

COVID-19 PANDEMIC AND CHILD MENTAL HEALTH: AN INVITED DISCUSSION SECTION

Rejoinder 3: School closures: The trigger point in the decline in pediatric mental health outcomes during the COVID-19 pandemic

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In the spring of 2020, as SARS-CoV-2 spread, over 55 million children in the U.S. and 1.4 billion worldwide lost access to school (1,2). Some countries, like Uganda and Bolivia, closed schools for almost two years. Aware of the impending negative consequences, international organizations like UNESCO emphasized that “reopening schools should be countries’ highest priority” because of the threat to hamper an entire generation of children and youth (3).

The commentary “School closures, the pandemic, and pediatric mental health: scrutinizing the evidence” performs a critical appraisal of studies cited in position statements by Canadian organizations and reviews literature about school closures and children’s mental health. The central thesis presented states that there was “moral panic and politicization” of school closures not supported by existing scientific evidence. While we agree that more nuance is needed, we disagree that there is limited evidence of short- and long-term mental health harms of school closures.

The pandemic did not affect all children equally (4), and differences in length of school closure confound across- and within-country comparisons. Yet, some universal conclusions can be drawn based on prior observations and evidence specific to this pandemic. While existing research cannot separate health outcomes derived from school closures and broader lockdown measures, considering the time

children spend in schools (5) and the opportunities for social and cognitive enrichment schools offer, school closures were naturally a fundamental part of the pediatric population’s experience of the lockdowns.

As the commentary authors admit, since their publication, new studies have supported the effect of pandemic restrictions on children’s mental health. In 2022 alone, several studies examined this topic. Space limitations restrict discussion of individual studies. Consequently, our rejoinder relies mostly on relevant systematic reviews and meta-analyses, which hold a higher degree of evidence (6). We summarize new evidence on the impact of school closures and lockdowns on pediatric mental health, the effects on social determinants of mental health, and the role of schools in the provision of mental health support. We also discuss the commentary’s limitations and the need for a balanced approach in future pandemics.

A systematic review of 36 cross-sectional and longitudinal studies across 11 countries comprising nearly 80,000 children and adolescents examined school closures finding an association with deleterious health outcomes and behaviors, including restlessness/inattention, anxiety and depressive symptoms, less child protection referrals than expected, increase in screen time and social media use, and lower physical activity (7). These studies were conducted

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during the first wave of the COVID-19 pandemic (February to July 2020) and greater effects may be expected with longer school closures.

Other systematic reviews and meta-analyses have examined the effects of lockdowns in general. A meta-analysis of early-stage worldwide pandemic studies published between December 2019 and August 2020 showed overall increases in anxiety (34.5%), depression (41.7%), irritability (42.3%), and inattention (30.8%) among children and adolescents under 18 years of age during the pandemic, with higher rates among those with predisposing behavioral problems (8). Another meta-analysis showed an increase in depressive symptoms during the pandemic versus pre-pandemic in children and adolescents younger than 19 years of age (9). Finally, a systematic review of 75 European studies published since January 2021 on the pandemic lockdowns' effects on mental health found youth to be the most affected of all age groups, with the elderly maintaining good resilience, even with the stressors of isolation (11). Likewise, most studies in a review comprising over 96,000 youth below 24 years of age from across 11 countries showed deterioration of depression, anxiety, psychological distress, affect and mental well-being, and increased loneliness during the pandemic versus pre-pandemic (12). Another systematic review showed an increase in markers of psychological suffering such as fear, sleep disruption, and appetite disorders in children and adolescents ages 3 to 19 years from 2021 to 2022 (13). Specific disorders, like disordered eating behaviors and eating disorders (ED) also increased (14). A systematic review of 53 studies showed a 48% average increase in ED admissions during the pandemic compared to pre-pandemic timepoints. Contributors to worsening ED symptoms included altered routines, the negative influence of the media, social isolation, and decreased access to treatment (15). Similarly, Obsessive-Compulsive Disorder symptoms increased in adolescent clinic and community samples (16).

During the pandemic, there was a decline in suicides among adults 35 and older (17). Yet, among U.S. youth ages 5 to 24 years, there was an increase in observed versus expected suicides between March 1 and December 31, 2020, when compared to trends in monthly deaths in the years before the pandemic (January 1, 2015–February 29, 2020) (RR=1.04) (18,19). A systematic review and meta-analysis of studies published between January 1, 2020 and July 27, 2022 including more than 65 million 12 to 25 year-olds showed a significant increase of suicidal ideation in psychiatric versus general and emergency visit populations in 2021 compared to pre-COVID data (20), suggesting greater negative effects in already vulnerable children.

