#HRRC30for30

"Risk Area Accuracy & Hurricane Evacuation Expectations of Coastal Residents."
Arlikatti, Lindell, Prater, & Zhang. 2006.

Hurricanes can devastate hundreds of miles of coastline with high wind, storm surge, rainfall, and tornadoes that cause property damage, economic losses and death. Casualties, property damage, and economic loss can be reduced if a threatened population is warned early enough to evacuate successfully before the hazard hits their area. During the hurricane season, people rely on the news media and warnings from local officials for information about threatening storms. It's important for citizens to be able to read maps since not everyone is reached by traditional channels of communication. In Texas, the Governor's Division of Emergency Management distributes maps to help people identify their risk areas, but little is known about how well people can find their map locations.

Findings

This study examined the accuracy of Texas coastal residents in being able to locate their residences on hurricane risk area maps given to them. Overall, only 36% of the respondents correctly identified their risk areas and another 28% were off by one risk area. Risk area accuracy shows minimal correlations with respondents' demographic characteristics but is negatively correlated with the respondent's previous hurricane exposure and evacuation experience. The study finds that there's a need for local emergency managers to use multiple forms of communication to inform risk area residents about hurricane hazard.

Implications

The main problem in understanding these maps is that the risk area boundaries have a complex relationship with the expected depth of surge, elevation of the ground, and distance from the coast. As a result, they hold little similarity to visible terrain features and can be hard to interpret in areas with winding rivers and a big slope in the local topography. It is important to know if people can read maps correctly and if some demographic segments of the population have more difficulty than others in interpreting maps. It's also helpful to know whether risk area accuracy has any effect on the way people act, especially their probability of evacuating. Those who incorrectly think they are farther away from the coast than they are may put themselves at risk by choosing not to evacuate. Those who assess their locations as closer to the coast might evacuate unnecessarily, creating more traffic on evacuation routes and threatening the safety of those who actually are at risk.