Severe Weather and Mental Health

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Wednesday, July 16, from 8:30 to 9:30 a.m. MDT

Agenda & Content

- Study Context and Background

- Research Questions

- Research Instruments

- Results and Findings

- Wrap-Up: Implications for Policy and Practice

Study Context and Background

- In 2024, Ohio experienced one of the worst weathers in the history of the state, with Central Ohio being the most impacted region.

- In Ohio, there were 66 confirmed tornadoes touchdown between January and mid-May in 2024.

- Ohio experienced 123 severe and damaging wind events (not including tornadoes) and 65 severe hail events in the same period of time. These severe weather hazards killed three people and injured over 25.

Study Context and Background

- This rare breakout of severe weather hazards caused a wave of panic among people, adding to the burden of the socioeconomically challenged communities who already live in poor housing conditions.

- In our study, we focus on low-income communities living in Franklin County, Ohio, and who experienced severe and damaging winds on multiple occasions between the end of February and mid-May of 2024.

- For our study site, we selected two neighboring zip codes (43223 and 43204) in Franklin County because of their higher levels of disadvantage.

search Questions

- Our study aimed to promote resilience and capacity-building initiatives that empower individuals and communities to become more proactive and adaptive in managing disaster risks and enhancing their overall well-being. To do so, our data collection and analysis aimed to answer two main research questions:

1. How did the recent tornadoes in Franklin County, Ohio, exacerbate the mental health issues among people living in socioeconomically disadvantaged communities?

2. What coping mechanisms and resilience factors did people in socioeconomically disadvantaged communities in Franklin County employ to mitigate the adverse mental health effects of the recent tornadoes?

Research Instruments

- Our study employed a mixed-methods approach, combining quantitative surveys with qualitative interviews to capture the complexity and heterogeneity of individuals' experiences.

- Our survey was built using the following tools from the National Institute of Environment Health Sciences Portal: The Duke Health Profile Questionnaire (The Duke) for Anxiety and Depression, The Short PTSD Rating Interview (SPRINT), and NOAA Tornado Post-Event Survey. In addition, we used a survey tool previously designed and validated by the Florida Institute for Built Environment Resilience (FIBER) at the University of Florida that examines housing conditions, risk perception, and severe weather hazards.
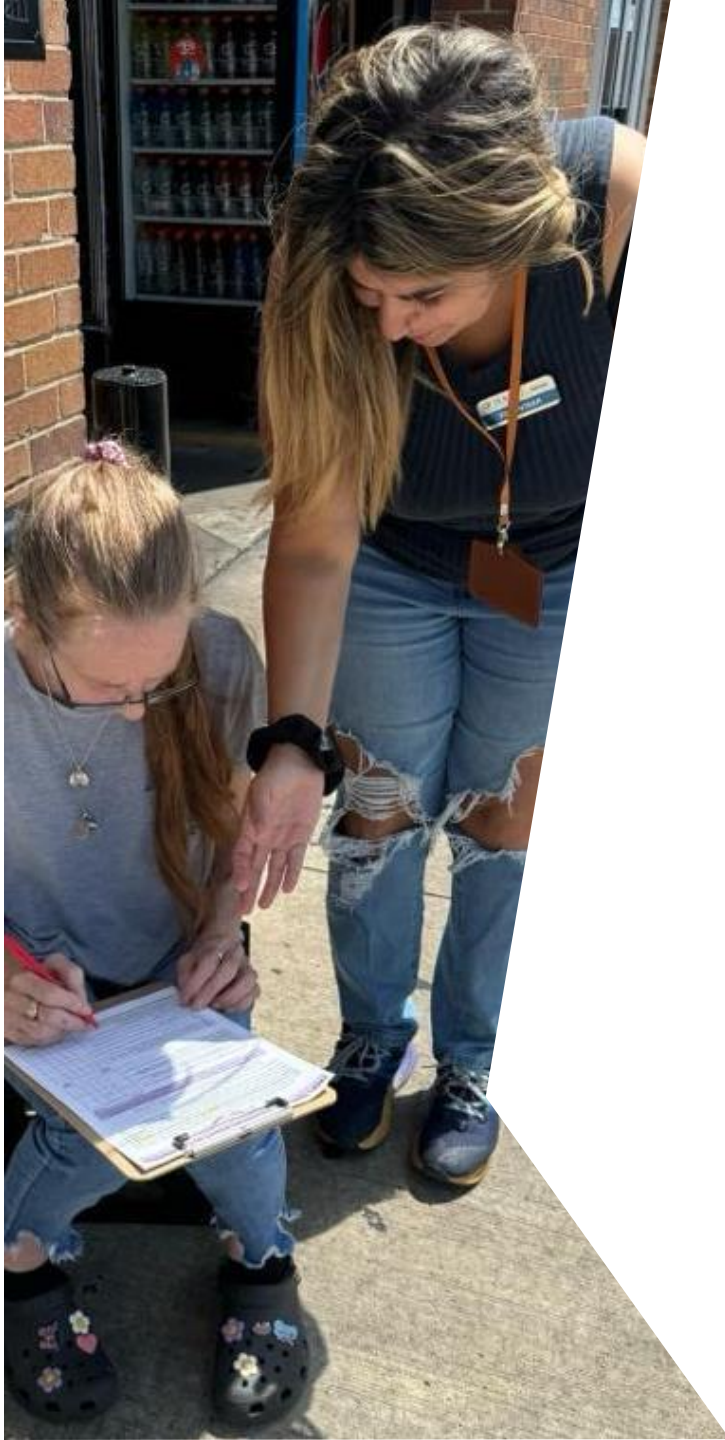
We set a minimum survey sample size of 385 participants, which we determined by using the Z formula with a 95% confidence level and a 5% confidence interval. Survey participants were given $15 Amazon e-gift cards as incentives upon completing the survey.

