

**MENTAL HEALTH OUTCOMES AND DISPARITIES AMONG
CHILDREN AND ADOLESCENTS DURING THE COVID-19 PANDEMIC**

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Introduction

In March of 2020, a global pandemic caused by a novel coronavirus (COVID-19) led to the implementation of many disease containment methods in most countries around the world. Some of these containment methods included mask mandates, social distancing, and school closures ¹. While quarantining and social isolation has resulted in worsening mental health across the world, children and adolescents may be especially vulnerable and at high risk of suffering from poor mental health due to school closures ². Schools provide an opportunity for children and adolescents to form their social and support networks, and the formation of these bonds has been associated with improved mental health and overall outcomes in children and adolescents ³. Data from previous pandemics and disasters suggests that children and adolescents are experiencing worsening mental health outcomes due to prolonged isolation from school closures, and a similar impact on mental health outcomes during the COVID-19 pandemic and beyond is expected.

The goal of this review is to examine literature and data published during the COVID-19 pandemic to determine the impact of the pandemic on mental health outcomes in children and adolescents, and whether any groups are disproportionately affected. Understanding the potential range and scope of mental health outcomes and disparities that may exist in children and adolescents during the pandemic will garner support for further mental health resources and inform policymaking. Recommendations for children and adolescents and their parents, providers, and policymakers are also discussed.

Methods

Peer-reviewed literature and data were identified from Google Scholar and from the reference section of pertinent literature. Only publications after March 2020 were selected for review to ensure that all literature and data were relevant to the pandemic. No country-specific or region-specific filters were used. Search terms used included “mental health,” “children,” “adolescents,” “COVID-19,” and “pandemic”.

Results

Impact of school closures and distancing on mental health

As a result of school closures and social distancing measures, children and adolescents around the world experienced increased loneliness during the pandemic, which has resulted in documented increases in anxiety, depression, and OCD-related symptoms, as well as increases in behavioral problems and worry ^{4, 5, 6}.

Because schools are where most children and adolescents interact with their friends and peers, increased rates of loneliness are expected because of social isolation and school closures. In fact, early data indicates that over one-third of children and adolescents are reporting high levels of loneliness since the pandemic began ⁴. Although little data on the association between the COVID-19 pandemic and loneliness exists, data from prior pandemics and disasters indicates that children and adolescents who experience loneliness are 5.8 to 40 times more likely to score above the clinical cut-off for depression. In addition, there was a small to moderate association found between anxiety and loneliness, with the duration of loneliness more strongly associated with anxiety than the intensity of loneliness. Further, out of all anxiety types, social anxiety seems to be the most strongly associated with loneliness. Given that the COVID-19 resulted in

longer periods of school closure and isolation than other pandemics or disasters, the impacts of loneliness may be even greater and may result in mental health problems up to nine years later.

A study examining the impact of school closures in Florida public schools on internalizing symptoms such as anxiety, depression, and OCD-related symptoms found that nearly half of the students showed symptoms that could put them at risk of developing anxiety, depression, or OCD ⁵. Children and adolescents also report higher rates of worry, whether it was due to worry about their academic future because of school closures, worry about themselves or their family becoming sick, or worry because of their parents' worry ⁶. Increases in externalizing symptoms, such as behavioral problems were also common among children and adolescents due to school closure. Behavioral problems that were documented during the pandemic include oppositional-defiant behaviors and aggression and are predicted to be due to high levels of distress among children and adolescents that is being expressed as problematic behaviors ⁷. A study among German children and adolescents assessing changes in emotional and behavioral problems during the pandemic found that up to five times more children and adolescents reported emotional and behavioral problems above the clinical cut-off.

Disparities in mental health outcomes

Although the effect of school closures on the mental health of children and adolescents is widespread and immense, certain groups experience a much higher burden or are more heavily impacted. One such disparity lies between boys and girls. Specifically, students who identify as male were more likely to experience an increase in oppositional-defiant or aggressive behaviors during the pandemic ⁶. Loneliness in male children and adolescents was more positively associated with the development of social anxiety, whereas it was more positively associated with the development of depression in female children and adolescents ⁴. Students who identify

as female were overall also at higher risk of developing anxiety, depression, and OCD-related symptoms than male students ⁵.

Not only is age a factor in the impact of school closure on mental health, it also affects how children and adolescents are impacted. In a study examining the age-related effects of the pandemic on mental health, authors found that increases in crying, sleeping problems, and oppositional-defiant behaviors were highest among preschool-aged children ⁴. School-aged children experienced greater increases in withdrawn and depressive behaviors. Finally, adolescents showed the most marked increases in nervousness, feeling overtired, underactivity, and worry. However, almost 16% of adolescents also reported experiencing fewer mental health problems during the pandemic, which was more frequent than the other age groups, perhaps indicating that the school setting was a stressful environment for significantly more adolescents than other age groups.

Family income level can have a significant impact on the mental health of children and adolescents, with lower-income families experiencing more income loss and hardships during the pandemic ⁷. Notably, in a survey of hourly service workers with young children, up to 69% of families experienced income declines. Work disruptions also increased significantly as caregiving burden increased by 45% within this population. Lower-income families experienced a greater number of hardships due to the pandemic, which was associated with worse well-being and increased uncooperative behavior and worry among younger children. Although the findings of this study were specific to hourly service workers in a large urban city with younger children, these findings are likely generalizable to many lower-income families with children and adolescents who experienced school closures during the pandemic.

