

# Climate disasters, traumatic events shown to have long-term impacts on youths' academics

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Experiencing traumatic events such as natural disasters may have long-term consequences for the academic progress and future food security of youth—a problem researchers said could worsen with the increased

frequency of extreme weather events due to climate change.

In a study using data from Peru, researchers from Penn State's College of Agricultural Sciences found that being exposed to a greater number of [traumatic events](#) or "shocks," such as a natural disaster or loss of family income, in [early life](#) was associated with lower reading and vocabulary test scores over time, as well as reduced food security. The study was recently published in the journal *Population Research and Policy Review*.

Carolyn Reyes, a senior research associate at Public Wise who led the study while earning her doctorate in rural sociology and demography at Penn State, said the findings could help guide policy aimed at minimizing the impacts of shocks.

"As climate change leads to more frequent and severe weather events, and [economic crises](#) and an ongoing pandemic continue to create challenges for families, it's critical for policies to help minimize the effects of these shocks," Reyes said. "These types of initiatives could include unconditional cash transfers, expanding social protections, and more accessible and widely available insurance programs."

The researchers found that shocks experienced more recently were the most strongly associated with negative learning and well-being outcomes. Specifically, 15-year-olds in Peru who experienced a shock in the past three to four years were more likely to have lower test scores, be less food secure, have poorer health and spend more time on household duties.

Heather Randell, assistant professor of rural sociology and demography, said while the study used data from Peru, the results could be applicable to populations around the globe.

"Household shocks experienced by kids can take an important toll on

health and learning no matter where they live," Randell said. "For example, if teens have to help take care of siblings or assist their parents in earning income, this may divert resources and attention away from school. This in turn can affect the amount of time teens have to focus on schoolwork, or it may push them out of school altogether."

According to the researchers, prior work has found that children often are more vulnerable to shocks than other members of a household. Young children may be particularly affected, with shocks experienced early in life impairing physical and cognitive development for years to come.

Children from rural households may face additional obstacles from environmental shocks. For example, if drought causes a family to lose income as a result of dying crops, children may be forced out of school to help find alternative income. While school attendance has improved in recent decades, almost one-fifth of school-age children worldwide remained out of school in 2018.

While previous studies have found connections between shocks and adverse educational outcomes, the researchers said many of these studies relied on cross-sectional data instead of following children over time, or examined the effects of just one or two types of shock.

Reyes said she and Randell wanted to build on existing research by expanding their study to examine the effects of multiple types of shocks on education and multiple measures of well-being over a 15-year time period.

She added that Peru was an ideal setting for the study because of its high levels of poverty and inequality, and because a large portion of the population relies on agriculture as a main source of income.

"Peru is highly susceptible to environmental shocks such as earthquakes, floods and drought," Reyes said. "In addition, a sizable segment of the population is under the age of 18. All of these factors amount to higher likelihoods of children being exposed to shocks across their young lives."

For the study, the researchers used data from the Young Lives Longitudinal Survey of 1,713 children from Peru over a span of 15 years. Data from the final round, when the children were 15, included reading, math and vocabulary test scores, information about their food security and health, and details about how much time they spent studying and doing household chores.

The researchers also used data about the shocks these households experienced in the years prior to the children turning 15. Shocks included economic or agricultural shocks, such as loss of a job or crop failure; environmental shocks, such as flooding or an earthquake; and family shocks, such as divorce or the death of a household member.

According to the researchers, there could be multiple explanations for the findings. For example, if flooding destroys a family's crops that they were depending on for income, children may spend more time working for extra money instead of going to school or studying. Or, in the case of the death of a family member, psychological impacts may negatively affect progress at school.

Reyes said that while the study focused on data when the children were in their teens, the repercussions of experiencing multiple shocks early in life may continue for years.

"Because education and early work experiences are so important for future economic and social success, exposure to shocks could create circumstances that result in a lifetime of hardship," she said. "Additional research could explore the exact mechanisms of how these shocks affect

schooling and well-being, which could then help in the design of targeted and effective interventions."

**More information:** Carolyn B. Reyes et al, Household Shocks and Adolescent Well-Being in Peru, *Population Research and Policy Review* (2023). [DOI: 10.1007/s11113-023-09787-x](https://doi.org/10.1007/s11113-023-09787-x)

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