

Are Manufactured Homes as Safe as Tornado Shelters? Most Owners Think So

A key vulnerability factor that contributes to higher tornado fatality rates in the southeastern United States is the prevalence of mobile and manufactured homes (MHs) in the region. U.S. tornado fatalities are composed disproportionately—nearly 50%—of persons located in MHs, and the risk of fatality is 10 times higher for MH residents than residents of site-built homes. Despite these well-known figures, there is a lack of understanding about how MH residents view tornado risk and the typical safety recommendations that ask them to evacuate to sturdier structures when tornadoes threaten. We investigated perceptions about tornado protective action and intended sheltering behavior of MH residents in Alabama and Mississippi and found dangerous misperception and a paradox permeate among residents.

Our goal is to improve the understanding of how residents' past tornado experiences, their beliefs about their homes' ability to withstand tornadic wind speeds and debris, and their access to cognitive and instrumental resources all influence the actions residents are likely to enact when tornadoes threaten their communities. We use statistical and geospatial analyses of responses from an internet survey completed by 257 Alabama and Mississippi MH residents with questions pertaining to their perceived tornado risk and vulnerability, protective action and decision-making, available tangible and psychological resources, and beliefs about the structural integrity of their homes.

Results indicate that, despite weather and emergency management enterprises consistently suggesting that MH residents evacuate their homes for sturdier shelter during tornado events, more than 50% of MH residents in the study area believe their homes may be safe sheltering locations. Unwillingness to evacuate to sturdy shelter occurs at least partially because MH residents tend to rate their homes as relatively safe and wind resistant. While this result is statistically significant across the study area, it is more pronounced in northern and eastern Alabama. Finally, we find evidence for a perception and vulnerability paradox for MH residents

in the study area. Those who have the means to evacuate their MH often indicate they do not need to do so. Whereas those who recognize the potential peril of sheltering in their home and want to evacuate often lack the resources and/or self-efficacy to carry out safer sheltering plans. This presents a challenge for tornado safety recommendations because a large portion of the target audience is predisposed not to carry out the recommended action to seek shelter elsewhere.

An important avenue for future investigation would be to determine how many MH residents have a well-defined evacuation plan and how such specific planning might counteract some of the influential factors identified by our research.—KEVIN D. ASH (UNIVERSITY OF FLORIDA, GAINESVILLE), M. J. EGNTO, S. M. STRADER, W. S. ASHLEY, D. B. ROUECHE, K. E. KLOCKOW-McCLAIN, D. CAPLEN, AND M. DICKERSON, "Structural forces: Perception and vulnerability factors for tornado sheltering within mobile and manufactured housing in Alabama and Mississippi," in a forthcoming issue of *Weather, Climate, and Society*. ●



Study area. Map of study area and approximate locations of survey respondents.

Perception of home safety during tornadoes. Distribution of responses to survey question about sheltering within a mobile or manufactured home.

