are those produced by arm's length government organizations like the National Institute for Health and Care Excellence in the UK rather than by professional medical societies.

## Conclusion and recommendations

In the latest, [Children First \(2020\)](#) report, the top threats to childhood in Canada were identified. Poor mental health ranked second on their list. As experts in this field, we have long recognized that mental well-being is an integral component of children's health and success, as well as the health and prosperity of our nation. We have also long recognized the disconnect between what we advocate for and the reality of life for Canadian children and youth. Even before the pandemic, children and youth in Canada were not faring well in large part because mental health has not been prioritized by our governments, both provincially or territorially and nationally. The pandemic has put a spotlight on this problem and with this attention comes the need for action. To improve the mental health of Canadian children and youth in the post-pandemic era we need to do the following:

- 1a. Create a national strategy that emphasizes children's mental health as important for life success and do so in the context in which they are most easily accessible—schools. This strategy should also provide coordinated care across sectors in a stepped care framework and across a full continuum of mental health supports spanning promotion, prevention, early intervention, and treatment. We recognize that education is the responsibility of provinces and territories, but a national approach that includes education as an integral sector is what is needed to reduce the striking disparity in practice and policy across the country when it comes to children's mental

health. This national strategy can only be done by a federal government that works with the provinces and territories to implement and evaluate evidence-based practice and policy.

- 1b. A national strategy must also include plans to deal with the tragedy of suicide in all segments of the population, but in particular, among First Nations, Métis, and Inuit youth and adolescent boys who are disproportionately affected. This strategy should include connections to the First Nations Mental Wellness Continuum Framework and the National Inuit Suicide Prevention Strategy.
2. The federal government needs to establish a policy framework for child and youth mental health and a national children's commissioner is needed to advise the Cabinet of Canada and contribute to all policies that impact children and youth and to advise provinces and territories and coordinate pan-Canadian efforts. Moreover, an annual scorecard on how Canada is doing with respect to child and youth mental health is needed.
3. Implementing a national strategy will take time so, in the interim, new funding must be allocated to schools in 2021–2022 and 2022–2023 (and beyond) to deal with growing mental health crisis among children and youth. The funding given to the provinces and territories for schools must be earmarked and protected by the federal government.
4. Invest in a comprehensive population-based follow-up survey of the Canadian Health Survey on Children and Youth ([Statistics Canada 2019a](#)) so that accurate information about how the pandemic is affecting all Canadian children and youth, and those disproportionately affected, can be obtained.

Children are not the immediate face of COVID-19, but they are the face of its future. This future may well involve lasting harms to a generation if we do not act now ([Georgiades et al. 2021](#)). The pandemic has caused many unprecedented hardships for Canadians. Yet it has also provided an extraordinary opportunity to right our past wrongs by finally investing in the mental health of Canadian children and youth. Any nationally led response to COVID-19, and beyond, must recognize that there is no health without mental health ([Chisholm 1954](#)) and that children and youth are an essential component of this response. As [Racine et al. \(2020\)](#) stated so well, children and youth “count on adults to be their advocates. [They] depend on us to notice and act on inequalities they are facing. Our collective responsibility is to give them a voice by ensuring that their mental health is an international priority, both within and outside the academic realm” (p. 2).

## Acknowledgements

The authors would like to acknowledge the research assistance contribution of Riley Desmarais.

## Funding

This work was supported by Canadian Institutes of Health Research Canada Research Chairs Program.

## Author contributions

TV, PS, KG, and AK conceived and designed the study. TV, PS, KG, and AK performed the experiments/collected the data. TV, PS, KG, and AK analyzed and interpreted the data. TV, PS, KG, and AK contributed resources. TV, PS, KG, and AK drafted or revised the manuscript.

## Competing interests

The authors declare no known conflicts of interest.

## Data availability statement

All relevant data are within the paper.

## References

- Abma S. 2021 March 15. From depression to self-harm, teens are struggling during COVID-19. CBC [online]: Available from [cbc.ca/news/canada/ottawa/mental-health-teenagers-pandemic-1.5945851](https://www.cbc.ca/news/canada/ottawa/mental-health-teenagers-pandemic-1.5945851).
- Abrams A. 2021, March 17. Is a mental health crisis the next pandemic? Psychology Today [online]: Available from [psychologytoday.com/ca/blog/nurturing-self-compassion/202103/is-mental-health-crisis-the-next-pandemic](https://psychologytoday.com/ca/blog/nurturing-self-compassion/202103/is-mental-health-crisis-the-next-pandemic).
- Achterberg M, Dobbelaar S, Boer O, and Crone E. 2021. Perceived stress as mediator for longitudinal effects of the COVID-19 lockdown on wellbeing of parents and children. *Scientific Reports*, 11(1): 2971. PMID: 33536464 DOI: [10.1038/s41598-021-81720-8](https://doi.org/10.1038/s41598-021-81720-8)
- Afifi TO, Cox BJ, Martens PJ, Sareen J, and Enns MW. 2010. The relationship between problem gambling and mental and physical health correlates among a nationally representative sample of canadian women. *Canadian Journal of Public Health*, 101(2): 171–175. PMID: 20524385 DOI: [10.1007/BF03404366](https://doi.org/10.1007/BF03404366)
- Ali M, West K, Teich J, Lynch S, Mutter R, and Dubenitz J. 2019. Utilization of mental health services in educational setting by adolescents in the United States. *The Journal of School Health*, 89(5): 393–401. PMID: 30883761 DOI: [10.1111/josh.12753](https://doi.org/10.1111/josh.12753)
- Almuneef M, Hollinshead D, Saleheen H, AlMadani S, Derkash B, AlBuhairan F, Al-Eissa M, and Fluke J. 2016. Adverse childhood experiences and association with health, mental health, and risky behavior in the kingdom of Saudi Arabia. *Child Abuse & Neglect*, 60: 10–17. PMID: 27662614 DOI: [10.1016/j.chiabu.2016.09.003](https://doi.org/10.1016/j.chiabu.2016.09.003)
- Anda R, Brown D, Felitti V, Bremner J, Dube S, and Giles W. 2007. Adverse childhood experiences and prescribed psychotropic medications in adults. *American Journal of Preventive Medicine*, 32(5): 389–394. PMID: 17478264 DOI: [10.1016/j.amepre.2007.01.005](https://doi.org/10.1016/j.amepre.2007.01.005)
- Anda R, Felitti V, Chapman D, Croft J, Williamson D, Santelli J, et al. 2001. Abused boys, battered mothers, and male involvement in teen pregnancy. *Pediatrics (Evanston)*, 107(2): 1–8. DOI: [10.1542/peds.107.2.e19](https://doi.org/10.1542/peds.107.2.e19)
- Asbury K, Fox L, Deniz E, Code A, and Toseeb U. 2020. How is COVID-19 affecting the mental health of children with special educational needs and disabilities and their families? *Journal of Autism and Developmental Disorders*, 51(5): 1772–1780. DOI: [10.1007/s10803-020-04577-2](https://doi.org/10.1007/s10803-020-04577-2)
- Baiden P, Stewart SL, and Fallon B. 2017. The role of adverse childhood experiences as determinants of non-suicidal self-injury among children and adolescents referred to community and inpatient mental health settings. *Child Abuse & Neglect*, 69: 163–176. PMID: 28477476 DOI: [10.1016/j.chiabu.2017.04.011](https://doi.org/10.1016/j.chiabu.2017.04.011)
- Barendse M, Flannery JE, Cavanagh C, Aristizabal M, Becker SP, Berger E, et al. 2021. Longitudinal change in adolescent depression and anxiety symptoms from before to during the COVID-19 pandemic: A collaborative of 12 samples from 3 countries. *PsyArXiv*. DOI: [10.31234/osf.io/hn7us](https://doi.org/10.31234/osf.io/hn7us)

