Hurricane Preparedness among University Residential Housing Assistants and Staff

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ABSTRACT

While much research has been invested in understanding preparedness among emergency managers during natural disasters, substantially less attention has been devoted to evaluating the level of understanding and preparedness among nonemergency management employees who must direct others during natural disasters. Among those second-tier leaders are university residential housing staff, who are responsible for the safety of thousands of youth who may be far from the influence of their family. Using varimax-rotated principal components analysis, an instrument was developed for assessing the knowledge and practices of such residential housing staff at Louisiana State University, Baton Rouge, in the wake of Hurricane Isaac (2012). Relationships were derived between hurricane preparedness and general knowledge of hurricane meteorology, experience with past hurricanes, preparation and threat anxiety, duration of experience of the housing staff and in residing in Baton Rouge, whether the respondent’s primary address is within 120 km of a coast, and gender, ethnicity, and automobile access. Only hurricane knowledge and preparation anxiety were found to influence the preparedness construct significantly. Results suggest that the university may act as a buffer to university resident assistants and residential life professionals and, by extension, to student populations from typical vulnerabilities that the general population experiences in disaster scenarios. This research may have implications in other large organizations in which leaders or decision-makers have great influence on employees or other populations to ensure that the organizational leadership is fully equipped when faced with an oncoming hurricane or other disaster threat.

1. Introduction

Effective leadership in the face of emergency is an important quality. While much research has been invested in understanding and enhancing the decision-making process and preparedness among government-level emergency managers during natural disasters (e.g., Ai et al. 2016), substantially less attention has been devoted to evaluating the level of understanding among emergency management employees who must direct others in their organization during natural disasters. Of particular concern are leaders in large organizations with highly vulnerable populations, such as schools, hospitals, and elder care facilities, in which the level of preparedness is most likely to impact the safety of many others. This research develops and implements an instrument for evaluating the background for hurricane preparedness among one such group—a university’s
undergraduate resident assistants (RAs) and residential life professionals (RLPs). RAs are undergraduate students that are hired by the university to live on campus and serve as liaisons between on-campus student residents and the Department of Residential Life. RLPs are also live-in employees but are part of the professional staff, with administrative, oversight, and community development responsibilities. Each RA oversees approximately 30 students, and each RLP supervises approximately 15 RAs. Training of the two groups for emergencies is done simultaneously over a 2-week period each year in July, with the training led by an assistant director of housing, the supervisor of the RLPs. Thus, the two groups receive similar training shortly before a hurricane emergency could threaten on-campus student residents. The survey was implemented at Louisiana State University (LSU) in Baton Rouge, which has an active emergency operations office on campus, 2.5 months after the experience of Hurricane Isaac (2012). Isaac was only a category 1 storm at landfall near the mouth of the Mississippi, but the track’s proximity to Baton Rouge as Isaac moved up the Mississippi River caused the city to experience gusts up to hurricane strength.

2. Background

a. Hazard experience, knowledge, and preparedness

Hazard management requires mitigation efforts before, during, and after a disaster (Kreps 1995; McEntire 2001). Much hazard management research focuses on mitigating vulnerabilities to the devastating effects of disasters (e.g., McLoughlin 1985; Morrow 1999; McEntire et al. 2002; Pearce 2003; Perry and Lindell 2003; Laska and Morrow 2006). While less research has been devoted to understanding the impact of a priori knowledge and experience on hazard perception, management, and preparedness, some important research along these lines exists.

The association between disaster experience, risk perception, and preparedness is complex (Donahue et al. 2014). One’s risk perception has been generally thought to be influenced by past experience. Several studies have noted this influence to be a positive relationship, such that the more experience one has, the greater one’s level of risk perception (Peacock et al. 2005; Burnside et al. 2007; Zhang et al. 2007; Morss and Hayden 2010; Lazo et al. 2015). However, other studies (Baker 1991; Dow and Cutter 1998; Lindell et al. 2005) found a negative relationship or no relationship at all. One potential reason for these inconsistent results, as Lindell and Perry (2012) noted, is that past hurricane experience is measured in many ways. Sattler et al. (2000) found that experience with Hurricane Hugo (1989) increased preparedness levels for individuals during Hurricane Emily (1993) but had no influence on predicting preparedness levels for individuals during Hurricane Fran (1996). These results suggest that experience is only influential on predicting preparedness if the two events occur closely in time (Sattler et al. 2000). This tendency can be viewed as a memory bias in preparation. Demuth et al. (2016) noted the multifaceted nature of people’s past experiences and that there were enhancing and dampening processes that competed when considering risk perception. Paton (2003) found that public hazard education can lead to decreased perceived risks of disasters and may psychologically disassociate feelings of personal responsibility for preparedness. As implied in previous research synthesized by Miceli et al. (2008), general hurricane knowledge is less important than experience for predicting preparedness because often knowledge is obtained from a second-hand source, and, as a result, any knowledge that is obtained indirectly will not invoke visceral responses to the extent that first-hand experience might. While such a priori knowledge is critical at the state and community leadership level, its importance for nongovernmental organization leaders, such as university staff, can easily be overlooked.

b. Demographics of preparedness

Groups that are particularly susceptible to the deleterious impacts of disasters such as hurricanes include the economically disadvantaged (Laska and Morrow 2006), members of racial and ethnic minorities (Werg et al. 2013), female-headed households (Takasaki 2012), the elderly and those with chronic illness (Icenogle et al. 2013), female-headed households (Takasaki 2012), the disabled (Laska and Morrow 2006), transients (Gin et al. 2016), tourists (Cahyanto et al. 2016), those who do not own a home (Baker 2011), and those lacking social networks (Matyas et al. 2011). University students are of special concern because they often reside in unfamiliar regions and may not have local friends and family with whom to seek refuge (Mulilis et al. 2000; Matyas et al. 2011), especially for disasters that typically occur soon after their arrival on campus, such as hurricanes in North America. University students are also highly vulnerable to psychological pitfalls in risk perception (Simms et al. 2013), including the social amplification of risk that is heightened when risks interact with sociocultural and institutional processes (Cutter et al. 2000). On the other hand, van Willigen et al. (2005) has suggested that students are largely protected from the typical demographic susceptibilities that affect the rest of society. On-campus resident students tend to rely...
heavily on personnel trained at the university, including RAs and RLPs, and the university’s disaster management plan for coping with a hurricane threat (Mulilis et al. 2000; Matyas et al. 2011). Yet, these RAs and RLPs may or may not have experience in dealing with an approaching hurricane.

c. Psychological preparedness

Models have been developed to inform prediction of psychological preparedness for disasters, and this study is framed using such psychological constructs. The “conservation of resources” stress model (Hobfoll 1989) implies that the acquisition of resources by individuals (including physical possessions, social roles, knowledge, talents, or monetary benefits) promotes positive reinforcement, leading to self-confidence and enhanced preparedness; by contrast, any loss, threat of loss, or lack of resource gain after an investment has been made lead to enhanced stressed levels. The implication is that disaster experience may enhance an individual’s preparedness by increasing the resource base, while loss from disaster may reduce psychological preparedness from future events, including hurricane distress and preparedness (Sattler et al. 2002).

