

ORIGINAL RESEARCH

Intention to Comply With Mandatory Hurricane Evacuation Orders Among Persons Living Along a Coastal Area

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ABSTRACT

Objectives: We examined the intention to comply with mandatory hurricane evacuation orders among respondents living in coastal areas with pronounced poverty by demographic and location characteristics.

Methods: A 3-county door-to-door survey was conducted with 1 randomly selected resident per household. Households were selected using a 2-stage cluster sampling strategy and stratified by county. The final sample included 3088 households in 100 census tracts across 3 counties.

Results: Findings suggest that the majority of residents living in areas prone to hurricanes intend to comply with mandatory evacuation orders regardless of income level. Variation in intention to comply with mandatory evacuation orders is shown by age, gender, ethnicity, education, acculturation, county, and distance from shoreline.

Conclusions: The demonstrated high intention to comply with evacuation orders in impoverished areas suggests a need for improved planning to evacuate the most vulnerable residents. Demographic and location characteristics associated with decreased intention to comply may be considered for targeting messages and education before disasters to modifying intentions and plans to evacuate. (*Disaster Med Public Health Preparedness*. 2013;7:46-54)

Key Words: mandatory evacuation, Hispanics, poverty, public health, intention

Since the profound devastation of Hurricane Katrina, emergency managers are asking themselves how to successfully evacuate the most vulnerable populations from destructive hurricanes.¹⁻⁴ Vulnerable populations, including ethnic minorities, the elderly, those living in poverty or with disabilities, women, and children have been studied to understand their likely evacuation behaviors in light of mandatory evacuation orders.⁵⁻⁹ Moreover, storm data suggest that over time more disasters are occurring worldwide, and with increased population and greater health and income disparities, more vulnerable people are affected by such disasters during and after the storm.¹⁰⁻¹⁵ For example, in New Orleans where more than 28% of the population lived below the poverty level prior to Hurricane Katrina, it was reported that 100 000 residents, many of whom were African American and poor, did not evacuate in spite of a mandatory evacuation classification.^{16,17} In addition to the risk of Hurricane Katrina-related flooding, those failing to evacuate also faced risk of waterborne infectious illnesses and exposure to toxins due to contamination with septic tank waste and

agricultural, sewage, and industrial waste.⁸ More than 1300 deaths resulted from Hurricane Katrina.¹⁸

To improve preparedness, a clear understanding of intention to comply with evacuation orders among populations vulnerable to morbidity, mortality, and property damage associated with hurricanes is necessary. Behavioral theory suggests that intention, while different than actual behavior, is directly associated with behavior¹⁹⁻²³ and therefore worthy of examination, as the study of evacuation behaviors in real-life scenarios is storm dependent.

BACKGROUND

In a telephone survey conducted by the Harvard School of Public Health, nearly 1 in 4 (23%) Katrina-affected respondents and 28% of other high-risk area respondents indicated an intention to stay in their homes during a major storm, in spite of mandatory evacuation orders by government officials.²⁴ Other studies have found that the intention to evacuate changes, depending on the vulnerable populations.^{9,25-30}

Studies examining barriers to evacuation, which help explain the difference between intention to evacuate and actual evacuation, have also been conducted, with particular emphasis on vulnerable populations.³¹⁻³⁴ Income level has been shown to affect decisions regarding evacuation.^{8,18,24,27,35-39} For example, studies have shown that those with few financial resources, without transportation, and with disabilities^{25,37} comprise a high percentage of individuals who do not or cannot evacuate. Some studies of Katrina evacuees reported that although a car was available for evacuation, there was not enough disposable income for gas and food.³⁵ Also, studies of evacuation behavior have found that women^{26,27,38,39} and households with children are more likely to evacuate.^{25,27,40} Perceptions of the homestead being at risk have also been found as an important determinant in evacuation decisions.^{39,41} In addition, storm strength,^{8,27} worries that property will be stolen or damaged if left,^{24,35} and concerns about cohesiveness of the family unit during and after evacuation^{35,36} have been discussed as reasons evacuation may not occur.