- Barra S, Bessler C, Landolt M, and Aebi M. 2018. Patterns of adverse childhood experiences in juveniles who sexually offended. *Sexual Abuse*, 30(7): 803–827. PMID: [29188752](#) DOI: [10.1177/1079063217697135](#)
- Bellis MA, Hughes K, Leckenby N, Jones L, Baban A, Kachaeva M, et al. 2014. Adverse childhood experiences and associations with health-harming behaviours in young adults: surveys in eight eastern European countries. *Bulletin of the World Health Organization*, 92(9): 641–655. PMID: [25378755](#) DOI: [10.2471/BLT.13.129247](#)
- Bennett K, Manassis K, Duda S, Bagnell A, Bernstein G, Garland E, et al. 2016. Treating child and adolescent anxiety effectively: Overview of systematic reviews. *Clinical Psychology Review*, 50: 80–94. PMID: [27744168](#) DOI: [10.1016/j.cpr.2016.09.006](#)
- Bhatia R. 2020. Editorial: Effects of the COVID-19 pandemic on child and adolescent mental health. *Current Opinion in Psychiatry*, 33(6): 568–570. PMID: [32858603](#) DOI: [10.1097/YCO.0000000000000651](#)
- Breton J, Bergeron L, Valla J, Berthiaume C, Gaudet N, Lambert J, et al. 1999. Quebec child mental health survey: prevalence of DSM-III-R mental health disorders. *Journal of Child Psychology and Psychiatry*, 40(3): 375–384. PMID: [10190339](#) DOI: [10.1111/1469-7610.00455](#)
- Campbell JA, Walker RJ, and Egede LE. 2016. Associations between adverse childhood experiences, high-risk behaviors, and morbidity in adulthood. *American Journal of Preventive Medicine*, 50(3): 344–352. PMID: [26474668](#) DOI: [10.1016/j.amepre.2015.07.022](#)
- Canadian Teachers' Federation. 2012. Understanding teachers' perspectives on student mental health: Findings from a national survey. [online]: Available from [files.eric.ed.gov/fulltext/ED544259.pdf](#)
- Cénat J, and Dalexis R. 2020. The complex trauma spectrum during the COVID-19 pandemic: A threat for children and adolescents' physical and mental health. *Psychiatry Research*, 293: 113473. PMID: [33198045](#) DOI: [10.1016/j.psychres.2020.113473](#)
- Children First. 2020. Child advocates ring the alarm as new report highlights unprecedented impact of COVID-19. [online]: Available from [childrenfirstcanada.org/press-releases/child-advocates-ring-the-alarm-as-new-report-highlights-unprecedented-impact-of-covid-19/](#)
- Children's Healthcare Canada. 2021. Expanding urgent health supports for Canada's children and youth. [online]: Available from [static1.squarespace.com/static/5bd8a55e4eddec150a2acdb/t/607f615f39c5cd3dffa401b1/1618960736458/Expanding+urgent+health+supports+for+Canada.pdf](#)
- Children's Healthcare Canada and Pediatric Chairs of Canada. 2021. Response to federal budget 2022. [online]: Available from [pediatricchairs.ca/news-media/response-to-federal-budget-2021](#)
- Chisholm B 1954. Outline for a Study Group on World Health and the Survival of the Human Race. World Health Organization, Geneva.
- Cicchetti D, and Rogosch F. 1996. Equifinality and multifinality in developmental psychopathology. *Development and Psychopathology*, 8(4): 597–600. DOI: [10.1017/S0954579400007318](#)
- Copeland W, Wolke D, Shanahan L, and Costello E. 2015. Adult functional outcomes of common childhood psychiatric problems: A prospective, longitudinal study. *JAMA Psychiatry (Chicago, Ill.)*, 72(9): 892–899. DOI: [10.1001/jamapsychiatry.2015.0730](#)