The “warning and response” model (Lindell and Perry 1992) improves on the limitations of the conservation of stress model by positing that situational factors (physical cues, social behavior, and risk communication), in addition to the personal and social contextual variables accounted for in the conservation of resources stress model, are important predictors of perceptions of threat and protective actions (Sattler et al. 2000). However, little has been written on the place of university students in the framework of such models. The experiences of university students during Hurricane Katrina in 2005 suggest that many students lack the resources to enhance their preparedness, and therefore reduce their vulnerability, regarding the hurricane hazard (Ladd et al. 2007). This underscores the need for effective leadership regarding preparedness among both the RAs and RLPs. Regardless of the experience, education, demographics, or psychological factors, a limited knowledge base can endanger the safety of the group.

3. Problem statement

While Simms et al. (2013) correctly noted that the hurricane vulnerability of university students has received too little scholarly attention, the preparedness of university personnel that direct these students has received even less attention. Based on the most recent literature, it is likely that university RAs and RLPs experience vulnerabilities in disaster situations: many are minorities, women, have limited financial resources, lack nearby family networks, and/or do not own a home. In addition, such staff members are susceptible to typical psychological pitfalls in risk perception if they are not adequately equipped to deal with an impending threat. It is important that RAs and RLPs have adequate knowledge about hurricane preparedness to direct on-campus residents in an emergency. Although university residential life departments in hurricane-prone areas generally have procedure manuals that document the roles of specific personnel during a hurricane, preparedness can only be achieved through capability maintenance. RAs and RLPs must have their roles specifically communicated to them and periodic drills must take place to remind the housing staff of their role during a hurricane.

Hurricane Isaac’s (2012) track toward the Louisiana coast provided an opportunity to gauge the LSU housing staff’s level of knowledge regarding hurricane preparedness. Although this area of Louisiana has a long history of societal impacts from tropical cyclones, most recently with notable storms in 1992 (Andrew), 1998 (Georges), 2001 (Tropical Storm Allison), 2005 (Katrina and Rita), and 2008 (Gustav), the age of the respondents and mobility of the population raises questions about how much background knowledge and experience would limit anxiety even in this environment. Putting their capability maintenance to practical use, RAs were informed of their roles and duties when preparing for the hurricane through the university emergency management and response procedures manual, which had been most recently revised in 2010. Because conducting a study on the hurricane preparedness soon after Isaac can present challenges such as differentiating pre- and post–Hurricane Isaac preparedness levels, this study aims to understand the variables that influence hurricane preparedness of RAs and RLPs. Once these variables are identified, universities can use this knowledge to tailor their capability maintenance plans to reduce vulnerabilities to the hurricane hazard through their housing staff.

4. Data and methods

An instrument for assessing the construct of reactions (i.e., responses indicating the different behaviors people exhibit when they feel threatened by the presence of hurricanes) to overall hurricane influences was developed in accordance with recommendations from Fink (2003). The measurement of hurricane influences involved obtaining scores that reflect the magnitude of influence of the presence of a hurricane on the behaviors (i.e., preparedness) being measured. Five of the seven
sections in the instrument were designed to measure and model specific variables hypothesized to be related to hurricane preparedness. These variables were general hurricane knowledge, experience with hurricanes, preparedness as a housing staff member, anxiety regarding hurricane preparedness, and anxiety regarding the threat of hurricanes. The remaining two sections were included for descriptive statistical analysis. The demographic variables hypothesized to have a relationship with hurricane preparedness include age, gender, ethnicity, location of primary address, possession of a vehicle, length of time as a housing staff employee, and length of time living in the area. The complete survey, invitation/information letter, and revised institutional research board approval to conduct the survey are available in the appendix [reprinted from Weatherall (2013)].

The following discussion lists the theoretical hierarchy of how variables were added to the linear regression model from most important to least important. The first tier of variables relates to the mental state of the respondent (i.e., what the person says they are thinking or feeling while under the influence of an impending hurricane). Theoretically, psychological qualities for preparedness would be more important than superficial characteristics and demographics in determining whether a person will prepare or not prepare (Mishra and Sanjoy 2015). “Experience with hurricanes” ($x_1$) is the first independent variable because it is typically a reliable predictor of risk perception and may lead to greater precautionary behavior (Howe 2011). Based on this literature, experience is considered to be the most important variable in predicting preparedness because an individual has acquired knowledge about hurricanes through a first-hand account. Personal experience is supported through a psychosocial approach to understanding capacity building and its role in promoting individual resilience (Miller 2012). Psychosocial capacity building encompasses self-efficacy, which is thought to influence individual behavior (i.e., preparedness), particularly within a stress-producing context (Höfler 2014). “General knowledge of hurricanes” ($x_2$) is an important predictor because an individual must be aware of a disaster in order to prepare for it. Knowledge is considered here to be less important than experience for predicting preparedness because often knowledge is obtained from a second-hand account and as a result any knowledge that is obtained indirectly will not invoke visceral responses to the extent of first-hand experience. “Threat anxiety” ($x_3$) and “preparation anxiety” ($x_4$) are assumed here to be of equal importance in predicting preparedness. Both refer to a mental state that will encourage or discourage taking action for preparation. Background variables that depict demographic and personal characteristics of the respondent are also included, though they are assumed to be less likely to influence preparedness levels, especially in impacting vulnerability in student populations (van Willigen et al. 2005). “Years as a housing employee” ($x_5$) is ranked before other demographic variables because the probability of exposure to disaster training and preparedness meetings increases for longer-tenured RAs and RLPs, regardless of demographic factors. “Years in Baton Rouge” ($x_6$) is important in predicting preparedness because longer-tenured residents will have had more opportunities for experience with hurricanes; nevertheless, this variable is ranked below $x_5$ because someone who has lived in the same city for many years will not necessarily know more about university-specific preparedness measures than an individual who is an RA or RLP. “Coastal primary address” ($x_7$) is included because an individual whose primary address is located near a hurricane-impacted coast has likely acquired preparedness knowledge through experience with hurricanes. “Gender” ($x_8$) is included because women are more likely to engage in cautious behavior than men (Morrow 1999; Laska and Morrow 2006). Although there has been extensive literature that shows that gender leads to variations in preparedness levels, gender is ranked as a less important variable because this study is conducted within a university. Past research shows that universities can act as a buffer from demographic disaster vulnerabilities that exist in the outside world (van Willigen et al. 2005). “Ethnicity” ($x_9$) could influence preparedness levels caused by cultural barriers, with international and nonwhite populations tending to exhibit more anxiety and more vulnerability during disasters (Morrow 1999; Laska and Morrow 2006; Olofsson 2007). Although it may seem intuitive that ethnicity may play a lesser role in predicting disaster preparedness in a university setting, ethnic and cross-cultural factors have been attributed to differences in risk perception, including optimistic bias wherein individuals believe they are less likely to be negatively impacted by a disaster, even among first responders and health providers (Gierlach et al. 2010). “Access to a personal vehicle” ($x_{10}$) is included because according to the psychological models discussed previously, individuals with perceived access to resources are more likely to participate in preparedness measures, including evacuation. However, evacuation is not common in Baton Rouge because “shelter in place” is a common recommendation; as a result, this variable was viewed as least important for predicting preparedness scores.