None of these studies characterizes the intention to comply with mandatory evacuation orders, specifically among low-income Hispanic populations living on the coastline. We therefore conducted this study in an area of the country with extreme poverty and where the majority of the population is Hispanic. This area is found in 3 counties in southern Texas that lie within 70 miles of the Gulf of Mexico and that are prone to hurricanes. Two of these counties, which are categorized as the poorest in the United States,²⁸ lie along the Mexican border and have an approximate population of 1.15 million.²⁸ Within these 3 counties, 32% to 42% of families are below poverty level, and 25% to 31% of the population has less than a ninth grade education.²⁸ Over 87% of this community is Hispanic. Given that the counties lie back-to-back with Mexico, it is not surprising that 74% to 83% of the population speaks a language other than English at home.²⁸ Determining an intention to evacuate by demographic and location characteristics in this distinct area of the country would help aid local, state, and federal agencies to improve preparation and evacuation of this population and provide new insight into a vulnerable population facing natural disasters that has not been previously well characterized.

Study Aim

The aim of this study is to examine intention to comply with mandatory hurricane evacuation orders by demographic characteristics including ethnicity, age, income, education, acculturation, county of residence, and location of the census tract from the shoreline among respondents to a door-to-door survey in 3 low-income, hurricane-prone counties.

METHODS

Data for this study were taken from a broader study examining the attitudes, beliefs, and behaviors regarding hurricane

preparedness and evacuation conducted by the University of Texas School of Public Health, Brownsville Regional Campus, in conjunction with the Texas Department of State Health Services.

A door-to-door questionnaire of residents in 3 counties was conducted using a 2-stage cluster sampling strategy and stratified by county between July 2008 and October 2008. First, a simple random sample from the maximum possible of 172 census tracts across the 3 counties was selected to identify 48 census tracts each from the 2 most populous counties and 4 census tracts from the 1 rural county. In the second stage of sampling, individual households were selected in each census tract based on 1-in-10 systematic random sampling, in which every 10th house, with 9th and 11th households as secondary options, in all 4 cardinal directions, are surveyed until 30 households are completed in each tract. The census tract was considered the primary sampling unit.

Bilingual research staff held small group training sessions for the 16 outreach workers collecting data in convenient locations (library, church, and university building) in their county. The 5-hour training covered consenting procedures, interview techniques, guided practice on all questionnaire items and clarification statements, sampling framework, data security, logistics, and completion of non responder forms. The community health workers had past data collection experience. Community health workers conducted door-to-door recruitment in pairs to provide monitoring of data collection procedures, support accurate recording of responses, and safety. Two bilingual project managers regularly observed data collection activities in the field. Any deviations from data collection protocol were addressed individually and, if necessary, across community health workers as well.

The final sample included 3088 households in 100 census tracts in the 3 counties. The trained outreach workers interviewed 1 adult person in each household who had the nearest birthday to the date of the survey and recorded the responses on the questionnaire form. Before conducting the interview, the outreach workers explained the informed consent and attained written permission to participate. The outreach workers administered the survey in the participant's language of choice. Refusing to participate was documented according to gender and reason for refusal. Once the anonymous surveys were completed, they were stored in a secured backpack along with, but separated from, consent forms until the end of the day when they were delivered to staff and secured in locked file cabinets at the university.

The door-to-door questionnaire was a 73-item instrument that included demographics, reasons for and against evacuation, barriers to evacuation, assessment of medical special-need persons in the home, and preparedness for a hurricane; it took between 40 and 60 minutes to complete. This survey was based on an instrument used to assess hurricane readiness along

coastal counties in 2007²⁴ and was modified with additional questions and translated into Spanish using backward and forward translation.