- Cost KT, Crosbie J, Anagnostou E, Birken CS, Charach A, Monga S, et al. 2021. Mostly worse, occasionally better: Impact of COVID-19 pandemic on the mental health of Canadian children and adolescents. *European Child & Adolescent Psychiatry*, 1–14. DOI: [10.1007/s00787-021-01744-3](https://doi.org/10.1007/s00787-021-01744-3)
- Costello E, He J, Sampson N, Kessler R, and Merikangas K. 2014. Services for adolescents with psychiatric disorders: 12-month data from the national comorbidity survey–adolescent. *Psychiatric Services (Washington, DC)*, 65(3): 359–366. DOI: [10.1176/appi.ps.201100518](https://doi.org/10.1176/appi.ps.201100518)
- Crouch E, Radcliff E, Strompolis M, and Wilson A. 2018. Examining the association between adverse childhood experiences and smoking-exacerbated illnesses. *Public Health*, 157: 62–68. PMID: [29500945](https://pubmed.ncbi.nlm.nih.gov/29500945/) DOI: [10.1016/j.puhe.2018.01.021](https://doi.org/10.1016/j.puhe.2018.01.021)
- Cunningham TJ, Ford ES, Croft JB, Merrick MT, Rolle IV, and Giles WH. 2014. Sex-specific relationships between adverse childhood experiences and chronic obstructive pulmonary disease in five states. *International Journal of COPD*, 9: 1033–1043. PMID: [25298732](https://pubmed.ncbi.nlm.nih.gov/25298732/) DOI: [10.2147/COPD.S68226](https://doi.org/10.2147/COPD.S68226)
- Czeisler MÉ, Wiley JF, Czeisler CA, Rajaratnam SM and Howard ME. 2021. Uncovering survivorship bias in longitudinal mental health surveys during the COVID-19 pandemic. *Epidemiology and Psychiatric Sciences*, 30: 1–10. DOI: [10.1017/S204579602100038X](https://doi.org/10.1017/S204579602100038X)
- Davies S, and Aurini J. 2021. Estimate of student learning losses from Covid-19 school closures. Royal Society of Canada.
- De France K, Hancock GR, Stack DM, Serbin LA, and Hollenstein T. 2021. The mental health implications of COVID-19 for adolescents: Follow-up of a four-wave longitudinal study during the pandemic. *American Psychologist*. Advance online publication. DOI: [10.1037/amp0000838](https://doi.org/10.1037/amp0000838)
- Dietz P, Spitz A, Anda R, Williamson D, McMahon P, Santelli J, et al. 1999. Unintended pregnancy among adult women exposed to abuse or household dysfunction during their childhood. *JAMA: Journal of the American Medical Association*, 282(14): 1359–1364. PMID: [10527183](https://pubmed.ncbi.nlm.nih.gov/10527183/) DOI: [10.1001/jama.282.14.1359](https://doi.org/10.1001/jama.282.14.1359)
- Dong M, Anda RF, Felitti VJ, Dube SR, Williamson DF, Thompson TJ, et al. 2004. The interrelatedness of multiple forms of childhood abuse, neglect, and household dysfunction. *Child Abuse & Neglect*, 28(7): 771–784. PMID: [15261471](https://pubmed.ncbi.nlm.nih.gov/15261471/) DOI: [10.1016/j.chiabu.2004.01.008](https://doi.org/10.1016/j.chiabu.2004.01.008)
- Duan L, Shao X, Wang Y, Huang Y, Miao J, Yang X, and Zhu G. 2020. An investigation of mental health status of children and adolescents in china during the outbreak of COVID-19. *Journal of Affective Disorders*, 275: 112–118. PMID: [32658812](https://pubmed.ncbi.nlm.nih.gov/32658812/) DOI: [10.1016/j.jad.2020.06.029](https://doi.org/10.1016/j.jad.2020.06.029)
- Dube SR, Fairweather D, Pearson WS, Felitti VJ, Anda RF, and Croft JB. 2009. Cumulative childhood stress and autoimmune diseases in adults. *Psychosomatic Medicine*, 71(2): 243–250. PMID: [19188532](https://pubmed.ncbi.nlm.nih.gov/19188532/) DOI: [10.1097/PSY.0b013e3181907888](https://doi.org/10.1097/PSY.0b013e3181907888)
- Dube S, Anda R, Felitti V, Chapman D, Williamson D, and Giles W. 2001. Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the life span: Findings from the adverse childhood experiences study. *JAMA: The Journal of the American Medical Association*, 286(24): 3089–3096. PMID: [11754674](https://pubmed.ncbi.nlm.nih.gov/11754674/) DOI: [10.1001/jama.286.24.3089](https://doi.org/10.1001/jama.286.24.3089)
- Duncan M, Patte K, and Leatherdale S. 2021. Mental health associations with academic performance and education behaviors in Canadian secondary school students. *Canadian Journal of School Psychology*. DOI: [10.1177/0829573521997311](https://doi.org/10.1177/0829573521997311)



Ezell, J., Salari, S., Rooker, C., & Chase, E. (2021). Intersectional trauma: COVID-19, the psychosocial contract, and America's racialized public health lineage. *Traumatology*, 27(1): 78–85. DOI: [10.1037/trm0000302](https://doi.org/10.1037/trm0000302)

Fegert J, Vitiello B, Plener P, and Clemens V. 2020. Challenges and burden of the Coronavirus 2019 (COVID-19) pandemic for child and adolescent mental health: a narrative review to highlight clinical and research needs in the acute phase and the long return to normality. *Child and Adolescent Psychiatry and Mental Health*, 14(20): 1–11. DOI: [10.1186/s13034-020-00329-3](https://doi.org/10.1186/s13034-020-00329-3)

Fuller-Thomson E, Katz RR, Phan VV, Liddycoat JMJ, and Brennenstuhl S. 2013. The long arm of parental addictions: The association with adult children's depression in a population-based study. *Psychiatry Research*, 210(1): 95–101. PMID: [23642525](https://pubmed.ncbi.nlm.nih.gov/23642525/) DOI: [10.1016/j.psychres.2013.02.024](https://doi.org/10.1016/j.psychres.2013.02.024)

Georgiades K, Duncan L, Wang L, Comeau J, and Boyle M. 2019. Six-month prevalence of mental disorders and service contacts among children and youth in Ontario: Evidence from the 2014 Ontario child health study. *Canadian Journal of Psychiatry*, 64(4): 246–255. PMID: [30978138](https://pubmed.ncbi.nlm.nih.gov/30978138/) DOI: [10.1177/0706743719830024](https://doi.org/10.1177/0706743719830024)

Georgiades K, MacMillian H, Georgiades S, Waddell C, Szatmari P, Vaillancourt T, and Gruenewoldt E. 2021. Data gaps are fueling Canada's children's mental health crisis, during COVID-19 and beyond. *Royal Society of Canada COVID-19 Series, Publication #76*.