The sample consists of 107 (i.e., the legible responses received) of the approximately 190 RAs and RLPs at
LSU in August 2012. The two groups are considered together because the RLP is an entry-level position and both groups are trained regarding hurricane preparedness simultaneously, leaving the sample relatively homogeneous. The purposive sampling design was selected because a specific group (i.e., RAs and RLPs at LSU, a large, diverse university with a known vulnerability to the hurricane hazard) was preselected to use as a subset of the population of RAs and RLPs who are subjected to an impending hurricane threat. In an analysis of survey strategies in post–Hurricane Katrina research, Henderson et al. (2009) concluded that no sampling strategy has an unparalleled advantage over the others but that purposive sampling is most effective for obtaining information from a target population, especially when sample representativeness may not be the primary concern.

Baton Rouge is most susceptible in hurricane scenarios to wind damage and power outages caused by the high density of trees. Designated hurricane shelters are not commonly used by locals. The city becomes an important epicenter during emergency hurricane situations because it is the seat of state government, and because of abundant hotel rooms and centralized location it is usually the base for emergency responders, insurance adjusters, and power company workers. These features suggest that residents should have knowledge regarding hurricane preparation and safety.

Paper copies of the surveys were printed and distributed to RLPs on 15 November 2012. The surveys were completed at different times and locations because each group of RAs met at separate times and locations with their designated RLP at their monthly meeting. Respondents placed their completed, anonymous surveys into an envelope, and each RLP returned them to the researchers.

Unrotated principal components analysis (PCA) was implemented to identify the factors that explain the most variance in hurricane preparedness, with scree plots of eigenvalues used to select the optimal number of components for retention prior to varimax-rotated PCA. The purpose was to determine the extent to which the individual survey questions within each hurricane influence construct were coherently and properly grouped by the survey (Litwin 2003). Cronbach’s alpha test was used to measure the internal consistency and reliability of each construct. Constructs that have a Cronbach’s alpha exceeding 0.70 are considered as acceptable to be used as a scale (Litwin 2003).

A final scorecard for each section was developed based on the results from the PCA and Cronbach’s alpha tests. In section A of the survey (general hurricane knowledge), respondents received a point for each question answered correctly (0–7 points possible, among the retained questions). Section B (personal experience with hurricanes before Isaac) was scored on a scale from 0 to 3 among retained questions, with higher scores indicating greater experience. Section C (your hurricane preparedness as a resident assistant or residence life coordinator) was scored from 0 to 11 among retained questions, with higher scores reflecting greater preparedness. Sections D (your anxiety regarding hurricane preparedness) and E (your anxiety regarding the threat of hurricanes) included self-assessments using a Likert scale and were scored from 1 to 5 on each question, with higher scores indicating higher levels of anxiety. The sum of the questions’ point values in each of the four hurricane influence constructs was used as the values for the correlations.

When the four retained components of hurricane influences were differentiated, univariate correlations and the Student’s t tests were used to measure the extent to which the variables are related to each other. For example, simple bivariate correlations were conducted to identify any relationships between the hurricane influences, years as an RA or RLP ($x_3$), and years living in Baton Rouge ($x_4$). An analysis of variance (ANOVA) test was used to gauge whether anxiety level differed by ethnicity ($x_5$). Finally, multiple linear regression was used to evaluate the extent to which hurricane experience ($x_1$), general knowledge of hurricanes ($x_2$), hurricane threat anxiety ($x_3$), preparedness anxiety ($x_4$), whether the primary address is near the coast ($x_5$), gender ($x_8$), ethnicity ($x_9$), and vehicle ownership ($x_{10}$) contributed to the prediction of preparedness.

5. Results

a. Scale development

A total of 107 of the 150 surveys were deemed usable, with complete and legible answers; the “permanent residence” of the respondents is mapped in Fig. 1. When all 52 scored questions were selected for an unrotated PCA, the scree plot showed little explained variance after the fourth principal component (PC). This result corresponds with the four theoretical hurricane influences that were developed. The first four PCs explained approximately 28% of the total variance of the scores. Then, a varimax-rotated PCA was conducted on the four retained PCs, and questions that had loading scores exceeding 0.30 were retained for further consideration. Items that had loadings on multiple PCs were eliminated because they would not be useful for interpretation (Tabachnick and Fidell 2007). When a final varimax-rotated PCA on four retained components was
conducted on the remaining 25 survey questions, each survey question coherently loaded with its respective PC (Table 1). More specifically, only “hurricane knowledge” questions (A-labeled questions in the appendix; Weatherall 2013) aligned coherently with the construct of PC2, only “hurricane experience” questions (B-labeled questions) coherently aligned with the construct of PC4, mostly “preparedness anxiety” questions (D-labeled questions) coherently aligned with the construct of PC1, and only “threat anxiety” questions (E-labeled questions) aligned with the construct of PC3. Sections A, B, D, and E were composed of seven, five, seven, and six items, respectively. Table 1 summarizes the results of this varimax-rotated PCA.

Two of the threat anxiety questions (E7 and E8) aligned with PC1 (preparedness anxiety) rather than PC3 (threat anxiety). When the questions were reevaluated, item E7, “I feel LSU has assured me of my safety during a hurricane,” was considered to be a better fit with the preparedness anxiety construct. Likewise, question E8, “I feel reassured that LSU will help with any reconstruction/restoration after a hurricane” was considered to measure the construct of preparedness anxiety rather than threat anxiety because it asked about the extent to which the respondent felt that the university would help with dealing with storm repercussions.

For each of the four constructs that measure hurricane influences, Cronbach’s alpha was calculated to determine whether each of the survey items within each construct were suitable to be combined into a survey scale. Cronbach’s alpha revealed that the internal consistency of PC2 (the scale of hurricane knowledge), PC1 (the scale of preparation anxiety), and PC3 (the scale of threat anxiety) were acceptable (a = 0.715, 0.806, and 0.716). PC4 (the scale of previous experience) was unacceptable (a = 0.504) and did not have internal reliability; eliminating B2 and B9 from the construct of hurricane experience in order to improve the Cronbach’s alpha resulted in a marginally acceptable a = 0.689. The 23 remaining questions were used for the remainder of the analysis.