The bidirectional acculturation scale for Hispanics was used to determine acculturation levels.⁴² Four survey questions regarding language use and acquisition for thinking, reading, and speaking both at home and socially were used in the assessment and contained the following response categories: Spanish, equally Spanish and English, or English. A sum score was created across the 4 items and cutoff points were established for acculturation scores. The independent variables of education and income were coded into 3 categories. Also created was a variable to assess the distance from the center of each census tract to the shoreline. We measured this distance based on a mathematical algorithm of the shortest distance from a tangential line from the coastal path to the epicenter of the county. Because the distance from the shore was the same for all households in the same census tract, in the analysis we considered this a census-level continuous variable, with a mean distance of 36.1 miles (ranging from 0.05-70.3 miles).

Statistical Analysis

Weighted data were used for the analyses. Weighting was done in 2 distinct, successive phases. The first phase was done by household level, and the second was done by census-tract level to achieve the overall population weights. To generalize the results and avoid potential oversampling, sampling weights were incorporated into the analyses. Incorporating sampling weights provided the correct statistical inference by providing a better estimate of standard error, and hence the confidence interval. We used the survey analytic package for Stata 11.1.⁴³

Socio demographic variables were tested for association with the dependent outcome variable; specifically, whether or not an individual intends to comply with a mandatory evacuation order. Independent variables including age, gender, ethnicity, income, education completed, acculturation, number of people in the household, and having homeowner's or renter's insurance were examined by county. Two-sided Pearson χ^2 tests were conducted with the dependent variable dichotomized as intention to comply or not comply with a mandatory evacuation order and independent variables.

A multivariate logistic regression model and 95% confidence intervals for the independent variables were calculated based on variables moderately associated ($P < .05$) with the dependent variable in the bivariate analyses. Independent variables were examined for multicollinearity using the test for tolerance and variance inflation factor. For continuous or ordinal predictors, specifically education level and annual household income, standardized odds ratios were estimated.

RESULTS

Descriptive Characteristics

Descriptive data (Table 1) showed that survey respondents were mostly female, accounting for three-fourths of all respondents across the 3 counties (Table 2). For all 3 counties, the mean age was 47 years for the population 18 years old or older; His-panics were the dominant ethnicity group; and the mean number of people living in each household was 4.1.

The majority of each county's population had an annual income between \$0 and \$24 999, which is in the low-income category of this study's scale. At least 75% of each county's population was low income.

Education level, acculturation, and owning or not owning homeowner's/renter's insurance varied by county. In the 3 counties, only 42% of the population 18 years old or older had completed 12 years of school, and residents had a low preference for English as part of the acculturation assessment.

Pearson χ^2 tests found that gender, ethnicity, education, acculturation, and county were significantly associated with the dependent variable of intention to comply or not comply with a mandatory evacuation order (Table 3). Female respondents were more likely to intend to follow a mandatory evacuation order than males. Little difference among ethnic subgroups to follow a mandatory evacuation order was found, with 92.6% Hispanics and 90.9% of Whites reporting an intention to comply with evacuation orders once it was declared by the local or federal government. Those with a higher level of education reported a lower likelihood of following a mandatory evacuation order. Respondents affiliated with Spanish language were more likely to report intention to comply with the orders. Income was not statistically associated with compliance with an evacuation order ($P = .2$).

Logistic Regression

Only variables with statistical significance ($P < .05$) by χ^2 tests were included in the weighted logistic regression analysis. The odds of intending to comply with a mandatory evacuation order were lower for younger respondents than for older respondents (AOR = 0.98; 95% CI: .97, .99).

The odds of intending to comply with a mandatory evacuation order were higher for females than for males (AOR = 1.5; 95% CI: 1.1, 2.2). Females, regardless of ethnicity, displayed a similar and higher level of intention to follow evacuation orders, with no statistical difference in response across ethnicity ($P = .07$). Hispanic females showed a higher likelihood to follow mandatory evacuation order (AOR = 1.6; 95% CI: 1.3, 2.0) compared with Hispanic males. In contrast, White males had higher odds of intending to follow a mandatory evacuation order (AOR = 1.5; 95% CI: 0.6, 4.0) compared with White females, however this

