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Factors Influencing People's Decision Making during Three Consecutive Tornado Events

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On May 19th, 20th, and 31st 2013, three tornadoes with different intensities struck the Oklahoma City metropolitan area. A set of survey data was collected from residents in the area two months after the events. This study aims to explore the effects of different factors, the environmental context factor (proximity to the tornado's path), the information factor (number of weather information sources) as well as personal factors (age, marital status, gender, education, prior experience with tornadoes, type of geographical area- rural vs. urban-, and income), on people's protective action. For each of three tornado events, a multiple logistic regression model was built to identify the statistically significant factors on taking protective action by people. The results showed that only the factors of "proximity to the tornado" and "number of weather information sources" in all three models had significant effects on the odds of taking protective action. The likelihood of taking protective action when people were on the tornado's path was significantly higher than that of scenarios in which people were outside 5 miles of the tornado. Holding the other variables constant, adding one unit to the number of information sources increases the odds of taking protective action by 2.27 on average for the three events.

Keywords: Human Behavior. Tornado. Natural Hazard. Decision-making. Logistic Regression

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