### b. Demographic hurricane influences

The sample represented the demographics of LSU’s RA population and student population as a whole. Of the 107 participants (55% female, 45% male), 65% were White, 15% were Black, 11% Hispanic, and 9% were of other ethnicities. Also, 75% had a car with them in the city. Nearly all of the respondents (97%) were RAs, while the remaining 3% were RLPs. Of the respondents, 69% had a primary address that was located within 120 km of a hurricane-impacted coast; this critical distance was chosen because it ensures that the primary address is within a zone susceptible to hurricane-force winds. The 107 respondents lived in Baton Rouge (within 120 km of an impacted coast) for an average of
approximately 5 years. The time that the participants had been housing staff employees at LSU ranged from 3 months to over 8 years.

c. Preparedness and constructs that measure hurricane influences

Table 2 summarizes the scores by measure. For the preparedness variable measure, the mean score was 6.96 of a possible 11, or 63%, with a standard deviation of 1.65. This value was encouraging regarding the effectiveness of weather and climate communication to the public, but none of the participants answered all of the preparedness questions perfectly. Scores on the knowledge measure were as low as 0, reflecting no knowledge on the scale, and as high as 7, reflecting perfect knowledge on the scale, with the average knowledge score of 4.57, or 64%, with a standard deviation of 1.90. Scores on the hurricane experience measure ranged from 0.25 to 3, with the average of 1.67 and a standard deviation of 0.88. On the anxiety about hurricane preparations measure, the average score was 16.20 with a standard deviation of 4.81. Thus, the average preparation anxiety score was 2.31 for the seven questions, each on a 1–5 Likert scale. On the threat anxiety scale (6–30 points possible), the average score was 14.09, with a standard deviation of 4.52, and an average threat anxiety score of 2.35 on a 1–5 scale for the six questions.

d. Relationships among the independent variables

Pearson’s bivariate correlations revealed that four pairs of variables representing the constructs that measure hurricane influences were significantly correlated

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**Table 1. Results of PCA with varimax rotation. Note that loadings lower than 0.30 are not shown.**

<table>
<thead>
<tr>
<th>Question</th>
<th>Component/scale</th>
<th>1 (preparation anxiety)</th>
<th>2 (hurricane knowledge)</th>
<th>3 (threat anxiety)</th>
<th>4 (hurricane experience)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hurricane knowledge</td>
<td>A1</td>
<td>0.366</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A2</td>
<td>0.344</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A3A</td>
<td>0.681</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A3B</td>
<td>0.814</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A4</td>
<td>0.817</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A5</td>
<td>0.724</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A6</td>
<td>0.455</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hurricane experience</td>
<td>B2</td>
<td></td>
<td></td>
<td>0.638</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B3</td>
<td></td>
<td></td>
<td>0.853</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B4</td>
<td></td>
<td></td>
<td>0.852</td>
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<tr>
<td></td>
<td>B6</td>
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<td></td>
<td>0.422</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B9</td>
<td></td>
<td></td>
<td>0.477</td>
<td></td>
</tr>
<tr>
<td>Preparation anxiety</td>
<td>D1</td>
<td>0.780</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D2</td>
<td>0.767</td>
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<tr>
<td></td>
<td>D3</td>
<td>0.751</td>
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<td></td>
<td>D4</td>
<td>0.721</td>
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</tr>
<tr>
<td></td>
<td>D6</td>
<td>0.667</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(reclassified to D)</td>
<td>E7</td>
<td>0.612</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(reclassified to D)</td>
<td>E8</td>
<td>0.445</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threat anxiety</td>
<td>E1</td>
<td></td>
<td></td>
<td>0.330</td>
<td></td>
</tr>
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<td></td>
<td>E2</td>
<td></td>
<td></td>
<td>0.755</td>
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<td>E3</td>
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<td>0.707</td>
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<td>E4</td>
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<td>0.705</td>
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<td>E5</td>
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<td>0.580</td>
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<td>E6</td>
<td></td>
<td></td>
<td>0.707</td>
<td></td>
</tr>
</tbody>
</table>

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**Table 2. Descriptive statistics for survey-based self-assessment scores on preparedness and constructs that measure hurricane influence.**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Survey section</th>
<th>Points possible</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparedness (y)</td>
<td>C</td>
<td>0–11</td>
<td>0.33</td>
<td>9.92</td>
<td>6.96</td>
<td>1.65</td>
</tr>
<tr>
<td>Hurricane knowledge (x2)</td>
<td>A</td>
<td>0–7</td>
<td>0</td>
<td>7</td>
<td>4.57</td>
<td>1.90</td>
</tr>
<tr>
<td>Hurricane experience (x1)</td>
<td>B</td>
<td>0–3</td>
<td>0.25</td>
<td>3</td>
<td>1.67</td>
<td>0.88</td>
</tr>
<tr>
<td>Threat anxiety (x3)</td>
<td>E</td>
<td>6–30</td>
<td>6</td>
<td>30</td>
<td>14.09</td>
<td>4.52</td>
</tr>
<tr>
<td>Preparation anxiety (x4)</td>
<td>D</td>
<td>7–35</td>
<td>7</td>
<td>32</td>
<td>16.20</td>
<td>4.81</td>
</tr>
<tr>
<td>Years as a residential staff employee (x5)</td>
<td>—</td>
<td>—</td>
<td>0.25</td>
<td>8.42</td>
<td>1.06</td>
<td>1.03</td>
</tr>
<tr>
<td>Years in Baton Rouge (x6)</td>
<td>—</td>
<td>—</td>
<td>1.00</td>
<td>21.50</td>
<td>4.90</td>
<td>6.13</td>
</tr>
</tbody>
</table>
Not surprisingly, hurricane experience was significantly positively correlated with hurricane knowledge \((r = 0.271, p = 0.005)\). Also not surprisingly, preparation anxiety was significantly negatively associated with hurricane knowledge and hurricane experience and significantly positively linked to threat anxiety \((p = 0.019; \text{Table } 4)\). The lack of significant correlations involving the length of time as a housing employee and as a resident of Baton Rouge \((\text{Table } 3)\) suggests that these dependent variables are orthogonal, reducing the concern regarding multicollinearity in the development of a linear regression equation.

Notably, the association between threat anxiety and preparation anxiety identifies some overlap in the constructs that these two independent variables are measuring. This suggests that the scores from an individual who worries that a hurricane will pose a great threat may be related to scores about the individual’s self-confidence regarding preparedness for her/his housing staff responsibilities during a hurricane.

The location of the respondent’s permanent residence was also related to hurricane knowledge, experience, and anxiety. Specifically, \text{Table } 4\ reveals that respondents whose primary address was located within 120 km of the Gulf of Mexico had significantly higher mean hurricane knowledge \((t_{(105)} = -2.694, p = 0.008)\) and hurricane experience \((t_{(105)} = 2.38; p < 0.001)\) scores than those who had a primary address located farther inland. The coastal zone dwellers also exhibited significantly lower mean preparation anxiety scores than participants whose primary address was not located in this coastal zone \((t_{(105)} = 2.38; p = 0.019; \text{Table } 4)\).

