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

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**Background and Aim**

In the United States, hurricanes and other tropical cyclones have a devastating impact on society. Knowledge of how tropical cyclones impact student educational attainment is essential to understanding the full burden of climate-related disasters. Our analysis aims to examine the association between the tropical cyclones and educational attainment among elementary and middle school-age students in the United States.

**Methods**

We based educational attainment on county-level average standardized test scores in math and reading/language arts (RLA) among third to eighth grade students during 2009–2018. 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 Bayesian formulation of a difference-in-difference model, associating tropical cyclones and annual average test scores, while controlling for 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.

**Results**

In initial results, for hurricane-exposed counties in Florida during 2009–2018, we found that exposure to hurricane force-winds was significantly associated with a 0.098 SD decrease in average math scores (95% CrI, -0.172–-0.125). The 0.002 SD increase in average RLA scores (95% CrI, -0.048, 0.053) was not significant. We also examined how associations varied by strength of tropical cyclone, state, and proportion of non-white and socioeconomically disadvantaged students.

**Conclusion**

Our results show that exposure to hurricane-force winds within a county is associated with lower academic performance among children. Improving disaster resilience may benefit children’s overall academic achievement and socioeconomic attainment across the lifespan.