Golberstein E, Wen H, and Miller B. 2020. Coronavirus disease 2019 (COVID-19) and mental health for children and adolescents. *JAMA Pediatrics*, 174(9): 819–820. PMID: [32286618](https://pubmed.ncbi.nlm.nih.gov/32286618/) DOI: [10.1001/jamapediatrics.2020.1456](https://doi.org/10.1001/jamapediatrics.2020.1456)

Government of Canada. 2021. Budget 2021: A recovery plan for jobs, growth, and resilience. [online]: Available from [canada.ca/en/departement-finance/news/2021/04/budget-2021-a-recovery-plan-for-jobs-growth-and-resilience.html?fbclid=IwAR1\\_rdCfpxlwo9oQYJqT8B17Sx3en52a6a6jAZeMoQ1yS-j6rfmB1G9cKsk](https://canada.ca/en/departement-finance/news/2021/04/budget-2021-a-recovery-plan-for-jobs-growth-and-resilience.html?fbclid=IwAR1_rdCfpxlwo9oQYJqT8B17Sx3en52a6a6jAZeMoQ1yS-j6rfmB1G9cKsk)

Green J, McLaughlin K, Alegria M, Costello E, Gruber M, Hoagwood K, et al. 2013. School mental health resources and adolescent mental health service use. *Journal of the American Academy of Child and Adolescent Psychiatry*, 52(5): 501–510. PMID: [23622851](https://pubmed.ncbi.nlm.nih.gov/23622851/) DOI: [10.1016/j.jaac.2013.03.002](https://doi.org/10.1016/j.jaac.2013.03.002)

Green KH, van de Groep S, Sweijen SW, Becht AI, Buijzen M, de Leeuw RN, et al. 2021. Mood and emotional reactivity of adolescents during the COVID-19 pandemic: Short-term and long-term effects and the impact of social and socioeconomic stressors. *Scientific Reports*, 11(1): 1–13. DOI: [10.1038/s41598-021-90851-x](https://doi.org/10.1038/s41598-021-90851-x)

Guhn M, Emerson S, Mahdavian D, and Gadermann, A. 2020. Associations of birth factors and socio-economic status with indicators of early emotional development and mental health in childhood: A population-based linkage study. *Child Psychiatry and Human Development*, 51(1): 80–93. PMID: [31338644](https://pubmed.ncbi.nlm.nih.gov/31338644/) DOI: [10.1007/s10578-019-00912-6](https://doi.org/10.1007/s10578-019-00912-6)

Hafstad G, Sætren S, Wentzel-Larsen T, and Augusti E. 2021. Adolescents' symptoms of anxiety and depression before and during the Covid-19 outbreak – A prospective population-based study of teenagers in Norway. *The Lancet Regional Health - Europe*, 5: 100093. DOI: [10.1016/j.lanepe.2021.100093](https://doi.org/10.1016/j.lanepe.2021.100093)

Halladay J, Bennett K, Weist M, Boyle M, Manion I, Campo M, and Georgiades K. 2020. Teacher-student relationships and mental health help seeking behaviors among elementary and secondary

students in Ontario Canada. *Journal of School Psychology*, 81: 1–10. PMID: [32711720](#) DOI: [10.1016/j.jsp.2020.05.003](#)

Haripersad YV, Kannegiesser-Bailey M, Morton K, Skeldon S, Shipton N, Edwards K, et al. 2021. Outbreak of anorexia nervosa admissions during the COVID-19 pandemic. *Archives of Disease in Childhood*, 106(3): e15–e15. PMID: [32709684](#) DOI: [10.1136/archdischild-2020-319868](#)

Hawes MT, Szenczy AK, Klein DN, Hajcak G, and Nelson BD. 2021. Increases in depression and anxiety symptoms in adolescents and young adults during the COVID-19 pandemic. *Psychological Medicine*, 1–9. DOI: [10.1017/S0033291720005358](#)

Hawke LD, Monga S, Korczak D, Haye E, Relihan J, Darnay K, et al. 2020. Impacts of the COVID-19 pandemic on youth mental health among youth with physical health challenges. *Early Intervention in Psychiatry*, 1–8. DOI: [10.1111/eip.13052](#)

Hofer SM, Thorvaldsson V, and Piccinin AM. 2012. Foundational issues of design and measurement in developmental research. In *Handbook of developmental research methods*. Edited by B Laursen, TD Little, and NA Card. Guilford Press. pp. 788–790.