Demographic variables were also found to be related to hurricane anxiety. Specifically, ANOVA results revealed that both anxiety scales are affected by ethnicity, with a significant difference in the mean anxiety scores for preparation anxiety \((p = 0.035, F = 2.109, N = 107)\) and threat anxiety \((p = 0.040, F = 2.035, N = 107)\). Although specific directional relationships among the different ethnicities cannot be identified using ANOVA because of the small numbers of observations, the test suggests that a difference exists among two or more of the ethnic groups for mean preparation anxiety and mean threat anxiety.

\textit{e. Prediction of preparedness}

Of the 10 independent variables, only hurricane knowledge \(x_2\) and preparation anxiety \(x_4\) were found to contribute significantly to the prediction of hurricane preparedness \(y\). The overall model was found to be significant \([p < 0.001; F\text{ value (104 df)} = 9.301; \text{Table } 5]\), with the variables explaining 15% of the variation in preparedness. The relatively low Cronbach's alpha value \((\alpha = 0.605)\) for the dependent variable may have contributed to the low \(r^2\) value. The following equation describes the extent to which knowledge and preparation anxiety predict preparedness scores:

\[\hat{y} = 6.721 + 0.276x_2 - 0.063x_4.\]

\text{Table } 4\ reveals that respondents whose primary address was located within 120 km of the Gulf of Mexico had significantly higher mean hurricane knowledge \((t_{(105)} = -2.694, p = 0.008)\) and hurricane experience \((t_{(105)} = 2.38; p < 0.001)\) scores than those who had a primary address located farther inland. The coastal zone dwellers also exhibited significantly lower mean preparation anxiety scores than participants whose primary address was not located in this coastal zone \((t_{(105)} = 2.38; p = 0.019; \text{Table } 4)\).
Not surprisingly, a strongly and significantly positive relationship between knowledge scores and preparedness (standardized $\beta = 0.317$, $p < 0.001$) was identified. Also, a strongly negative relationship between preparedness anxiety and preparedness was supported (standardized $\beta = -0.184$, $p = 0.047$). Neither gender ($r = -0.104$, $p = 0.287$) nor possession of a vehicle in Baton Rouge ($r = -0.30$, $p = 0.756$) was found to be linked to preparation anxiety levels. Likewise, neither variable was linked to threat anxiety levels ($r = 0.062$, $p = 0.528$, and $r = -0.139$, $p = 0.152$, respectively).

### 6. Discussion

The positive association between hurricane knowledge and experience suggests that the two constructs for these unique measures may overlap or that at least some of the hurricane knowledge questions reflect information that may be best gained from experience. The negative correlation of both knowledge and experience to preparation anxiety follows that which would be predicted by the conservation of resources stress model, so long as the respondents did not experience personal loss from previous hurricanes. The awareness/anxiety link regarding threats has long been recognized to be complex (Caplin and Leahy 2001). Our finding of a negative relationship between hurricane knowledge and preparation anxiety but no relationship between knowledge and threat anxiety warrants further research. The fact that demographics played a relatively minor role in affecting vulnerabilities reinforces previous occurrence of Isaac, they would not be knowledgeable about their duties as a housing staff employee during a hurricane situation (F-3). There was not an overwhelming majority who agreed or disagreed with statement F-4, “I had a strong knowledge base about hurricane preparedness before Hurricane Isaac formed.”

Item F-9 (following Isaac, my anxiety about the physical danger of hurricanes has greatly/slightly increased, stayed the same, or slightly/greatly decreased) was used to determine the degree that Hurricane Isaac may have impacted threat anxiety construct scores. An overwhelming majority of respondents reported that their anxiety levels stayed the same (81%) following their experience with Isaac. A small proportion reported experiencing an increase in anxiety levels (11%), and an even smaller percentage of individuals reported experiencing a decrease in anxiety levels (8%).

### Table 5. Results of multiple linear regression model.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>$p$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>0.276</td>
<td>0.001</td>
</tr>
<tr>
<td>Preparation anxiety</td>
<td>-0.063</td>
<td>0.047</td>
</tr>
<tr>
<td>N</td>
<td>107</td>
<td></td>
</tr>
<tr>
<td>$r^2$</td>
<td>0.152</td>
<td></td>
</tr>
<tr>
<td>Standard error of the estimate</td>
<td>1.537</td>
<td></td>
</tr>
<tr>
<td>Sig ($p$ value)</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>$F$</td>
<td>9.301</td>
<td></td>
</tr>
</tbody>
</table>

*t*-values: $3.477 - 2.013.

### Table 6. Responses to questions about Hurricane Isaac’s influence by percentage (StA = strongly agree, SwA = somewhat agree, N = neither, SwD = somewhat disagree, StD = strongly disagree, TA = total agree, TD = total disagree, and Avg = average). RLC indicates residence life coordinator, a title specific to LSU.

<table>
<thead>
<tr>
<th>Item</th>
<th>StA (1)</th>
<th>SwA (2)</th>
<th>N (3)</th>
<th>SwD (4)</th>
<th>StD (5)</th>
<th>TA (1 + 2)</th>
<th>TD (4 + 5)</th>
<th>Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>“My training as an RA for Hurricane Isaac increased my level of preparedness for this hurricane season and future hurricane seasons.” (F-2)</td>
<td>25.2</td>
<td>44.9</td>
<td>17.8</td>
<td>8.4</td>
<td>3.7</td>
<td>70.1</td>
<td>12.1</td>
<td>2.21</td>
</tr>
<tr>
<td>“If it were not for Hurricane Isaac, I would not be knowledgeable about my duties as an RA or RLC during a hurricane.” (F-3)</td>
<td>29.0</td>
<td>36.4</td>
<td>16.8</td>
<td>13.1</td>
<td>4.7</td>
<td>65.4</td>
<td>17.8</td>
<td>2.28</td>
</tr>
<tr>
<td>“I had a strong knowledge base about hurricane preparedness as an RA before Hurricane Isaac formed.” (F-4)</td>
<td>17.8</td>
<td>21.5</td>
<td>25.2</td>
<td>19.6</td>
<td>15.9</td>
<td>39.3</td>
<td>35.5</td>
<td>2.94</td>
</tr>
</tbody>
</table>
research (van Willigen et al. 2005), which suggests that a buffer exists for university populations during the recovery phase of disasters. It is surprising that gender showed no link to anxiety levels because women have been shown to have higher hazard risk perceptions, at least involving drought (Raphael et al. 2009), but most of the research that discusses the vulnerabilities of women in disasters highlights cases of women who are the household’s single provider.

