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Short Communication

# Prevention of post-disaster sequelae through efficient communication planning: analysis of information-seeking behaviours in Montana and Alabama

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Building resilience for disaster preparedness is a national priority.[1] There is no definitive formula for 'building resilience,' but past research investigated the theoretical basis for resiliency in individuals, communities, organizations and systems.[1–3] A crucial aspect of disaster preparedness includes identifying factors that may influence resilience, that can be targeted in future public health interventions to achieve desired outcomes that reflect increased preparedness, and thus resiliency. A common factor that can infer preparedness despite differences in type, scope and management of disasters, is how information is disseminated to the population to convey risk, prepare for emergencies, and minimize adverse sequelae during response and recovery. Past research has explored the communication needs during emerging threats and determined that the population will actively seek accurate information from media and trusted sources to ensure they can protect themselves and family members.[4] It is then essential, that emergency planners are aware of the anticipated type of information sources their respective populations may rely on to get information and take preventative actions for safety. Building resilience for disaster preparedness requires that communities can adapt to an unfolding situation and appropriately respond, which can only be done with adequate and effective emergency communication.

## Investigation of information sources

Using the social-ecological theoretical framework,[2–5] the role of risk communication in disaster preparedness can be investigated. Assessing current expectations and utilization of information sources during a disaster provides valuable information on risk communication strategies that can be implemented through preparedness plans.

This study seeks to examine information-seeking behaviour by determining the association between information sources used during an emergency with population demographics and levels of general preparedness. Secondary data were acquired from the Behavioral Risk Factor Surveillance System (BRFSS), which is a national telephone-based surveillance survey developed and utilized by the US Centers for Disease Control and Prevention (CDC), to assess relevant health-related behaviours, conditions and the use of preventative services.[6]

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**Table 1 – Expected utilization for crisis communication by information source.**

| Descriptive analysis: information sources | | |
|---|---|---|
| Information type | $n = 16811$ | Weighted proportion (%), 95% confidence intervals (CIs) |
| Television | 4094 | 26.5 (25.3–27.6) |
| Radio | 6648 | 40.4 (39.1–41.7) |
| Internet/Print/Neighbours | 932 | 7.9 (7.0–8.6) |
| Other | 4410 | 21.8 (20.8–22.9) |
| Do not know | 727 | 3.5 (3.0–3.9) |

| Multinominal logistic regression analysis: information sources (dependent variable)[a] | | | | |
|---|---|---|---|---|
| Population characteristics | | Comparison groups | Odds ratio (OR), 95% confidence intervals (CIs) | P-value[b] |
| Actual preparedness (*ref = yes*) | | Radio | 1.1 (0.9–1.3) | 0.0006 |
| | | Internet/Print/Neighbour | 0.8 (0.6–1.1) | |
| | | Other sources | 1.3 (1.0–1.5) | |
| Education (*ref = less than high school*) | College | Internet/Print/Neighbour | 2.5 (1.2–4.9) | <0.001 |
| | Some College | Internet/Print/Neighbour | 1.7 (0.8–3.5) | |
| | | Radio | 1.6 (1.2–2.1) | |
| Sex (*ref = males*) | | Internet/Print/Neighbour | 0.9 (0.8–1.1) | <0.001 |
| | | Radio | 0.8 (0.7–0.8) | |
| | | Other sources | 1.1 (0.9–1.2) | |
| Race (*ref = white*) | Blacks | Internet/Print/Neighbour | 1.4 (1.3–1.7) | <0.001 |
| | Am. Indian | Internet/Print/Neighbour | 2.3 (1.7–2.9) | |
| Age (*ref = 18–24 years*) | | Radio | 0.8 (0.6–1.0) | <0.001 |
| | | Other sources | 0.7 (0.6–0.9) | |
| Income (*ref = <25K annual*) | >75K annual | Internet/Print/Neighbour | 1.4 (1.0–1.8) | <0.001 |
| | | Radio | 1.1 (0.9–1.3) | |
| State (*ref = Montana*) | | Internet/Print/Neighbour | 1.2 (1.6–2.3) | <0.001 |
| | | Radio | 2.3 (2.1–2.5) | |
| | | Other sources | 3.6 (3.2–3.9) | |

[a] The dependent variable is the outcome of information sources with the baseline comparison group of television. Only significant (P-value <0.05) comparison groups and selected levels are presented in the multinominal regression due to the large quantity of output levels and comparisons performed.
[b] $P < 0.05$ = statistically significant.

As a measure for levels of actual preparedness, households were surveyed on maintenance of a 3-day supply of food, water, prescription medications, a radio with batteries, a flashlight, and evacuation plan. In 2012, only Montana and Alabama completed the optional survey module so no other states had data available to be used in this preliminary study. A descriptive analysis of demographics, expected sources of communication during a disaster, and self-reported general preparedness was conducted using weighted proportions. Participants reported anticipated means for communication to acquire pertinent information during an event; media sources included television, radio, internet, print, neighbours, or other sources. For this analysis, general (actual) preparedness was defined as a 3-day supply of food, water, prescriptions (if needed) and a working radio. Participants self-reported perceived household preparedness on a scale of unprepared, somewhat prepared, well-prepared or unsure. A test of association for actual and perceived preparedness was performed using a Chi-squared analysis to determine if perceived preparedness could be a confounding factor. The analytical investigation of information sources and actual preparedness followed with a multinominal logistic regression. The regression model assessed the relationship between the explanatory independent variables for actual preparedness – while accounting for demographic factors (age, income, education, marital status, employment status and ethnicity), and perceived preparedness – for the dependent variable of anticipated information sources for risk communication (radio, television, newspaper/print, neighbours, internet, other).

## Patterns in preparedness

The expected utilization for crisis communication by information for the population sample ($n = 16,811$) is summarized in Table 1 presenting weighted proportions with 95% confidence intervals (CIs) and odds ratios with 95% CI for independent variables in the multinominal regression model. The descriptive analysis revealed that approximately 40% (95% CI = 25.27–27.62) of the population anticipates radio use during an emergency as their primary source of information. Interestingly, 3.9% (95% CI = 3.35–4.39) of those who reported anticipated radio use also reported that they did not have a working radio and batteries at the time of the survey. Despite radio use as the most common expected source of