ICES. 2021. Mental Health and Addictions System Performance in Ontario: 2021 Scorecard. [online]: Available from [ices.on.ca/Publications/Atlases-and-Reports/2021/Mental-Health-and-Addictions-System-Performance-in-Ontario-2021-Scorecard](#)

Jiao W, Wang L, Liu J, Fang S, Jiao F, Pettoello-Mantovani M, and Somekh E. 2020. Behavioral and emotional disorders in children during the COVID-19 epidemic. *The Journal of Pediatrics*, 221: 264–266.e1. PMID: [32248989](#) DOI: [10.1016/j.jpeds.2020.03.013](#)

Jones EA, Mitra AK, and Bhuiyan AR. 2021. Impact of COVID-19 on mental health in adolescents: A systematic review. *International journal of environmental research and public health*, 18(5): 2470. PMID: [33802278](#) DOI: [10.3390/ijerph18052470](#)

Kang S, Sun Y, Zhang X, Sun F, Wang B, and Zhu W. 2021. Is physical activity associated with mental health among Chinese adolescents during isolation in COVID-19 pandemic? *Journal of Epidemiology and Global Health*, 11(1): 26–33. PMID: [32959611](#) DOI: [10.2991/jegh.k.200908.001](#)

Kessler R, Amminger G, Aguilar-Gaxiola S, Alonso J, Lee S, and Üstün T. 2007. Age of onset of mental disorders: a review of recent literature. *Current Opinion in Psychiatry*, 20(4): 359–364. PMID: [17551351](#) DOI: [10.1097/YCO.0b013e32816ebc8c](#)

Kessler R, Avenevoli S, and Ries Merikangas K. 2001. Mood disorders in children and adolescents: An epidemiologic perspective. *Biological Psychiatry*, 49(12): 1002–1014. PMID: [11430842](#) DOI: [10.1016/S0006-3223\(01\)01129-5](#)

Kohly R. 2021. ‘Worst it has ever been’: Increase in eating disorder cases among teens overwhelms Ontario’s pediatric hospitals. *The Globe and Mail*.

Kidman R, Margolis R, Smith-Greenaway E, and Verdery A. 2021. Estimates and projections of COVID-19 and parental death in the US. *JAMA Pediatrics*. DOI: [10.1001/jamapediatrics.2021.0161](#)

Kim-Cohen J, Caspi A, Moffitt T, Harrington H, Milne B, and Poulton R. 2003. Prior juvenile diagnoses in adults with mental disorder: Developmental follow-back of a prospective-longitudinal cohort. *Archives of General Psychiatry*, 60(7): 709–717. PMID: [12860775](#) DOI: [10.1001/archpsyc.60.7.709](#)

- Knopf JA, Finnie RK, Peng Y, Hahn RA, Truman BI, Vernon-Smiley M, et al. 2016. School-based health centers to advance health equity: a community guide systematic review. *American Journal of Preventive Medicine*, 51(1): 114–126. DOI: [10.1016/j.amepre.2016.01.009](https://doi.org/10.1016/j.amepre.2016.01.009)
- Krygsman A, and Vaillancourt T. 2021. Elevated social anxiety symptoms across childhood and adolescence predict adult mental disorders and cannabis use. Manuscript submitted for publication.
- Kumar A, and Nayar K. 2021. COVID 19 and its mental health consequences. *Journal of Mental Health (Abingdon, England)*, 30(1): 1–2. DOI: [10.1080/09638237.2020.1757052](https://doi.org/10.1080/09638237.2020.1757052)
- Kutcher S, and Wei Y. 2020. School mental health: A necessary component of youth mental health policy and plans. *World Psychiatry*, 19(2): 174–175. PMID: [32394554](https://pubmed.ncbi.nlm.nih.gov/32394554/) DOI: [10.1002/wps.20732](https://doi.org/10.1002/wps.20732)
- Kutcher S, Wei Y, McLuckie A, and Bullock L. 2013. Educator mental health literacy: a programme evaluation of the teacher training education on the mental health & high school curriculum guide. *Advances in School Mental Health Promotion*, 6(2): 83–93. DOI: [10.1080/1754730X.2013.784615](https://doi.org/10.1080/1754730X.2013.784615)
- Leeb R, Bitsko R, Radhakrishnan L, Martinez P, Njai R, and Holland K. 2020. Mental health-related emergency department visits among children aged <18 years during the covid-19 pandemic - United States, January 1-October 17, 2020. *Morbidity and Mortality. Weekly Report*, 69(45): 1675–1680. DOI: [10.15585/mmwr.mm6945a3](https://doi.org/10.15585/mmwr.mm6945a3)
- Levenson J. 2016. Adverse childhood experiences and subsequent substance abuse in a sample of sexual offenders: Implications for treatment and prevention. *Victims & Offenders*, 11(2): 199–224. DOI: [10.1080/15564886.2014.971478](https://doi.org/10.1080/15564886.2014.971478)
- Liang L, Ren H, Cao R, Hu Y, Qin Z, Li C, and Mei S. 2020. The effect of COVID-19 on youth mental health. *Psychiatric Quarterly*, 91(3): 841–852. DOI: [10.1007/s11126-020-09744-3](https://doi.org/10.1007/s11126-020-09744-3)
- Liu S, Yang L, Zhang C, Xiang Y, Liu Z, Hu S, and Zhang B. 2020. Online mental health services in China during the COVID-19 outbreak. *The Lancet. Psychiatry*, 7(4): e17–e18. PMID: [32085841](https://pubmed.ncbi.nlm.nih.gov/32085841/) DOI: [10.1016/S2215-0366\(20\)30077-8](https://doi.org/10.1016/S2215-0366(20)30077-8)
- Loades M, Chatburn E, Higson-Sweeney N, Reynolds S, Shafran R, Brigden A, et al. 2020. Rapid systematic review: the impact of social isolation and loneliness on the mental health of children and adolescents in the context of COVID-19. *Journal of the American Academy of Child and Adolescent Psychiatry*, 59(11): 1218–1239.e3. PMID: [32504808](https://pubmed.ncbi.nlm.nih.gov/32504808/) DOI: [10.1016/j.jaac.2020.05.009](https://doi.org/10.1016/j.jaac.2020.05.009)
- Luthar S, Cicchetti D, and Becker B. 2000. The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, 71(3): 543–562. PMID: [10953923](https://pubmed.ncbi.nlm.nih.gov/10953923/) DOI: [10.1111/1467-8624.00164](https://doi.org/10.1111/1467-8624.00164)
- Ma Z, Idris S, Zhang Y, Zewen L, Wali A, Ji Y, Pan Q, and Baloch Z. 2021. The impact of COVID-19 pandemic outbreak on education and mental health of Chinese children aged 7-15 years: an online survey. *BMC Pediatrics*, 21(1): 95–95. PMID: [33627089](https://pubmed.ncbi.nlm.nih.gov/33627089/) DOI: [10.1186/s12887-021-02550-1](https://doi.org/10.1186/s12887-021-02550-1)
- Magson NR, Freeman JYA, Rapee RM, Richardson CE, Oar EL, and Fardouly J. 2021. Risk and Protective Factors for Prospective Changes in Adolescent Mental Health during the COVID-19 Pandemic. *Journal of Youth and Adolescence*, 50(1): 44–57. PMID: [33108542](https://pubmed.ncbi.nlm.nih.gov/33108542/) DOI: [10.1007/s10964-020-01332-9](https://doi.org/10.1007/s10964-020-01332-9)

