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**RESEARCH BRIEF SERIES**

**HEALTH AND EXTREME WEATHER**

*This research brief is part of an award program designed to address gaps in knowledge related to extreme weather disasters—such as wildfires, floods, extreme heat, and severe storms—that pose significant health risks, particularly for populations already experiencing health challenges.*

**MENTAL HEALTH AFTER HURRICANE HELENE: A MIXED-METHODS STUDY OF VOLUNTEERS**

**OVERVIEW**

In September 2024, Hurricane Helene devastated western North Carolina, causing unprecedented flooding and damage across the state. Community organizations rallied after the storm to organize relief efforts, deliver desperately needed supplies, help clear debris from flooded homes, assist in spreading reliable information, and support long-term recovery efforts.

This on-the-ground research provides early evidence of the mental health impacts that Hurricane Helene had on volunteers. Our mixed-methods study examined mental health impacts six to eight months post-disaster among 373 volunteers using validated screeners (PTSD-4, GAD-4), exposure assessments, and narrative responses. It addresses gaps in understanding mental health risk and resilience factors among rural volunteers impacted by disasters, particularly given limited communication and resource access, which intensify mental health stressors.

This research helps develop a transdisciplinary framework that incorporates geographic, social, and resource-limited factors for an updated Substance Abuse and Mental Health Services Administration (SAMHSA) framework that accounts for volunteerism in rural settings. Findings inform the novel ReCoVER (Response, Coping, Volunteering, Exposure, Recovery) framework, a community-informed mental health response model for rural volunteers. This framework will be applicable to future disaster responses in remote and underserved areas, thus enhancing broader disaster resilience efforts.



*Volunteers help clear debris from Hurricane Helene and salvage art in the River Arts District, Asheville, North Carolina.*

*Photo credit: alongspring / Shutterstock.com*

**KEY FINDINGS**

- The vast majority of volunteers were exposed to Hurricane Helene (93.0%). The most frequently reported exposures include power outages, communication challenges, fearing for the safety of self or a loved one, and damages from flooding, landslides, and fallen trees.

- The most common motivations for volunteering were connections with community, wanting to help others, and storm-related coping. Most volunteers engaged in aid distribution and debris removal and clean-up. A smaller proportion assisted in volunteer coordination, followed by mutual aid and repair and rebuilding.
- Specific hurricane exposures significantly predict PTSD indicators like poor sleep and hurricane-related avoidance, most notably experiencing injury or death, being forced to evacuate or being trapped, and fearing for one's own or a loved one's safety.
- Many respondents indicated feeling depressed or hopeless (49.1%) and even more (55.2%) reported feelings of anxiety associated with Helene.
- Analysis suggests higher exposure among individuals involved in aid distribution with fewer volunteer-related benefits, compared to those engaged in volunteer coordination, mutual aid, rebuilding efforts, and debris removal.



Volunteers help clear debris from Hurricane Helene and salvage art in the River Arts District, Asheville, North Carolina.  
Photo credit: alongspring / Shutterstock.com

## RESEARCH IMPLICATIONS

- Given the high mental health burdens associated with certain volunteer activities (e.g. aid distribution), organizations should establish support protocols for disaster volunteers and employ tiered volunteer roles, particularly for spontaneous volunteers, based on training and mental health preparedness.

- Communication failure is the strongest predictor of the PTSD indicator for poor sleep, suggesting that infrastructure resilience directly impacts mental health. Safeguarding of communication infrastructure (e.g., back-up power, satellite-based emergency communication networks), and strengthening local communication outlets (e.g., public radio stations), can ensure isolated populations can receive life-saving information in future disaster contexts.
- There's a need for rural-specific frameworks that incorporate rural knowledge and lived experiences. Federal disaster response protocols need to account for the unique challenges mountainous, isolated communities face, where traditional "honeymoon phase" models do not apply.
- The novel ReCoVER framework, which integrates four core domains: (a) disaster exposure and effects, (b) volunteer engagement, (c) coping and (d) individual context should be considered to enhance understanding of disaster mental health and to extend existing models of public health preparedness.

## AUDIENCE

This research is relevant for emergency management professionals, first responders, and community-based organizations who do work to recruit, coordinate, and support volunteers in disaster settings.

**Full Report:** Ryan, S. C., Sugg, M. M., Schroeder Tyson, J. (2026). Mental Health After Hurricane Helene: A Mixed-Methods Study of Volunteers. (Natural Hazards Center Health and Extreme Weather Report Series, Report 10). Natural Hazards Center, University of Colorado Boulder. [hazards.colorado.edu/health-and-extreme-weather-research/mental-health-after-hurricane-helene-a-mixed-methods-study-of-volunteers](https://hazards.colorado.edu/health-and-extreme-weather-research/mental-health-after-hurricane-helene-a-mixed-methods-study-of-volunteers)



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