

Burden of COVID-19 Pandemic on Mental Health and Related Behavioral Stressors of Students in Pennsylvania Schools

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COVID-19 has generated substantial stress on students' mental health. This study collected primary and secondary data to compute a mental health stress index of youth mental stress levels and to examine the impact of the pandemic on youth behaviors.

Using PAYS data from pre-pandemic (2017, 2019) and pandemic (2021) time periods, the study finds an increase in the percentage of students experiencing mental stress in grades 6, 8, 10, and 12 in 2021, compared to the corresponding percentages from 2017 and 2019. The study finds that student mental health stress in rural counties is related to key socioeconomic and demographic indicators, such as, childhood poverty rates, unemployment, levels of education, lack of access to internet, the number of single-parent households, the number of households receiving SNAP and Supplemental Security Income, low infant birth weight, and lack of prenatal care. Altogether, students whose families were already more vulnerable socioeconomically, also experienced more notable negative mental health consequences during the COVID-19 pandemic. Furthermore, there is evidence to suggest that academic performance has been affected negatively by students' increased levels of mental health stress.

While most empirical relationships are similar in urban counties, policy makers must consider the differential prevalence of factors, such as, limited access to internet and health care in rural areas when designing solutions to address student needs.

Methods

The study used Pennsylvania Youth Survey (PAYS) data for the survey years 2017, 2019, and 2021 for students in grades 6, 8, 10, and 12. The survey has been conducted since 1989 by the Pennsylvania Commission on Crime and Delinquency; it is implemented at the school level and students respond to a large array of questions that focus on emotional health and well-being, substance use, and violence. The 2021 survey was completed in 467 public school districts, some charter schools, and other types of schools. In 2021, more than 246,200 students completed the PAYS survey.

This study used the responses to compute a student's mental health stress index. The mental health stress index combines several responses from the PAYS survey related to a student's emotional and psychological well-being to generate a single indicator of a student's mental health status. This indicator includes aspects of the surrounding environment.

The index serves as an indicator to classify those

students who experience high levels of emotional stress, those who are vulnerable with moderate stress or in the at-risk group, and those with low levels of stress. A higher mental health stress index score indicates a larger psychological strain experienced by the student.

The study computed the mental health index for every student in the sample. Responses were aggregated at the county level for the years 2017, 2019, and 2021, for the whole sample, and for rural and urban counties. The study then classified each county according to the percentages of students who fell in the high emotional stress and at-risk groups.

The research also collected data on key indicators for various socioeconomic and academic characteristics from the Census Bureau and the Pennsylvania Department of Education (PDE). The study used statistical tests to understand the relationship between mental stress levels and socioeconomic and academic outcomes. Additional analyses examined the rural and urban differences.

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Key Findings

The major findings of the study are as follows:

1. The percentage of students with notable emotional and psychological stress levels in 2021 is higher than stress levels recorded in 2017 and 2019. Approximately half of Pennsylvania schoolchildren surveyed, were either highly emotionally stressed or in the at-risk group. For the full sample, the percentage of students with high mental health stress levels has increased from 4% in 2017 to 8% in 2021. It is also important to note that the percentage of students whose responses place them at an at-risk mental health stress level has increased from 36% in 2017 to 42% in 2021.

2. Rural counties had a significantly larger percentage of students with high levels of mental stress.

3. The percentage of students with high mental health stress levels in rural counties has increased from 5% in 2017, and 6% in 2019, to 8 percent in 2021, and this is higher than percentages observed in urban counties.

4. The percentage of students with at-risk mental health stress levels has also increased in rural areas from 36% in 2017 to 42% in 2021. The results are strikingly similar for urban counties. Therefore, schools across all counties face similar challenges from increased percentages of students with at-risk mental health stress levels.

5. Of particular concern is the sharp increase in the number of rural counties, which have a large percentage of students (above 9%) with high stress levels (2 in 2019 to 17 in 2021). There was also a 55% increase in the number of rural counties from 2017 to 2021, with a large proportion (over 35%) of students in at-risk stress levels.

6. For both rural and urban students, and across all grades, there were increases in the percentages and the intensity of stress levels in

2021, when compared with their pre-COVID levels. The increase in mental stress levels is attributed to perceptions of risk factors, such as bullying and internet safety, health concerns and suicide risk, and related systemic factors. Also, the increase in emotional stress levels is related to lower levels of participation and involvement, as measured by responses to questions measuring commitment to school, social and emotional health, and most importantly, students' lower involvement in pro-social activities.

7. For both rural and urban counties, moderate or at-risk levels of mental health stress at the county level were statistically related to higher percentages of childhood poverty, unemployment, levels of education, households receiving

SNAP and Supplemental Security Income, low infant birth weight, and lack of prenatal care.

8. Additionally, single-parent households with children and households with a lack of internet access are associated with high levels of stress in rural counties.

9. Importantly, higher stress levels are associated with low academic performance in both rural and urban districts.

10. The results suggest a multifaceted approach to addressing youth mental and emotional stress because they are complex issues. Approaches should include involvement of key stakeholders, such as parents, school and mental health professionals, and community organizations to facilitate social improvement and youth enrichment programs.

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