Marques de Miranda D, da Silva Athanasio B, Sena Oliveira A, and Simoes-e-Silva A. 2020. How is COVID-19 pandemic impacting mental health of children and adolescents? *International Journal of Disaster Risk Reduction*, 51: 101845. PMID: 32929399 DOI: 10.1016/j.ijdrr.2020.101845

Maximum City. 2021. COVID-19 Child and Youth Study. [online]: Available from [maximumcity.ca/wellbeing](https://maximumcity.ca/wellbeing)

McGrath PJ, Asmundson GJG, Blackstock C, Bourque MC, Brimacombe G, Crawford A, et al. 2020. Easing the Disruption of COVID-19: Supporting the Mental Health of the People of Canada. Royal Society of Canada.

McNamara L. 2021. Redesigning the recess experience: Lessons from COVID-19. Royal Society of Canada.

Mental Health Commission of Canada. 2013. School-Based Mental Health in Canada: A Final Report. [online]: Available from [mentalhealthcommission.ca/sites/default/files/ChildYouth\\_School\\_Based\\_Mental\\_Health\\_Canada\\_Final\\_Report\\_ENG\\_0.pdf](https://mentalhealthcommission.ca/sites/default/files/ChildYouth_School_Based_Mental_Health_Canada_Final_Report_ENG_0.pdf)

Mental Health Commission of Canada. 2017. 2016-2017 annual report. [bridgingthegap.mentalhealthcommission.ca](https://bridgingthegap.mentalhealthcommission.ca)

Merikangas K, He J, Burstein M, Swendsen J, Avenevoli S, Case B, et al. 2011. Service utilization for lifetime mental disorders in U.S. adolescents: Results of the National Comorbidity Survey-Adolescent Supplement (NCS-A). *Journal of the American Academy of Child and Adolescent Psychiatry*, 50(1): 32–45. PMID: 21156268 DOI: 10.1016/j.jaac.2010.10.006

Moore S, Faulkner G, Rhodes R, Brussoni M, Chulak-Bozzer T, Ferguson L, et al. 2020. Impact of the COVID-19 virus outbreak on movement and play behaviours of Canadian children and youth: A national survey. *The International Journal of Behavioral Nutrition and Physical Activity*, 17(1): 85–85. PMID: 32631350 DOI: 10.1186/s12966-020-00987-8

National Academies of Sciences, Engineering, and Medicine. 2021. School-based strategies for addressing the mental health and well-being of youth in the wake of COVID-19. The National Academies Press, Washington, DC. DOI: 10.17226/26262

Nearchou F, Flinn C, Niland R, Subramaniam S, and Hennessy E. 2020. Exploring the impact of covid-19 on mental health outcomes in children and adolescents: A systematic review. *International Journal of Environmental Research and Public Health*, 17: 8479. DOI: 10.3390/ijerph17228479

Newlove-Delgado T, McManus S, Sadler K, Thandi S, Vizard T, Cartwright C, and Ford T. 2021. Child mental health in England before and during the COVID-19 lockdown. *The Lancet. Psychiatry*, 8(5): 353–354. PMID: 33444548 DOI: 10.1016/S2215-0366(20)30570-8

O'Connor CA, Dyson J, Cowdell F, and Watson R. 2018. Do universal school-based mental health promotion programmes improve the mental health and emotional wellbeing of young people? A literature review. *Journal of Clinical Nursing*, 27(3–4): e412–e426. PMID: 28926147 DOI: 10.1111/jocn.14078

OECD. 2016. PISA 2015 results (volume I): excellence and equity in education. PISA: OECD Publishing, Paris. DOI: 10.1787/9789264266490-en

Offord D, Boyle M, Szatmari P, Rae-Grant N, Links P, Cadman D, et al. 1987. Ontario child health study: II. six-month prevalence of disorder and rates of service utilization. *Archives of General Psychiatry*, 44(9): 832–836. PMID: 3498458 DOI: [10.1001/archpsyc.1987.01800210084013](https://doi.org/10.1001/archpsyc.1987.01800210084013)

Ontario Ministry of Education. 2013. Supporting Minds: An Educator's Guide to Promoting Students' Mental Health and Well-being. [online]: Available from [edu.gov.on.ca/eng/document/reports/supportingminds.pdf](https://edu.gov.on.ca/eng/document/reports/supportingminds.pdf).

Orgilés M, Espada J, Delvecchio E, Francisco R, Mazzeschi C, Pedro M, and Morales A. 2021. Anxiety and depressive symptoms in children and adolescents during COVID-19 pandemic: A transcultural approach. *Psicothema*, 33(1): 125–130. PMID: 33453745 DOI: [10.7334/psicothema2020.287](https://doi.org/10.7334/psicothema2020.287)

Payne K. 2021. Responses to Vignettes about Students with Chronic Pain in K-12 Public Schools Provided by Current Principals and Assistant Principals. ProQuest Dissertations Publishing.

