

Hurricane Harvey's hardest hit survivors five times as likely to experience anxiety from COVID-19 pandemic

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Have you experienced any of the following due to the COVID-19 pandemic? (Check all that apply)

- Difficulty paying rent
- Recently evicted, currently housing insecure, or currently homeless
- Difficulty paying utilities or other monthly bills
- Difficulty finding healthy and affordable foods
- Difficulty getting prescriptions filled
- Increased household expenses
- Increased medical expenses
- No transportation
- Other (describe): _____

COVID-19 Registry question on economic difficulties due to the pandemic.
Credit: *Environmental Research* (2022). DOI: 10.1016/j.envres.2022.114020

When the Children's Environmental Health Initiative (CEHI) launched the Texas Flood Registry in April 2018, the goal was to develop a needs assessment focusing on health and housing impacts of the greater Houston area, which was still recovering less than one year after Hurricane Harvey's devastating landfall.

In 2019, Tropical Storm Imelda dealt another blow to the state, causing significant flooding and battering an already battered community—an example of how [climate change](#) is causing intensified storms and [climate-related events](#) to happen more often.

Then came COVID-19.

Building on the existing registry, researchers at CEHI, with collaborators at Rice University and the Environmental Defense Fund, deployed new surveys to assess the economic and [health impacts](#) of the pandemic nationally, but with a special focus on those hit by back-to-back climate disasters. Two results stood out.

Respondents with the greatest economic and mental health impacts from Hurricane Harvey were respectively four times more likely to experience income loss during the pandemic and five times more likely to suffer severe anxiety because of the pandemic than respondents who were not severely impacted by the storm.

"This study underscores the cumulative effect of economic stress and mental health impacts on an individual's well-being when exposed to a succession of multiple crises," said Marie Lynn Miranda, director of CEHI and a professor in the Department of Applied and Computational Mathematics and Statistics at the University of Notre Dame. "To see a four- or five-fold increase in these statistical models is very concerning, and the time between events highlights the cumulating and enduring impacts of these stressors."

The Texas Flood Registry is the first of its kind to track short- and long-term health and housing impacts of hurricanes using online survey data.

For the study, the team analyzed survey data collected between April 2018 and October 2020 from individuals impacted by Hurricane Harvey

and other major flooding events including Tropical Storm Imelda. The registry originally asked about experiences during and after each storm, including property or income loss, as well as feelings of distress related to Hurricane Harvey.

Surveys to determine the impact of COVID-19 were issued in April 2020 with similar questions. Results were pulled from a sample of approximately 3,000 respondents who completed both surveys.

Economic and mental health stress felt during Hurricane Harvey had a greater impact on how individuals fared during the pandemic than issues of property damage and flooding. Non-Hispanic Black respondents and Hispanic respondents were more than twice as likely to report having difficulty paying rent or bills during the pandemic compared to non-Hispanic white respondents, consistent with other studies showing those groups have been disproportionately affected by COVID-19.

Researchers at CEHI say the study could help inform recovery efforts, which tend to focus on the acute impacts of [natural disasters](#) like property damage but neglect long-term effects such as mental health.

The research could also help federal, state and local officials identify those communities at higher risk of emotional and economic stress during and after severe climate events, who could benefit from additional assistance or aid.

"Natural disasters are increasing in frequency and intensity due to climate change, and this research shows that repeated disaster exposure affects resilience," Miranda said. "The emotional and economic impacts of these events, especially for high-risk groups, are felt for years—long after the storm itself has passed."

The research was published in *Environmental Research*.

More information: Rashida Callender et al, Economic and mental health impacts of multiple adverse events: Hurricane Harvey, other flooding events, and the COVID-19 pandemic, *Environmental Research* (2022). [DOI: 10.1016/j.envres.2022.114020](https://doi.org/10.1016/j.envres.2022.114020)

Provided by University of Notre Dame

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