In the US, the pandemic affected racial and sex groups differently, with suicide rates among Black youth ages 10-24 years increasing by 36.6% from 2018 to 2021 (21). Among US adolescent girls, there was an increase in pandemic-era emergency visit rates for suicide attempts (22), and in 2021, close to 60% of female students reported experiencing persistent sadness or hopelessness during the past year, with nearly 25% having made a suicide plan (23). The pandemic disruption had effects beyond the lockdowns and was especially pronounced with the start of the school period in the COVID-year (September 2020-March 2021), when suicide attempts increased by 195% as reported in a Spanish study (24).

Schools can serve as the mental health care hub for students. In 2021-2022, 97% of U.S. schools provided mental health services, ranging from individual-based interventions, to case management and referrals outside of school (25). These school-based services were interrupted during closures, but were necessary given the delays in professional mental health help-seeking behaviors during the lockdowns (26). A review including data from 19 countries and regions demonstrated reductions in emergency visits due to suicide ideation and self-harm, referrals to mental health services, psychiatric hospitalizations, and ED treatment during the early phase of the pandemic (27). Yet, emergency visits due to suicide attempts during the pandemic increased (27, 28).

The effects of school closures on mental health cannot fully be explained without considering their impact of social determinants of health (29). While social determinants of mental health are multifactorial and existed pre-pandemic, the disruption caused by school closures may have exposed children to more adverse events and facilitated unhealthy behaviors. For example, in the US, school closures disproportionately impacted student achievement of younger students and those of low socioeconomic status (30). In addition to learning loss, older students and girls were more likely to drop out (31). Domestic violence cases increased by 8.1% during the lockdown period (32). Non-suicide-related gun deaths increased from 15,439 in 2019 to 19,365 in 2020 (33,34), one of the deadliest years on record in the US, and were high throughout 2022 (35). There was also increased excess mortality from drug overdose and unintentional injuries (36). Finally, school aged children's screen time and game addiction and usage (37,38) escalated and this increase correlated to diet, sleep, mental health, and parental health (39).

Beyond the mounting evidence of mental, behavioral and social effects of lockdowns on children, there are problems with the authors' narrow focus on articles cited by government organizations, which meant to quickly communicate

with the public based on available information. There is also a disregard for the developmental perspective of cumulative disadvantage, which emphasizes that early advantage or disadvantage is critical to how cohorts differentiate over time in their health trajectories. A school closure in itself may not generate an immediate mental health problem, but may start a cascade of effects in a group highly dependent on a stable environment (40).

Additionally, there is an ecological fallacy (41) or a tendency to make incorrect assumptions about individuals based on group data. Self-report population studies on school closures may not capture important individual differences as they combine children with school anxiety and those who are depressed due to isolation. While both groups may have opposing reports of overall mental health during school closures, school attendance could benefit both groups as it offers a regular routine and opportunities for social support.

Furthermore, children in countries like Canada, with relative economic stability, access to services and internet, and strong government-funded social programs, may have weathered the effects of the pandemic better than their peers in less-privileged countries. While the authors' focus on Canada, they make misguided inferences intended to be applied globally.

Finally, there is a need to balance risks and benefits of any public health or clinical intervention. A call for nuanced data-based measurements of the impacts of school closures is needed. Yet, the first question is whether closures, to the extent that they happened in the Americas, were necessary. Early panic around the Infection Fatality Rate (IFR – the mortality rate with infection) of COVID was put forward as a justification for lockdowns, including school closures. More recent data confirms that pre-vaccination IFR was much lower than the numbers used to justify such measures (42) and this was already demonstrated in early 2020 seroprevalence surveys (43). Concerns about onward transmission from children to the elderly were substantially reduced post-vaccination. But to the extent that it was ever a concern, subsequent research has shown decreased disease severity in households with children (44). As immunization and/or vaccination increased, the IFR decreased further, without large scale impact on vulnerable populations (45). Through it all, evidence on the efficacy and proportionality of costly mitigation measures remains lacking (46).

The damages of social isolation (47), the academic loss from school closures, and the social vulnerability of certain children during disasters (48) were already well-documented. We assert that current evidence is sufficient to conclude that school closures triggered a series of detrimental circumstances for vulnerable children without a measurable

benefit. Future responses to disasters need to incorporate this knowledge and value the crucial role of schools in the overall well-being of children.

Conflict of Interest Statement

No conflict declared.

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