Penner F, Hernandez Ortiz J, and Sharp C. 2021. Change in youth mental health during the covid-19 pandemic in a majority Hispanic/Latinx US sample. *Journal of the American Academy of Child and Adolescent Psychiatry*, 60(4): 513–523. PMID: 33359408 DOI: [10.1016/j.jaac.2020.12.027](https://doi.org/10.1016/j.jaac.2020.12.027)

Phelps C, and Sperry LL. 2020. Children and the COVID-19 pandemic. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12(S1): S73–S75. DOI: [10.1037/tra0000861](https://doi.org/10.1037/tra0000861)

Racine N, Korczak DJ, and Madigan S. 2020. Evidence suggests children are being left behind in COVID-19 mental health research. *European Child & Adolescent Psychiatry*, 1–2. DOI: [10.1007/s00787-020-01672-8](https://doi.org/10.1007/s00787-020-01672-8)

Ravens-Sieberer U, Kaman A, Erhart M, Devine J, Schlack R, and Otto C. 2021. Impact of the COVID-19 pandemic on quality of life and mental health in children and adolescents in Germany. *European Child and Adolescent Psychiatry*. DOI: [10.1007/s00787-021-01726-5](https://doi.org/10.1007/s00787-021-01726-5)

Rosen ML, Rodman AM, Kasperek SW, Mayes M, Freeman MM, Lengua L, et al. 2021. Promoting youth mental health during COVID-19: A longitudinal study spanning pre-and post-pandemic. *PsyArXiv*. DOI: [10.31234/osf.io/n5h8t](https://doi.org/10.31234/osf.io/n5h8t)

Rossegger A, Wetli N, Urbaniok F, Elbert T, Cortoni F, and Endrass J. 2009. Women convicted for violent offenses: Adverse childhood experiences, low level of education and poor mental health. *BMC Psychiatry*, 9(1): 1–7. DOI: [10.1186/1471-244X-9-81](https://doi.org/10.1186/1471-244X-9-81)

Rothman EF, Bernstein J, and Strunin L. 2010. Why might adverse childhood experiences lead to underage drinking among US youth findings from an emergency department-based qualitative pilot study. *Substance Use & Misuse*, 45(13): 2281–2290. PMID: 20482338 DOI: [10.3109/10826084.2010.482369](https://doi.org/10.3109/10826084.2010.482369)

Ryan, SM, Toumbourou JW, and Jorm AF. 2014. Factors associated with service use for young adolescents with mental health problems: Findings from an Australian longitudinal study. *SAGE Open*, 4(4): 215824401455628–9. DOI: [10.1177/2158244014556286](https://doi.org/10.1177/2158244014556286)

Sachs-Ericsson NJ, Sheffler JL, Stanley IH, Piazza JR, and Preacher KJ. 2017. When emotional pain becomes physical: Adverse childhood experiences, pain, and the role of mood and anxiety disorders. *Journal of Clinical Psychology*, 73(10): 1403–1428. PMID: 28328011 DOI: [10.1002/jclp.22444](https://doi.org/10.1002/jclp.22444)



- Salloum A, Wang W, Robst J, Murphy TK, Scheeringa MS, Cohen JA, and Storch EA. 2016. Stepped care versus standard trauma-focused cognitive behavioral therapy for young children. *Journal of Child Psychology and Psychiatry*, 57(5): 614–622. PMID: [26443493](#) DOI: [10.1111/jcpp.12471](#)
- Sanchez AL, Cornacchio D, Poznanski B, Golik AM, Chou T, and Comer JS. 2018. The effectiveness of school-based mental health services for elementary-aged children: A meta-analysis. *Journal of the American Academy of Child and Adolescent Psychiatry*, 57(3): 153–165. PMID: [29496124](#) DOI: [10.1016/j.jaac.2017.11.022](#)
- Sanders J, Munford R, and Liebenberg L. 2016. The role of teachers in building resilience of at-risk youth. *International Journal of Educational Research*, 80: 111–123. DOI: [10.1016/j.ijer.2016.10.002](#)
- Sciberras E, Patel P, Stokes M, Coghill D, Middeldorp C, Bellgrove M, et al. 2020. Physical health, media use, and mental health in children and adolescents with ADHD during the Covid-19 pandemic in Australia. *Journal of Attention Disorders*, 3(1) 1–14. DOI: [10.1177/1087054720978549](#)
- Statistics Canada. 2019a. Canadian Health Survey on Children and Youth. [online]: Available from [www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=5233](#)
- Statistics Canada. 2019b. A Portrait of Canadian Youth: March 2019 Updates. [online]: Available from [www150.statcan.gc.ca/n1/pub/11-631-x/11-631-x2019003-eng.htm](#)
- Statistics Canada. 2021. Canadian Community Health Survey (CCHS) annual component. Statistics Canada, Ottawa.
- Tang S, Xiang M, Cheung T, and Xiang Y. 2021. Mental health and its correlates among children and adolescents during COVID-19 school closure: The importance of parent-child discussion. *Journal of Affective Disorders*, 279, 353–360. PMID: [33099049](#) DOI: [10.1016/j.jad.2020.10.016](#)
- Theis N, Campbell N, De Leeuw J, Owen M, and Schenke, K. 2021. The effects of COVID-19 restrictions on physical activity and mental health of children and young adults with physical and/or intellectual disabilities. *Disability and Health Journal*. DOI: [10.1016/j.dhjo.2021.101064](#)
- Thorisdottir IE, Asgeirsdottir BB, Kristjansson AL, Valdimarsdottir HB, Jonsdottir Tolgyes EM., Sigfusson J, et al. 2021. Depressive symptoms, mental wellbeing, and substance use among adolescents before and during the COVID-19 pandemic in Iceland: A longitudinal, population-based study. *The Lancet Psychiatry*. DOI: [10.1016/s2215-0366\(21\)00156-5](#)
- UNESCO. 2020. Education: From disruption to recovery. [online]: Available from [en.unesco.org/covid19/educationresponse](#)
- UNESCO. 2021. Global monitoring of school closures. [online]: Available from [en.unesco.org/covid19/educationresponse](#)
- UNICEF. 2019. Annual report: For every child. [online]: Available from [unicef.org/reports/annual-report-2019](#)
- UNICEF. 2020. Worlds of influence: Understanding what shapes child well-being in rich countries. Innocenti Report Card 16, UNICEF Office of Research – Innocenti, Florence.
- United Nations. 2020. Policy brief: the impact of COVID-19 on children. [unsdg.un.org/sites/default/files/2020-04/160420\\_Covid\\_Children\\_Policy\\_Brief.pdf](#)

Vaillancourt T. and Boylan K. 2021. Behavioural and emotional disorders of childhood and adolescence. *In* *Abnormal psychology: Perspectives, DSM-5 Update Edition (7th ed).* Edited by D Dozois. Pearson Education, Toronto.

