

SARAH ELIZABETH SCALES

University of Nebraska
Medical Center

CHRISTINE ALLMON

University of Nebraska
Medical Center

RACHAEL BIRN

University of Nebraska
Medical Center

SUMMER WOOLSEY

University of Nebraska
Medical Center

SIDDHI MUNDE

University of Nebraska
Medical Center

KRISTINA KINTZIGER

University of Nebraska
Medical Center

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.

NEBRASKA TORNADO QUICK RESPONSE: ASSESSING COMMUNITY IMPACTS AND EVALUATING EARLY WARNINGS

OVERVIEW

On April 26, 2024, a strong tornado outbreak tore through eastern Nebraska, devastating rural communities and leaving wide swaths of suburban neighborhoods in ruins. Rapid needs assessments are deployed after disasters to gather data on population health impacts and needs, but research has shown that they are not well-suited to surveying rural communities and areas where large numbers of people have been displaced. This study modified the Community Assessment for Public Health Response (CASPER) survey methods to address these limitations in Douglas (n=150) and Washington (n=138) counties. The survey assessed physical and mental health impacts and needs, household-level preparedness, early warning and risk communication practices, and protective actions.

KEY FINDINGS

- Roughly 17% of adults felt down, depressed, or hopeless for several days or more after the tornado outbreak.
- The tornadoes contributed to poor sleep, agitated behavior, and concentration problems. They also exacerbated pre-existing allergies and mental health conditions.
- While most households reported knowing where to shelter safely, less than 35% had emergency supply kits prepared before the tornado outbreak.



Photo Credit: Shutterstock.

- Almost all respondents knew the difference between a tornado watch and warning, and television was the most frequently reported and preferred method of receiving emergency communications.

RESEARCH IMPLICATIONS

The findings showed that impacted communities needed additional mental health services to address persistent psychological and wellbeing needs. Household preparedness varied, with results suggesting that public health agencies should promote preparing emergency supply kits. Methodologically, this work demonstrates the feasibility of modifying post-disaster rapid needs assessments for use in rural and other hard-to-reach communities.

Full Report: Scales, S. E., Birn, R., Allmon, C., Woolsey, S., Munde, S., & Kintziger, K. W. (2025). *Nebraska Tornado Quick Response: Assessing Community Impacts and Evaluating Early Warnings*. (Natural Hazards Center Health and Extreme Weather Report Series, Report 5). Natural Hazards Center, University of Colorado Boulder. hazards.colorado.edu/health-and-extreme-weather-research/nebraska-tornado-quick-response