The finding of a strongly positive relationship between knowledge scores and preparedness aligns with the conservation of resources stress model; an individual is more likely to take preparedness precautions if she/he has personal characteristic resources (such as knowledge) to aid in the preparedness process. The fact that length of tenure in the present job is a poor predictor of hurricane preparedness is somewhat surprising. The finding that experience with hurricanes before Isaac did not seem to influence hurricane preparedness scores may be explained in three ways: 1) the low number of questions that composed the construct of experience (i.e., three), 2) the marginally acceptable internal reliability of the questions ($\alpha = 0.689$), and 3) the influence of Isaac could have rendered the construct of experience obsolete for predicting preparedness, especially since a strong majority of respondents agreed that their training as a housing staff employee increased their level of preparedness for the hurricane season. To further clarify this point, after Isaac individuals had the opportunity during this study to score higher on the preparedness construct because they had just been debriefed on their duties as Isaac approached.

Interestingly and encouragingly, several factors that contributed to predicting hurricane preparedness are personal traits that are largely controllable by most individuals. For example, knowledge about hurricanes can be enhanced through research and investigation. Also, preparation anxiety reflects the individual’s confidence about the level of preparedness. An individual can take action to mitigate their preparedness anxieties through personal study and capability maintenance. Several factors that are not within the control of the individual, such as demographics, hurricane experience, location of primary address, years as a housing staff employee, years living in Baton Rouge, and having a vehicle, were not found to influence preparedness. Nevertheless, threat anxiety cannot be mitigated because the physical threat that hurricanes can cause is outside of the respondent’s control.

Measuring the effect of Hurricane Isaac using the results was problematic. The survey was administered more than 2 months after Isaac had passed, and it may have been difficult for respondents to remember specifically how Isaac impacted their preparedness and to differentiate their feelings before and after Isaac. Additional insights regarding the context, residential housing arrangements within the residence halls, training, staffing, student body, or any other important details that bear on the understanding, responsibilities, and work environment of the RAs may have also shed additional light on their responses. The features of Isaac itself are likely to have contributed to the results; for example, a stronger or faster-moving storm may have increased preparation anxiety, while a slower track might have enhanced preparedness scores. The study represents a first attempt to understand behavior in the face of a hurricane emergency among young adults who have supervisory responsibilities in the hope of stimulating future analysis and discussion of similar samples.

7. Summary/conclusions

Even though previous research has suggested that the university is an important buffer for student populations during disasters, little research has examined the influences of preparedness on students, and no research has investigated the influences of preparedness on housing staff employees. Yet disaster preparedness of housing staff employees is imperative to ensure the safety of on-campus residents.

An acceptable measure was developed in this study for preparedness, with “acceptable” being defined as measures that, when examined by experts in this field, obtained content validity and, when used, returned Cronbach’s alpha coefficients at levels accepted in the social sciences as reflecting internal consistency. Likewise, acceptable measures were created for the independent variables of hurricane knowledge, hurricane experience, threat anxiety, and preparedness anxiety. To determine which dependent variables influence the construct of preparedness, the developed independent measures were input into a model along with gender, ethnicity, length of service as a housing employee, duration of habitation in Baton Rouge, whether the primary address was near a coast, and whether the respondent had a vehicle on campus.

Results revealed that only hurricane knowledge and preparation anxiety impacted preparedness scores. A direct relationship was found between hurricane knowledge and preparedness ($b = 0.276$, standardized $\beta = 0.317$, and $p = 0.001$), and preparation anxiety was significantly and inversely related to preparedness ($b = -0.063$, standardized $\beta = -0.184$, and $p = 0.047$). The absence of other significant correlations implies that demographic factors that typically influence the general population’s vulnerability to disasters do not impact this.
group of housing staff employees significantly. However, the results do not allow for distinguishing whether the buffer from demographic susceptibilities exists because of the influence of the housing employment or is due to the influence of the university.

This research could be replicated for similar groups of housing employees at other hurricane-vulnerable universities. While previous research found that universities provide a buffer in the recovery phase, this study extends that buffer to apply to preparation vulnerabilities as well. Previous findings that disaster experience influences preparedness were not applicable in this study likely because the housing staff is regularly debriefed on their duties, and, in this sample, housing staff had recently acquired experience with Hurricane Isaac.

Future work could compare the differences in preparedness predictors when a hurricane has recently occurred versus when a hurricane has not happened in the recent past. It would also be useful to conduct more comparative studies among different universities that have a geophysical risk for being hit by hurricanes to determine whether the results of this study are generalizable in similar study areas. Finally, hurricane preparedness among personnel in other human service industries could be analyzed comparatively.

Acknowledgments. The authors warmly appreciate the assistance of Amy Polen, Noel C. Rehm, and Michelle Saunders with data processing and Fig. 1, and the cooperation of the LSU Department of Residential Life for their assistance in distributing surveys and allowing time for the survey to be administered.

APPENDIX

Assessing Hurricane Preparedness among Resident Staff at Louisiana State University: A Case Study on Hurricane Isaac Fall 2012

This brief survey is being conducted as part of a research project to determine the level of awareness of residence hall leaders with regard to hurricane preparedness. As your answers will remain anonymous, please do not research answers—this is not a test. If you do not know answers, please select the “don’t know” option rather than guessing. You will not be held accountable for any right or wrong answers.

This survey will include some questions about your experiences, perceptions, and plans regarding this year’s hurricane season. It should take only about 10 min of your time. Your answers will only be used for statistical purposes.

If you have any questions or would like more information, please contact Ashley Weatherall (aweatherall@mail.usf.edu) or Dr. Jennifer Collins, at the University of South Florida (813-974-4242). See letter of information about the project.

Qualification: Select one of the following (Table A1).

If neither, stop here. If a Resident Assistant or Residence Life Coordinator proceed to A-1.

A. GENERAL HURRICANE KNOWLEDGE

These first few questions are about your knowledge about hurricanes.

A-1. What month does hurricane season officially begin? ______________

A-2. What month does hurricane season officially end? ______________

A-3. The Saffir–Simpson scale is used to measure and categorize hurricane intensity.

a. What is the lowest number on the scale? __________

b. What is the highest number on the scale? __________

A-4. Which of the following is correct about the Saffir–Simpson scale? Select one (Table A2).

A-5. The Saffir–Simpson scale measures that feature of a hurricane? Select one (Table A3).

A-6. Which side of the hurricane is considered to be more dangerous? Select one (Table A4).

Consider Fig. A1. Figure A1 shows the cone of uncertainty. The cone of uncertainty forecasts the possible track of a hurricane.

A-7. Which of the following answers describes areas where the center of the hurricane is likely to make landfall? Select one (Table A5).

A-8. How often do storms stay within the cone of uncertainty? Select one (Table A6).

Consider Fig. A2. Figure A2 is the tropical storm wind speed probability map. Areas that are highlighted in the map have a chance of experiencing winds 39 mph or greater. The white dot represents the eye of the hurricane.