Vaillancourt T, Hymel S, Pepler D, and Szatmari P. 2020. Canada is failing when it comes to the mental well-being of children. Royal Society of Canada COVID-19 Series, Publication #44.

Vaillancourt T, McDougall P, Comeau J, and Finn C. 2021a. COVID-19 school closures and social isolation in children and youth: Prioritizing relationships in education. Royal Society of Canada.

Vaillancourt T, Brittain H, Krygsman A, Davis A, Farrell AH, Desmarais R, et al. 2021b. Commentary: Assessing the quality of research that examines change in children's mental health in the context of COVID-19. *University of Ottawa Journal of Medicine*. 11: 10–15. DOI: [10.18192/UOJM.v11i1.5950](https://doi.org/10.18192/UOJM.v11i1.5950)

von Sneidern E, Cabrera KP, Galeano N, Plaza M, and Barrios M. 2017. Association between adverse childhood experiences (ACEs) and developmental delay of preschool children in a rural area of Colombia. *Journal of Child & Adolescent Trauma*, 10(3): 225–232. DOI: [10.1007/s40653-017-0179-3](https://doi.org/10.1007/s40653-017-0179-3)

Walker ER, McGee RE, and Druss BG. 2015. Mortality in mental disorders and global disease burden implications: A systematic review and meta-analysis. *JAMA Psychiatry*, 72(4): 334–341. PMID: [25671328](https://pubmed.ncbi.nlm.nih.gov/25671328/) DOI: [10.1001/jamapsychiatry.2014.2502](https://doi.org/10.1001/jamapsychiatry.2014.2502)

Westheimer J, and Schira Hagerman M. 2021. After COVID: Lessons from a pandemic for K-12 education. Royal Society of Canada.

Whitehead M, Taylor-Robinson D, and Barr B. 2021. Poverty, health, and covid-19. *BMJ (Online)*, 372: 376. DOI: [10.1136/bmj.n376](https://doi.org/10.1136/bmj.n376)

Whitford V, O'Driscoll G, Pack C, Joober R, Malla A, and Titone D. 2013. Reading impairments in schizophrenia relate to individual differences in phonological processing and oculomotor control: Evidence from a gaze-contingent moving window paradigm. *Journal of Experimental Psychology*, 142(1): 57–75. PMID: [22506755](https://pubmed.ncbi.nlm.nih.gov/22506755/) DOI: [10.1037/a0028062](https://doi.org/10.1037/a0028062)

Whitley J, Beauchamp MH, and Brown C. 2021. The impact of COVID-19 on the learning and achievement of vulnerable Canadian children and youth. Royal Society of Canada.

Whitley J, Smith J, Vaillancourt T, and Neufeld J. 2018. Promoting mental health literacy among educators: A critical aspect of school-based prevention and intervention. *In* *Handbook of School-Based Mental Health Promotion*. Edited by AW Leschied Springer Nature. The Springer Series on Human Exceptionality. pp. 143–165. DOI: [10.1007/978-3-319-89842-1\\_9](https://doi.org/10.1007/978-3-319-89842-1_9)

World Health Organization. 2013. Draft comprehensive mental health action plan 2013–2020. [online]: Available from [apps.who.int/gb/ebwha/pdf\\_files/WHA66/A66\\_10Rev1-en.pdf](https://apps.who.int/gb/ebwha/pdf_files/WHA66/A66_10Rev1-en.pdf).

Xie X, Xue Q, Zhou Y, Zhu K, Liu Q, Zhang J, and Song R. 2020. Mental health status among children in home confinement during the coronavirus disease 2019 outbreak in Hubei province, China. *JAMA Pediatrics*, 174(9): 898–900. PMID: [32329784](https://pubmed.ncbi.nlm.nih.gov/32329784/) DOI: [10.1001/jamapediatrics.2020.1619](https://doi.org/10.1001/jamapediatrics.2020.1619)

Yasmin S, Banik R, Hossain S, Hossain M, Mahumud R, Salma N, and Hossain M. 2020. Impact of COVID-19 pandemic on the mental health of children in Bangladesh: A cross-sectional study. *Children and Youth Services Review*, 117: 105277. PMID: [32834275](https://pubmed.ncbi.nlm.nih.gov/32834275/) DOI: [10.1016/j.childyouth.2020.105277](https://doi.org/10.1016/j.childyouth.2020.105277)

Zhang L, Zhang D, Fang J, Wan Y, Tao F, and Sun Y. 2020. Assessment of mental health of Chinese primary school students before and after school closing and opening during the COVID-19 pandemic. *JAMA Network Open*, 3(9): e2021482. PMID: [32915233](#) DOI: [10.1001/jamanetworkopen.2020.21482](#)

Zhou S, Zhang L, Wang L, Guo Z, Wang J, Chen J, et al. 2020. Prevalence and socio-demographic correlates of psychological health problems in Chinese adolescents during the outbreak of COVID-19. *European Child & Adolescent Psychiatry*, 29(6): 749–758. PMID: [32363492](#) DOI: [10.1007/s00787-020-01541-4](#)