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Gender Differences in Youth’s Mental Health Problems During the COVID-19 Pandemic

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Abstract

The purpose of this research paper is to examine whether young girls were more likely to experience depression and anxiety symptoms than young boys during the COVID-19 pandemic at two time points, in April of 2020 and May of 2020. An additional hypothesis that was examined was whether the presence of siblings in the home moderated the association between gender and depression and anxiety symptoms during the COVID-19 pandemic. T-tests were used to analyze the mean differences in youth mental health symptoms based on gender. Young girls were found to experience significantly higher anxiety symptoms in May of 2020 than young boys. Although not significant, there was a trend-level difference between young girls’ and young boys’ depression symptoms in April 2020, such that young boys experienced higher depression symptoms than young girls during this period. Linear regression was utilized to examine whether the presence of siblings moderated the association between gender and depression and anxiety symptoms. No significant interactions were found. In future research, studies should focus on later time periods into the pandemic. Additional research examining potential differences by child age and experience of mental health problems would also be informative. Further, the quality of sibling relationships should be considered in future research to examine whether high-quality relationships, as opposed to just presence of siblings alone, may buffer the stress of the COVID-19 pandemic on child mental health.
Gender Differences in Youth’s Mental Health Problems During the COVID-19 Pandemic

Literature Review

The COVID-19 pandemic interrupted various areas of families’ lives and increased stress in several domains (Prime et al., 2020). Studies have demonstrated that children and adolescents experienced heightened anxiety and depressive symptoms during the pandemic (Jiao et al., 2020; Xie et al., 2020). Some evidence suggests gender differences, such that mental health problems increased more among young girls than among young boys during the pandemic (Bilu et al., 2023; Marie et al., 2022; Prowse et al., 2021). For example, in a study including adolescents from Canada and Australia, Marie et al. (2022) found that girls reported both higher concerns related to COVID-19 and poorer mental health (e.g., increased worries, anger, stress) compared to boys. In another study, girls were found to experience higher levels of stress and poorer mental health than boys in quarantine (Prowse et al., 2021). In a different study, Bilu et al. (2023) examined experiences of mental health problems in adolescents during the COVID-19 pandemic, and there was data to suggest that adolescent girls experienced more mental health problems than adolescent boys. Intersectionality was found to be a factor that should be addressed in an individual’s mental health as reported in one study (Hoyt et al., 2023). In this study, gender was seen as a “meaningful social construct that is relevant for understanding young people’s” mental health—specifically “during the pandemic” in this case (Hoyt et al., 2023).

In another study examining the impact of the pandemic on young adolescents, some variables that were reported to influence mental health problems were loneliness/isolation, stress, “prepandemic sleep problems”, and gender (Kiss et al., 2021). Specifically, young girls were more likely to be negatively influenced by social isolation and loneliness due to the pandemic (Kiss et al., 2021). Outside of the context of the COVID-19 pandemic, there is evidence of
gender differences in symptoms of anxiety and depression. For example, Keyes’ and Platt’s (2023) research found a relationship between gender of children and internalizing conditions. These internalizing conditions were labeled as anxiety symptoms and depressive symptoms. The reasoning for this study was the concern for the rise in “psychological distress, suicidal thoughts and self-harm, and fatal suicide” in adolescents (Keyes & Platt, 2023). Other variables considered in this study included going through puberty and processing those changes as well as stressful life events like parental divorce, moving, or academic struggles (Keyes & Platt, 2023).

In a different study, researchers analyzed the brain structure and function of adolescent girls and boys. Adolescent girls were reported to experience more mental health problems than adolescent boys (Levenstein et al., 2023). There were positive associations found in this study that linked brain structure and function to the sex differences of “psychological distress” in youth. Levenstein et al. (2023) findings provide support for the generalization of more symptoms of depression and anxiety in young girls than young boys. In summary, research has found differences in depression and anxiety symptoms in youth in general, and studies focusing on the COVID-19 pandemic in particular have also suggested differential influences of the pandemic on mental health of youth based on gender.

As noted, studies have shown that other risk factors were associated with higher mental health problems during the pandemic, such as experiencing loneliness/isolation and stress (Kiss et al., 2021). Some studies suggest that feelings of loneliness could be worsened for children without siblings in the home as they did not have the social interactions and connectedness to siblings in the home. Christner et al. (2021) found that there was a higher chance of an only child experiencing emotional problems than a child with siblings. It was also found that children with no siblings tended to be more hyperactive and less focused (Christner et al., 2021). A possible
explanation for these results could be the social interaction of children with their siblings and its positive impact on their mental well-being. Outside of the pandemic context, Stormshak et al. (2009) researched the impact of sibling relationships on a child’s social-emotional well-being. They found that not only does the quality of sibling relationships impact a child’s psychological well-being, but the parents’ childrearing plays a role as well (Stormshak et al., 2009). There is not a great amount of literature focusing on children with or without siblings and their symptoms of depression and anxiety. The article “Basic Behavioral Science Research for Mental Health: Family Processes and Social Networks” (1996) suggested more research should be conducted involving the impact of having siblings on one’s mental health. Given the social isolation that occurred during the early stages of the pandemic, sibling relationships may be an especially important variable to consider in understanding factors that may impact the mental health of youth in the context of COVID-19.

The purpose of this paper was to examine gender differences of mental health problems in children in kindergarten through the sixth grade during the early phase of the COVID-19 pandemic. The mental health constructs analyzed were symptoms of depression and anxiety in youth during the early stages of the COVID-19 pandemic in April and May of 2020. Previous research has suggested that the pandemic had a different effect on girls’ mental health compared to boys’ mental health (e.g., Marie et al., 2022). Gender differences in depression and anxiety symptoms were explored in this data analysis to replicate findings found in previous research within a sample of youth in kindergarten through sixth grade from across the United States. Further, given evidence of the potentially protective role of having siblings in the home against feelings of loneliness and isolation (Christner et al., 2021), the current study also examined
whether the presence of siblings moderated the association between gender and depression and anxiety symptoms.