A-9. According to Fig. A2, which location(s) should prepare for tropical storm winds? Select ALL that apply (Table A7).

A-10. What form of money is the best to have before a storm makes landfall? Select one (Table A8).

TABLE A1. Qualification question in survey.

| I am a Resident Assistant (RA) |
| I am a Residence Life Coordinator (RLC) |
| Neither |

Low numbers represent stronger hurricanes
High numbers represent stronger hurricanes
Do not know
If no, go to B-3.

B-2. What damage have you received from the past hurricane(s)? Select ALL that apply (Table A10).

B-3. Have you ever had to evacuate due to a hurricane?

Yes
No

If no, go to B-5

B-4. How long ago was your most recent evacuation? Select one (Table A11).

B-5. Have you (or your guardians) ever opened your home to someone evacuating from a hurricane?

Yes
No

B-6. Before Isaac, how long has it been since you have last tuned in to media coverage on a hurricane? Select one (Table A12).

B-7. Have you ever taken hurricane training courses, seminars, or hazard preparedness classes?

Yes
No

If no, go to B-9


- Potential rainfall
- Wind speed
- Potential storm surge
- Sea surface temperatures
- Do not know

Table A4. Survey question A-6: Which side of the hurricane is considered to be more dangerous? Select one.

- Left (west)
- Right (east)
- Do not know

A-11. Where are winds the highest in the structure of a hurricane? Select one (Table A9).

B. PERSONAL EXPERIENCE WITH HURRICANES BEFORE ISAAC

All of the following questions are asking about your experiences with other hurricanes BEFORE Hurricane Isaac in August 2012

B-1. Before Isaac, has a hurricane ever stricken an area in which you lived (while you were a resident there)?

Yes
No

FIG. A1. Graphic to accompany survey question A-7: “Consider Fig. A1. Which of the following answers describes areas where the center of the hurricane is likely to make landfall? Select one.”
Table A5. Survey question A-7: Which of the following answers describes areas where the center of the hurricane is likely to make landfall? Select one.

- Triangle C only
- Any area between triangle B and triangle D
- Any area between triangle A and triangle E
- Other (explain)
- Do not know

Table A6. Survey question A-8: How often do storms stay within the cone of uncertainty? Select one.

- 30%–40% of the time
- 60%–70% of the time
- 90%–100% of the time
- Do not know

B-8. If yes, how many were taken before the formation of Hurricane Isaac? ________________

B-9. Have you ever traveled to an area that was stricken by a hurricane to help with the relief? (Paid jobs or volunteer work)

Yes
No

B-10. Have you, a relative, or close friend that suffered property or bodily injury from a hurricane?

Yes
No

B-11. If yes, explain.

C. YOUR HURRICANE PREPAREDNESS AS A RESIDENT ASSISTANT OR RESIDENCE LIFE COORDINATOR

C-1. How many residents are you responsible for? ________________

C-2. Have you signed up for the e!txt emergency text messaging system available through your MyLSU Account?

Yes
No

C-3. Are you aware of specific hurricane emergency plans for your residence hall?

Yes
No

C-4. When are you held responsible for your building in a hurricane emergency situation? Select ALL that apply (Table A13).

C-5. How is your leave as an RA (or RLC) affected when a hurricane is projected to impact LSU? Select ONE (Table A14).

C-6. Where will the master roster be maintained that lists the names of individuals seeking shelter in LSU’s residential facilities?

C-7. What can be generally expected regarding wind speed and evacuation at LSU in respect to hurricanes (Table A15)?

C-8. Communication of current storm information and hurricane procedures will be distributed in what manner? Select ALL that apply (Table A16).

FIG. A2. Graphic to accompany survey question A-9: “According to Fig. A2, which location(s) should prepare for tropical storm winds? Select ALL that apply.”
**TABLE A7. Survey question A-9:** According to Fig. A2, Which location(s) should prepare for tropical storm winds? Select all that apply.

- Areas that intersect layer A
- Areas that intersect layer B
- Areas that intersect layer C
- Areas that intersect layer D
- Areas that intersect layer E
- Areas that intersect layer F
- Areas that intersect layer G

**TABLE A8. Survey question A-10:** What form of money is the best to have before a storm makes landfall? Select one.

- Cash
- Credit card
- Debit card
- Checks

**TABLE A9. Survey question A-11:** Where are winds the highest in the structure of a hurricane? Select one.

- Inside the eye
- In the eyewall
- In the outer rainbands

**TABLE A10. Survey question B-2:** What damage have you received from the past hurricane(s)? Select all that apply.

- None
- Roof
- Windows
- Flooding
- Fallen trees
- Car damage
- Other (explain)

**TABLE A11. Survey question B-4:** How long ago was your most recent evacuation? Select one.

- >1 year ago
- 1–3 years ago
- 3–10 years ago
- >10 years ago

**TABLE A12. Survey question B-6:** Before Isaac, how long has it been since you have last tuned-in to media coverage on a hurricane? Select one.

- 0–1 year ago
- 1–3 years ago
- 3–10 years ago
- >10 years ago

**TABLE A13. Survey question C-4:** When are you held responsible for your building in a hurricane emergency situation? Select ALL that apply.

- Before the hurricane hits
- During the hurricane
- After the hurricane hits
- Never
- Do not know

**TABLE A14. Survey question C-5:** How is your leave as an RA (or RLC) affected when a hurricane is projected to impact LSU? Select ONE.

- Scheduled leave can be taken
- New leave requests will not be accepted
- All leave is canceled
- Leave is not affected
- Do not know

**TABLE A15. Survey question C-7:** What can be generally expected regarding wind speed and evacuation at LSU in respect to hurricanes?

- Moderate winds, few evacuate
- Moderate winds, many evacuate
- Highest winds, few evacuate
- Highest winds, many evacuate
- Do not know

**TABLE A16. Survey question C-8:** Communication of current storm information and hurricane procedures will be distributed in what manner? Select ALL that apply.

- Electronically
- Verbally
- Hard copy
- None of the above
- Do not know

**TABLE A17. Survey question C-9:** When management declares high wind conditions, where should residents be relocated? Select ALL that apply.

- First floor
- Bathrooms
- Hallway
- Closet
- Do not know
C-9. When management declares high wind conditions, where should residents be relocated? Select ALL that apply (Table A17).

C-10. When a hurricane is projected to hit LSU what preparations are mandated concerning water reserves? Select ALL that apply (Table A18).

C-11. What information must be obtained from medical risk residents? Select ALL that apply (Table A19).

C-12. At what wind speed are residents requested to seek shelter? Select ONE (Table A20).

C-13. What mandated signal indicates it is safe for residents to exit the building? Select ONE (Table A21).

C-14. Is LSU responsible for any lost, damaged, or stolen items that are left behind on campus during an evacuation (Table A22)?

