**Disruption to Test Scores after Tropical Cyclones in the United States**

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**Background and Aim**

Hurricanes and tropical cyclones affect every element of impacted communities’ everyday lives. Knowledge of how tropical cyclones impact student educational attainment is essential to understanding the full burden of climate-related disasters, and previous studies have shown others, such as wildfires, have a negative impact on test scores. We aim to examine the association between tropical cyclones and educational attainment among elementary- and middle school-age students in all affected areas in the United States.

**Methods**

We based education on county-level average standardized test scores in math and reading/language arts (RLA) among third to eighth grade students during 2009–2018 from the Stanford Educational Data Archive. Our exposure of interest was tropical cyclones, developed from a comprehensive record of tropical cyclone occurrence over 10 years, defined as counties with a sustained maximal wind speed ≥34 knots, as well as a subset of the data including only gale-to-violent storms (≥34 knots and <64 knots) or hurricanes (≥64 knots). We developed a difference-in-differences model, associating tropical cyclones and annual average test scores, controlling for time-varying covariates at the county and grade-cohort level, including student-level racial/ethnic composition, student-level socioeconomic status, county-level urbanicity, and county-level socioeconomic status. We also examined how associations varied by strength of tropical cyclone, state, and proportion of non-white and socioeconomically disadvantaged students.

**Results**

In initial results, for hurricane-exposed counties in Florida during 2009–2018, we found that exposure to hurricane force-winds was associated with a -0.10 SD (95% CrI: -0.17, -0.03) decrease in average math scores, equivalent to 13% of the average difference between grades three and four. We observed no association with RLA scores (0.00 SD [95% CrI: -0.05, 0.05]).

**Conclusion**

Our initial results indicate that exposure to hurricane-force winds within a county was associated with lower math performance among elementary- and middle school-age students in Florida. Disaster preparedness may include resilience to the impacts of climate-related stressors on overall academic achievement across the lifespan.