DECIDING TO EVACUATE: GATHERING THE INFORMATION TO MAKE THIS IMPORTANT DECISION

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Introduction

When hazardous storms threaten coastal communities, people need information to decide how to respond to this potential emergency. NOAA and NC Sea Grant are funding a two-year project (Risk Perceptions and Emergency Communication Effectiveness in Coastal Zones) to learn how residents, government officials, businesses and other organizations are informed and use information regarding hurricane and tropical storms.

The goal is to generate a model of risk and emergency communication that foregrounds the ways that different sectors of public seek and respond to information processes and products related to hurricanes and tropical storms. The research consists of three studies.

1) Update a 1999 demographic survey of households and businesses in 8 North Carolina coastal counties that includes information about evacuation decision-making and behavior. Purpose: to obtain a broad view of current information reception and evacuation behaviors.
2) Extend current pilot study of risk and emergency communication in Dare County. Conduct semi-structured interviews with inhabitants focused on information sources and knowledge networks within communities about hurricanes and evacuation. Conduct semi-structured interviews with emergency management personnel and public information officers focused on strategies of informing diverse publics. Purpose: to obtain a more granular view of the functioning of official and unofficial sources of information about hurricanes and evacuation.
3) Conduct document evaluation study. Collect reader feedback on a public information brochure about hurricane risks and emergency procedures. Analysis focuses on differences in interpretation of the information and on the inhabitants' acceptance of the advice offered. Purpose: to assess how inhabitants use and interpret official information about hurricanes and evacuation.

Research Questions

The effectiveness of storm emergency information is limited by public perception, awareness of risks and hazards, and characteristics of messages that can enhance or inhibit communication. The primary claim driving our perspective and approach is that these limitations can be mitigated in practice by applying a robust concept of communication that accounts not only for sending and receiving messages but also for sense-making by diverse publics as they are influenced by location, situation, knowledge, and social and cultural contexts.

The questions that inform our study frame the investigation of socio-cultural and cognitive influences on the ways in which various publics access, interpret, and use information about risk. In this paper we will report our findings concerning how people access information about risk in emergency situations?

Research Design

To gain deeper levels of information and to better frame the question in the survey instrument, we conducted more in-depth face to face interviews with a snowball sample of 120 residents (20 in each of 6 counties). We also interviewed 24 local government officials (4 in each of 6 coastal and coastal-area counties, deliberate sample, face-to-face interview).

For this survey, initial contact was made with each respondent through a postcard mailed to their home address. This card informed them of the purpose of the survey and gave them the option to complete it as a web survey. Most respondents did not opt for the web survey and interviewers began calling them a week after the postcard arrived. After seven weeks of calling, a sample of 1079 randomly selected residents in 20 coastal and coastal-area counties had been completed.

Results

While a third of the respondents knew that they would ride out a hurricane and another 7% knew that they would evacuate, most respondents (59.8%) reported that their initial response to a threatening hurricane is to gather information to decide if they should evacuate or ride out the storm. In order to explore the sources of information that respondents used, each respondent was asked about nine possible sources of information. The nine information sources are TV, commercial or public radio, newspapers, NOAA Weather Radio, Internet website, social networks, alert services, local officials or state/national officials.

For each source, respondents were asked "When a hurricane is threatening this county, how often do you get information from _____?" The answer ranged from Never (1), Daily (2), Several times a day (3), Every hour (4) and More than once an hour (5). The average rating for each information source is presented in Table 1. They are listed in order of decreasing mean ratings.

The source of information that people turn to most often is television. The second source of information is the respondent's social network, commercial or public radio, an Alert Service, Internet Websites and NOAA Weather Radio. Respondents are least likely to get information from local officials, newspapers or state/national officials.

Table 1: Descriptive Statistics For Information Sources

	N	Mean	Std. Deviation
Information from television	1007	3.65	1.219
Information from your social network	979	2.22	1.132
Information from commercial or public radio stations	960	2.16	1.352
Information from an Alert Service or Emergency Notification System	937	2.10	1.374
Information from websites on the Internet	977	1.89	1.159
Information from NOAA Weather Radio	1033	1.75	1.186
Information from local officials	943	1.42	.857
Information from newspapers	979	1.34	.487
Information from state or national officials	943	1.23	.635
Valid N (listwise)	778		

Respondents were also asked to rate the quality of the information they received from each source. Ratings ranged from Excellent (1) to Poor (5). The results are presented in Table 2. Information from television got the highest ratings followed closely by the Internet and NOAA Weather Radio. Notice that the number of people rating the information varies substantially because only respondents who indicated that they used a source of information were asked to rate it.

Table 2: Descriptive Statistics for Quality of Information

	N	Mean	Std. Deviation
How would you rate the information you get from television?	949	1.87	.865
How would you rate the information you get from Internet Websites?	460	1.99	.964
How would you rate the information you get from NOAA Weather Radio?	368	1.99	.910
How would you rate the information you get from Alert Services or Emergency Notification Systems?	475	2.06	.952
How would you rate the information you get from radio?	532	2.25	.929
How would you rate the information you get from local officials?	276	2.35	1.096
How would you rate the information you get from these conversations?	667	2.39	1.037
How would you rate the information you get from state or national officials?	168	2.72	1.110
How would you rate the information you get from newspapers?	356	2.92	1.166
Valid N (listwise)	6		

Factor analysis of nine possible sources of information (TV, Radio, newspapers, NOAA weather Radio, Internet website, social networks, Alert services, local officials or state/national officials) examines which information source tend to be used together. The factor analysis identified two multi-item factors: Alert (Alert Service, TV and Radio) and Network (Social Network, Local officials and State/national officials). The other three sources (NOAA, Internet and Newspapers) are analyzed as individual items.

Finally, the demographic groups (Mobile Home, Married, Gender, Education, Age, Children, Race and Income) that are most likely to use the various information sources are identified.

People in ocean front counties are more likely to use the Internet and less likely to use the newspaper. People who live in mobile homes are more likely to use an alert system and less likely to use the Internet or newspapers. Married people are more likely to use the Internet. Females are more likely to use their social networks and read a newspaper. People with more education are more likely to use the Internet. Younger people are more likely to use the Internet and less likely to read a newspaper.

People with children living at home are more likely to use the Internet and their social networks and less likely to use NOAA weather Radio or read a newspaper. White respondents are more likely to use the Internet and less likely to use an alert system or read a newspaper. Respondents with higher incomes are more likely to use the Internet.

Conclusion

Most people use multiple sources of information but few people use them all. It should be somewhat reassuring to learn that the most frequently used source of information (television) is also the source with the highest quality rating. It is also a source that is very available to local emergency managers who need to get important information to the residents of their communities. Television is also used roughly equally by people in all our different social and demographic groups.

It is interesting that while alert systems are relatively new, they are relied on almost as much as radio or the Internet and more than NOAA Weather Radio. Their use does not vary by education or income and minority respondents report more frequent use than white respondents. They are used most often by residents of ocean front counties.

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