C-15. Are you considered “Essential Personnel” by LSU (Table A23)?

C-16. What areas of the residence halls should be avoided during the storm? Select ALL that apply (Table A24).

C-17. During the peak of the hurricane, what precautions should be taken? Select ONE (Table A25).

C-18. Standard practices to prepare for a hurricane include: (select ALL that apply) (Table A26)

C-19. How long have you been an RA (or RLC) for LSU? Please state in years and months. For example if you have been an RA/RLC since Fall 2011, you would write “1 year” and “1 month.”

Table A17. Survey question C-9: When management declares high wind conditions, where should residents be relocated? Select ALL that apply.

<table>
<thead>
<tr>
<th>None</th>
<th>Buy gallons of water</th>
<th>Fill trashcans with water</th>
<th>Fill bathtubs with water</th>
<th>Do not know</th>
</tr>
</thead>
</table>

Table A18. Survey question C-10: When a hurricane is projected to hit LSU what preparations are mandated concerning water reserves? Select ALL that apply.

<table>
<thead>
<tr>
<th>None</th>
<th>Buy gallons of water</th>
<th>Fill trashcans with water</th>
<th>Fill bathtubs with water</th>
<th>Do not know</th>
</tr>
</thead>
</table>

Table A19. Survey question C-11: What information must be obtained from medical risk residents? Select ALL that apply.

<table>
<thead>
<tr>
<th>Plan of action in case of emergency</th>
<th>Name</th>
<th>Date of most recent medical emergency</th>
<th>Home address</th>
<th>Type of medical concern</th>
<th>Marital status</th>
<th>Do not know</th>
</tr>
</thead>
</table>

Table A20. Survey question C-12: At what wind speed are residents requested to seek shelter? Select ONE.

<table>
<thead>
<tr>
<th>30 mph</th>
<th>45 mph</th>
<th>50 mph</th>
<th>75 mph</th>
<th>Do not know</th>
</tr>
</thead>
</table>

Table A21. Survey question C-13: What mandated signal indicates it is safe for residents to exit the building? Select ONE.

<table>
<thead>
<tr>
<th>TV emergency signal</th>
<th>Air horn will blow</th>
<th>Mass campus text message</th>
<th>Mass campus e-mail</th>
<th>Do not know</th>
</tr>
</thead>
</table>

Table A22. Survey question C-14: Is LSU responsible for any lost, damaged, or stolen items that are left behind on campus during an evacuation?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Do not know</th>
</tr>
</thead>
</table>

Table A23. Survey question C-15: Are You considered “essential personnel” by LSU?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Do not know</th>
</tr>
</thead>
</table>

Table A24. Survey question C-16: What areas of the residence halls should be avoided during the storm? Select ALL that apply.

<table>
<thead>
<tr>
<th>Bedrooms</th>
<th>Lobbies</th>
<th>Bathrooms</th>
<th>Doors</th>
<th>Windows</th>
<th>Hallways</th>
<th>Living rooms</th>
<th>Closets</th>
<th>Do not know</th>
</tr>
</thead>
</table>

Table A25. Survey question C-17: During the peak of the hurricane, what precautions should be taken? Select ONE.

<table>
<thead>
<tr>
<th>Close doors, stay in hallways</th>
<th>Close doors, stay in bedroom</th>
<th>Open doors, stay in closet</th>
<th>Open doors, stay in bathroom</th>
<th>Do not know</th>
</tr>
</thead>
</table>
D. YOUR ANXIETY REGARDING HURRICANE PREPAREDNESS

On a scale of 1 to 5, with 1 being strongly agree, 2 being somewhat agree, 3 being neither agree or disagree, 4 being somewhat disagree, and 5 being strongly disagree, please respond to the following statements (Table A27).

E. YOUR ANXIETY REGARDING THE THREAT OF HURRICANES

(Table A28)

F. HURRICANE ISAAC

F-1. Did you receive special training or instructions about your role as an RA if Isaac were to hit Baton Rouge?

Yes
No

If no, skip to F-3 (Table A29).

F-9. Following Isaac, my anxiety about the physical danger of hurricanes has (Table A30)

F-10. (a) Before Isaac formed, I thought the chance of a hurricane coming to Baton Rouge in a given year was (rank 0%–100%) _______

(b) After Isaac, I think the chance of a hurricane coming to Baton Rouge in a given year is (rank 0%–100%) _____

G. BACKGROUND AND DEMOGRAPHICS

Finally, some demographic questions:

G-1. Are you Male_______ Female _________
G-2. What year were you born? _________
G-3. Are you an international student?

Yes
No

TABLE A26. Survey question C-18: Standard practices to prepare for a hurricane include (select ALL that apply):

- Fill up car tank with gas
- Siphon all gas from tank
- Make sure emergency brake is off
- Make sure emergency brake is on
- Move cars to parking garage
- Leave cars in assigned parking areas
- Do not know

TABLE A28. Survey question E-1–E-8: Your anxiety regarding the threat of hurricanes.

<table>
<thead>
<tr>
<th>1 strongly agree</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5 strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-1. I am concerned about a hurricane coming to my area.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-2. I am worried I will have nowhere to live in Baton Rouge if a hurricane came through.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-3. I find myself thinking about how much it would cost me to replace damaged belongings after a hurricane.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-4. I worry that I will experience bodily harm from a hurricane.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-5. I am nervous that friends or loved ones (or pets) will experience harm from a hurricane.</td>
<td></td>
<td></td>
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<td>E-6. I am concerned about my job security regarding any job I have following a hurricane.</td>
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<td>E-7. I feel LSU has assured me of my safety during a hurricane.</td>
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<td>E-8. I feel reassured that LSU will help with any reconstruction/restoration after a hurricane.</td>
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D-1. As a Resident Assistant (or RLC), I feel well-prepared for this hurricane season
D-2. I feel confident in the knowledge LSU has provided to prepare me for hurricane season.
D-3. I am confident that my hurricane preparation knowledge would contribute to keeping my residents safe during a hurricane.
D-4. I feel that I have adequate resources to acquire important supplies for a hurricane emergency (stocking up on food, gas, batteries, water, etc.).
D-5. A LSU hurricane preparedness seminar/course would be useful for my role as Resident Assistant (or RLC).
D-6. I feel confident in my ability to answer any hurricane preparedness questions from my residents.
G-4. What would you consider your race or ethnicity?

- Black
- Hispanic
- Native American
- Pacific Islander
- White
- Other (please describe)

G-5. Where is your primary home located?

City: ______________
State: _____________
Country: ___________

G-6. How long have you lived in Baton Rouge? (State in years and months. For example, if you have lived in Baton Rouge for 1.5 years write "1 year" and "6 months".)

_______years _________months

G-7. Do you personally own a motor vehicle that is with you in Baton Rouge?

- Yes
- No

Thank you for your time.

REFERENCES