We designed a flyer with information about the aim of the survey, types of survey questions, and a digital barcode that led to the online survey and distributed it at local businesses, houses of worship, and other public places with the targeted areas. On average, it took respondents 5-10 minutes to complete the survey.

In addition, we hired two community members who work at local nonprofit organizations to aid with recruitment. The two community partners set up a booth with iPads that had access to the survey in front of local businesses, such as grocery stores, in busy commercial plazas that are frequented by members of the entire community.

This sampling approach helped us recruit a diverse sample of participants and minimize bias toward race, ethnicity, age, gender, education, and other variables.

Results and Findings

- We received 909 completed survey responses. Our analysis identified 521 participants whose incomes were below the low-income threshold and which we categorized as socioeconomically disadvantaged.

- Based on the variance and regression analyses, survey participants who have experienced a high impact from severe weather event is 2024 had significantly higher anxiety, depression, and PTSD levels compared to the ones who experienced low impact.
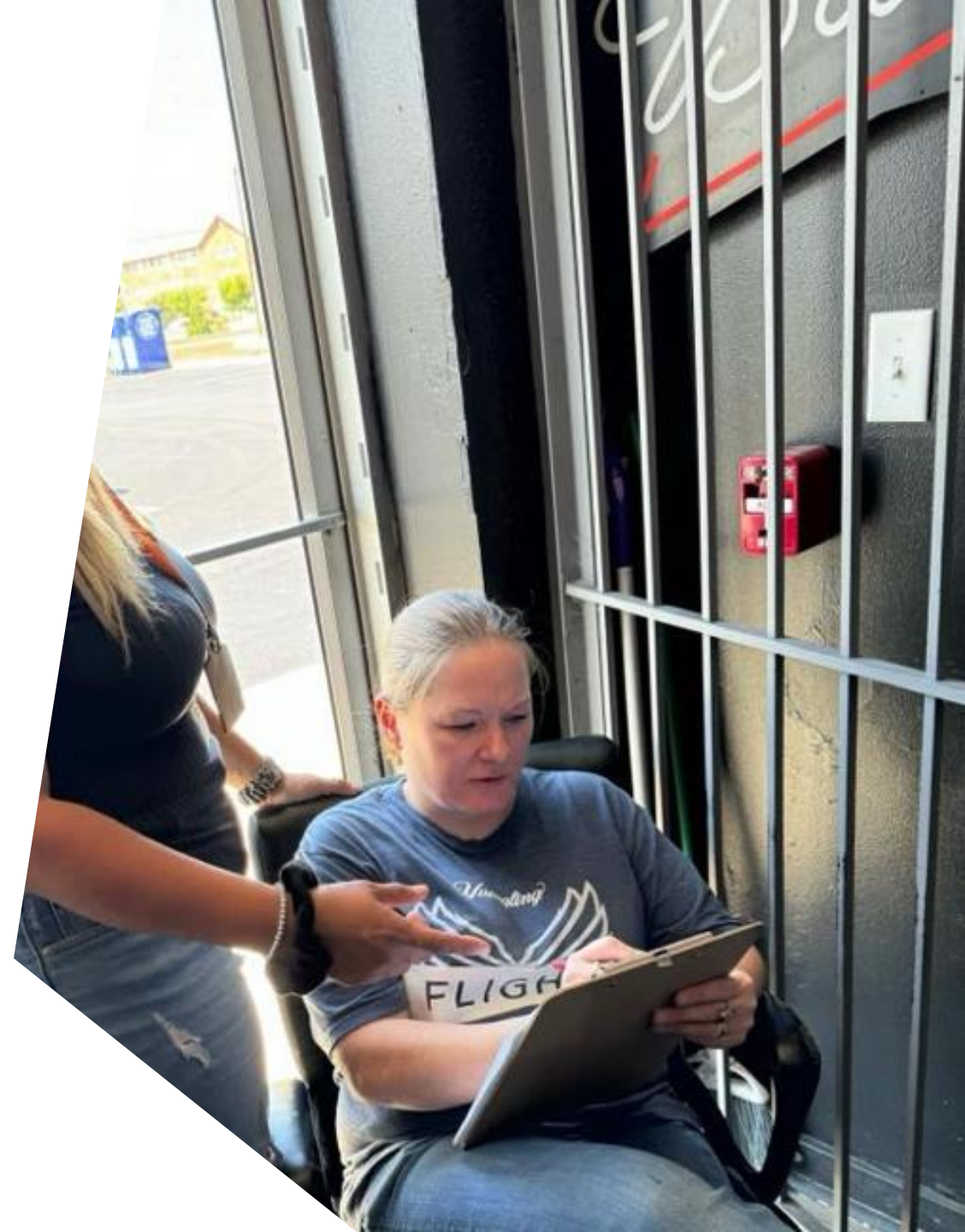
Results and Findings

- The results from the survey analysis were used to inform the design of the semi-structured interviews.