**The Current Study**

Previous literature has found many differences in youth mental health based on gender, but many of these studies focus on older, adolescent youth rather than younger children. Current analyses focused on a sample that includes younger children to provide a better understanding of the potential associations between gender and mental health during the pandemic in a wider age range. Rather than having exposure to typical school and peer contexts, young children were quarantined in their homes during the COVID-19 pandemic, and it is crucial to understand potential risk and protective factors that may have impacted the influence of the pandemic on their mental health. It was hypothesized that during the COVID-19 pandemic, there would be differences in symptoms of anxiety and depression by gender, such that girls were expected to experience higher symptoms than boys. Further, it was expected that there would be an interaction between gender and family composition (i.e., being an only child) in levels of anxiety and depressive symptoms. It was expected that girls who are only children will experience higher symptoms than girls with siblings and boys both with and without siblings.

**Methods**

**Participants**

Participants were recruited for this study through an online platform, Amazon’s Mechanical Turk (MTurk) which allowed for participants from across the United States to be included. The study, entitled “Families in Rapid and Stressful Transition” (FIRST), was launched shortly after stay-at-home orders began in the U.S. There was a total of 308 participants in this
study of parents who had a child in kindergarten through sixth grade, with 54% of children identifying as male and 46% identifying as female.

**Measures**

Anxiety and depression were measured using The Revised Child Anxiety and Depression Scale (RCADS-P) based on the reports of parents/caregivers (Ebesutani et al., 2010). A 4-point Likert scale was utilized from 0 or never to 3 or always. Generalized anxiety and major depression scales were the primary focus in these analyses. To compare mean levels across gender, t-tests were computed examining symptoms at two different times, one for April of 2020 and the other for May of 2020.

The measure of siblings was defined as having one or more other children in the household (coded as 1). A child having no siblings was defined as having no other children present in the household (coded as 0).

**Results**

**Primary Analyses**

To test our hypothesis, two tailed t-tests were conducted with gender as our independent variable and depression and anxiety symptoms as our dependent variables. T-test analyses were conducted using the statistical program SPSS, version 24. There was a significant gender difference for anxiety symptoms during period two in May 2020 at the $p < .05$ level for the two conditions ($p = .044$), such that girls experienced significantly higher symptoms ($M = 4.854$) compared to boys ($M = 3.551$). No other mean differences were significant. However, there was a trend-level difference between young girls’ and young boys’ depression symptoms in April 2020, such that young boys experienced higher depression symptoms ($M = 3.178$) than young girls ($M = 2.471$) during this period.
To test our hypothesis that having a sibling would moderate the association between gender and anxiety and depression symptoms, linear regressions were conducted with gender as our independent variable, number of siblings as our moderator, and depression and anxiety symptoms as our dependent variables using the statistical program SPSS, version 24. None of the interactions were significant at the $p < .05$ level.

**Discussion**

It was hypothesized that young girls were more likely to experience anxiety and depressive symptoms than young boys during the COVID-19 pandemic and that sibling relationships may serve a protective role in this association. Young girls experienced significantly more anxiety symptoms than young boys during the second time point ($p = .044$). Unexpectedly, young boys experienced higher depressive symptoms at a trend level during the first time point ($p = .054$). The significant finding that young girls experienced more anxiety than young boys during time point two supports past research that had evidence to suggest young girls experienced significantly more mental health problems than young boys during the pandemic. However, the rest of the results do not support past research. The timing of measurement may have influenced results, as both time points were during the very early stages of the pandemic. Additional research examining later timepoints may be useful in understanding potential differences across time. As for the non-significant results of siblings as a moderator, sibling relationship quality may be an important component of the sibling relationship that could play a role on mental health. Rather than just the presence of a sibling, the presence of a high-quality sibling relationship may be more important to examine. In future research, sibling relationship quality should be considered when assessing the effects of sibling presence on mental health.

**Limitations and Future Directions**
Some limitations of this study are the absence of data on transgender and nonbinary youth, as the respondents all reported identifying as male or female. In future research, adolescents with more diverse gender identities should be included to explore the differences in their mental health. Another limitation is that all data are from parent-report measures rather than child-report measures or other methods, such as observations or school/teacher reports. In addition, future research should explore potential age differences, as gender differences in depression and anxiety symptoms may be more pronounced with older children.
References

Basic behavioral science research for mental health: Family processes and social networks.


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https://doi.org/10.1016/j.jpeds.2020.03.013


Appendix

Table 1. 

*T-test for Significance Between Gender and Depression/Anxiety*

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression 1</td>
<td>M = 3.1779</td>
<td>M = 2.4714</td>
</tr>
<tr>
<td>$p = .054$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety 1</td>
<td>M = 4.4172</td>
<td>M = 4.6571</td>
</tr>
<tr>
<td>$p = .673$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression 2</td>
<td>M = 2.5780</td>
<td>M = 2.5833</td>
</tr>
<tr>
<td>$p = .495$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety 2</td>
<td>M = 3.5505</td>
<td>M = 4.8542</td>
</tr>
<tr>
<td>$p = .044^*$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes. *p < .05, **p < .01, ***p < .001.
Figure 1.

The Effect of Gender on Depression and Anxiety Symptoms

Significant difference between young girls and boys on anxiety symptoms in May. No other differences were significant.