Children and adolescents with existing mental health problems frequently access mental health services through their school, which was not possible during the pandemic ⁴. The inability to access much-needed services for many students could have devastating impacts on their mental health. Schools were also a safe environment for many students with preexisting mental health needs, which has since been disrupted by the pandemic ⁸. Routines and specific activities are an important way for some young people to manage their mental health and cope, and with school being a central part of young people's routines, a key mechanism for mental health management has disappeared. Spending more time at home has also led to more overthinking and negative coping strategies, such as self-harm. Schools are also a central part of children and adolescents' social networks. Many have experienced a loss in social connection due to school closures, stating that keeping in touch with friends, family members, and other trusted adults online was not the same, and that they missed the physical proximity that being in school gave them. Although in the minority, some children and adolescents reported improved mental health during the pandemic. These children and adolescents were typically those who had a difficult relationship with school (i.e., being bullied), or those who felt positive about their support network and felt that their own anxieties were now shared by others.

Mental health problems have been associated with children with special educational needs and disabilities, such as autism ⁹. With the pandemic making needed services more difficult to access or even completely inaccessible, levels of anxiety and fear have increased for families with children with special educational needs and disabilities. Parents are suddenly being tasked to do a job that even trained professionals find to be challenging, and they are experiencing high levels of distress, low mood, and stress. Although children with disabilities and special educational needs may not always understand the reason for their parents' poor

mental health, they are still highly impacted by their parents' mental state. The pandemic and school closures has been associated with low mood, acting out, and behavior change in children with special education needs and disabilities. In fact, children with lower levels of understanding about their family's situation experiencing higher levels of distress that were expressed as challenging behavior, whereas children with better understanding experienced better outcomes. However, as with children and adolescents with preexisting mental health needs, some children with special education needs and disabilities experienced more positive emotion and impacts with school closures because they had a more difficult time at school or felt less safe at school.

Finally, children living in homes where domestic violence or neglect occurs may be at higher risk of developing mental health problems due to school closures. Schools can often serve as an escape for children who live in abusive homes, but this avenue has been lost with school closures, putting many of these children and adolescents at risk ¹⁰. Additionally, schools are the primary source of reports to Child Protective Services (CPS) regarding domestic abuse or neglect, so it is highly likely that many instances of abuse and neglect are not being reported and may result in an overwhelming number of reports when children return to school. Because being stuck at home with their abuser is likely to worsen the mental health of children and adolescents, they may be more inclined to engage in oppositional behavior and "limit-test," putting them at increased risk of even more abuse ¹¹.

Recommendations

Recommendations have been provided for children and adolescents and their families, providers, and policymakers.

1. Although increases in mental health needs have already been documented during the pandemic, it is likely an underestimation of the true scope and severity due to a lack of data and studies. More studies must be launched that assess the impact of school closures and the pandemic, generally, on children and adolescents. Studies should further assess age-related differences in mental health needs and assess the burden of mental health problems on higher risk populations, such as children and adolescents with preexisting mental health needs and lower-income families. As we begin to better understand the mental health needs of various groups, studies on interventions to address these needs should be conducted.
2. There should be continued or increased investment in mental health services during and after the pandemic. The mental health impacts of the pandemic will likely be experienced years after it ends, and it is crucial that support exists for those with mental health needs in the coming years. It may be worthwhile to invest in hotlines and virtual mental health services or increase staffing for these services.
3. Mental health and domestic abuse/neglect agencies should work with community partners (schools, churches, sports teams, etc.) to identify children and adolescents with mental health needs or who are experiencing domestic abuse or neglect as there is likely under-reporting due to social isolation.
4. Parents are encouraged to help their children and adolescents establish routines, especially for younger children, children with disabilities, and children with preexisting mental health needs.
5. Children and adolescents are encouraged to use virtual methods of social interaction, such as video-chatting and text messaging, to stay in contact with their friends if social

isolation is needed. However, too much screen time and too much time on social media is discouraged.

Limitations

Due to the relative novelty of the pandemic, there have been few studies and little data to date on the impacts of school closures and social isolation on the mental health of children and adolescents. Specifically, there have been no studies to assess the temporality of the association between school closures and mental health outcomes. Existing studies and data are short-term and are not able to characterize the potential long-term impacts of the pandemic on mental health outcomes, which could persist for years. Additionally, many of the findings are from studies of the mental health outcomes of previous disasters and pandemics that have been generalized to the COVID-19 pandemic. Although there has been agreement that disasters and pandemics negatively impact the mental health of children and adolescents, there may be nuances and characteristics specific to the COVID-19 pandemic that have been missed. Despite these limitations, there has been resounding agreement among all studies and data included in this review that isolation due to social distancing and school closures has and will continue to result in increased mental health needs in children and adolescents.

Discussion and Conclusions

The COVID-19 pandemic led to school closures and isolation measures that severely impacted the mental health outcomes of children and adolescents. While all children and adolescents were likely impacted by the pandemic to some degree, not all impacts were felt equally across all groups. Specifically, girls were more likely to develop depression than boys while boys were more likely to develop oppositional-defiant or aggressive behaviors. The mental

health impacts of the pandemic were also experienced differently by different age groups. Younger children displayed more clinginess, anxiety, and depression, whereas adolescents tended to experience more nervousness and underactivity. Children and adolescents living in lower-income families experienced more hardships that led to increased worry and uncooperative behavior. Children with preexisting mental health needs and children with special educational needs and disabilities lost access to services, social networks, and routines due to school closures, and children living in families with domestic violence or neglect were alienated in their homes with their abusers. These three groups of children and adolescents also face an increased risk for poor mental health outcomes.

Schools are beginning to reopen again, but the mental health impacts of school closures during the pandemic will likely persist for several years. Mental health service providers may be facing an explosion in children and adolescents seeking services, with extra attention given to children and adolescents in higher-risk groups, such as children with preexisting mental health needs. The increasing mental health needs of children and adolescents must be assessed, underscoring the importance of continued and increased support and investment into mental health services for children and adolescents.

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