- Our interview qualitative analysis categorized participants' responses into six main themes:

1. Impact of Severe Weather Events,

2. Mental Health and Emotional Responses,

3. Financial and Resource-Related Impacts,

4. Community and Family Relationships,

5. Perception of Local Authority Communication,

6. and Coping Mechanisms for Mental Health.

Results and Findings

- The first research question was: How did the recent tornado touchdowns in Franklin County, Ohio, exacerbate preexisting mental health issues among socioeconomically challenged communities?

- Our qualitative and quantitative analyses show that the recent tornadoes in Franklin County have intensified preexisting mental health issues in socioeconomically challenged communities, by heightening feelings of vulnerability, stress, and anxiety.

Results and Findings

- The second research question was: What are the possible coping mechanisms and resilience factors that can be employed by socioeconomically challenged communities in Franklin County, Ohio, to mitigate the adverse mental health effects of the recent tornadoes touchdowns?

- Participants reported various coping mechanisms. Many interviewees described using structured routines, mindfulness, and deep breathing exercises to manage their mental health. These methods, while effective for some, are often insufficient for individuals facing high-impact stressors without access to professional mental health support.

Wrap-Up

Implications for Policy and Practice

❑ **Improve Emergency Communication and Preparedness:** Develop clear, accessible, and consistent early warning systems tailored to low-income and high-risk populations. Promote personalized emergency planning that accounts for health, mobility, and local support networks.

❑ **Expand Access to Mental Health Support:** Increase the availability of free or low-cost counseling through telehealth, mobile clinics, and community-based services to address barriers like transportation and affordability.

❑ **Provide Community-Based Coping Resources:** Implement local workshops and programs on mindfulness, stress management, and trauma recovery, while promoting healthier alternatives to substance use such as group exercise and wellness initiatives.

Wrap-Up

Implications for Policy and Practice

❑**Strengthen Social and Neighborhood Support Systems:** Foster local connections through neighborhood check-ins, buddy systems, and support groups to reduce isolation and boost resilience during extreme weather events.

❑**Ensure Equitable Access to Essential Resources:** Expand access to food, shelter, and utility assistance by addressing barriers such as transportation, digital literacy, and language. Provide utility subsidies during extreme weather events.

❑**Engage and Train Local Institutions for Integrated Support:** Partner with schools, faith organizations, nonprofits, and local businesses to deliver mental health education, emergency training, and referrals, making services more trusted and accessible.

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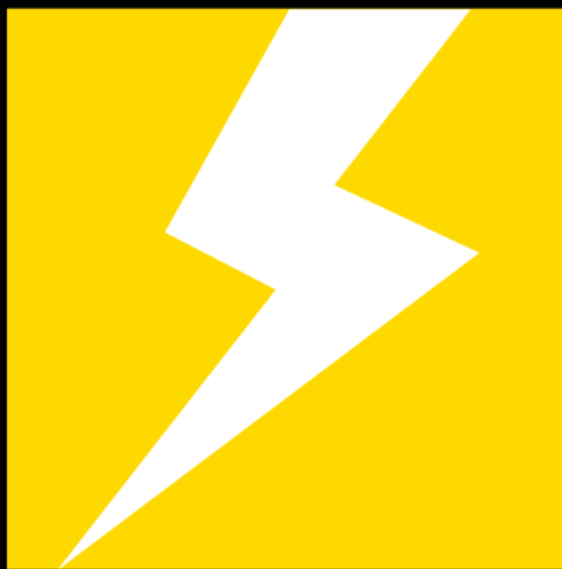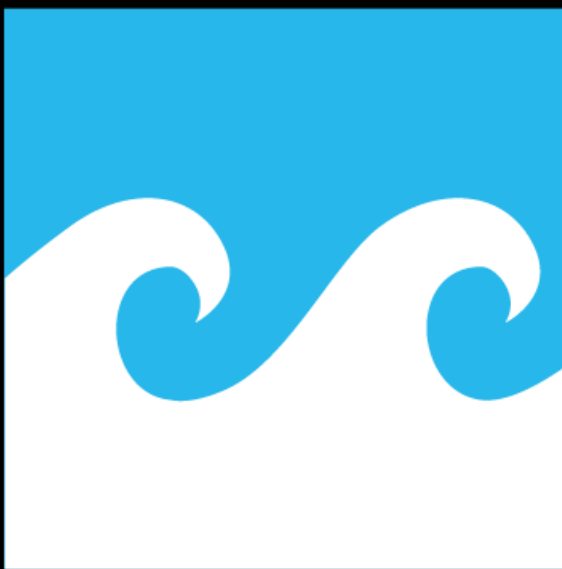
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