TABLE 1

Demographic Characteristics of Coastal Respondents, 2008

Variables	Characteristic	3-County Weighted Mean or % (n = 3088 N = 1 146 796)	County 1 Weighted Mean or % (n = 1461 N = 401 895)	County 2 Weighted Mean or % (n = 1506 N = 723 744)	County 3 Weighted Mean or % (n = 121 N = 21 157)
Outcome variable					
Mandatory evacuation	Intend to comply	92.6	87.4	95.6	84.3
	Do not intend to comply	7.4	12.6	4.4	15.7
Covariates					
Age	Mean age in years	47.0	50.5	44.8	65.0
Distance	Mean in miles	40.93	20.08	53.50	23.94
Gender	Female	51.5	49.6	52.6	48.5
	Male	48.5	50.4	47.4	51.5
Ethnicity	Hispanic	90.1	77.67	96.9	94.6
	White	6.9	16.27	1.7	5.4
	Others	3.0	6.06	1.4	0
Household size	Mean No. of people	4.1	3.8	4.3	3.3
Household income (yearly)	\$0-\$24 999	80	75	84	90
	\$25 000-\$74 999	17	21	15	10
	\$75 000 +	3	4	1	0
Education level	Elementary/middle	39.6	34.4	42.3	48.4
	High school	42.2	41.6	42.6	40.4
	College/technical	18.1	24.0	15.1	11.2
Acculturation	High affiliation with Spanish	45.4	43.6	46.9	29.3
	Biacculturated	44.0	42.9	44.1	62.9
	High affiliation with English	10.6	13.5	9.0	7.8
Homeowner's /renter's insurance	No	58.0	41.8	67.2	51.7
	Yes	36.2	48.3	29.4	41.6
	Unspecified	5.8	10.0	3.4	6.7

relationship was not statistically significant. White females had an AOR of 1.9 (95% CI: 1.1, 3.0), while White males had an AOR of 2.8 (95% CI: 1.3, 6.2) when compared with Hispanic men. Ethnicity alone showed no relationship with the outcome; however, ethnicity and gender had an interaction effect with the dependent variable.

The odds of intending to comply with an evacuation order for participants who completed high school was higher (AOR = 1.4; 95% CI: 1.02, 1.9) than for participants who completed an eighth grade education or less. Among participants who completed college/technical school, the odds of intending to follow a mandatory evacuation order was lower (AOR = 0.72; 95% CI: 0.53, 0.97) than those who completed an eighth grade education or less. These differences were not explained by levels of income or by stratifying on income by education.

Respondents who were biacculturated with Spanish and English were less likely to intend to follow a mandatory evacuation order (AOR = 0.5; 95% CI: 0.39, 0.63) than those highly acculturated with Spanish. A similar response was seen among respondents with high-affiliation with English (AOR = 0.6; 95% CI: 0.37, 0.97) compared with

reference subgroup. This observation was not affected when either education or income levels were considered.

The odds of intending to follow a mandatory evacuation order were nine times higher for participants from County 2 respondents (AOR = 9.3; 95% CI: 5.2, 16.7) than for County 1 respondents after adjusting for other covariates such as distance, educational level, and age.

The probability of intending to comply with a mandatory evacuation order based on census tract distance from the coast line was also investigated. We found that people who lived farther from the shoreline were less likely to report an intention to follow the mandatory evacuation order (AOR = 0.97; 95% CI: 0.95, 0.98).

COMMENT

We found high levels of intention to comply with mandatory evacuation orders among this population as a whole. The results of the logistic regression indicated that demographic, acculturation, and location variables helped to explain significant differences among the populations' intention to

TABLE 2

Sociodemographic Characteristics of Coastal Respondents Who Do and Do Not Intend to Comply With Mandatory Evacuation Orders, 2008

Characteristics	Do Not Comply (n = 231, N = 82 519)	Comply (n = 2746, N = 1 028 172)	P Value
Gender(n = 2977)			
Male	86	675	
Female	145	2071	.000 ^a
Age (n = 2977)	53.35 (1.14)	46.36 (0.36)	<.0001
Ethnicity (n = 2977)			
Hispanic	196	2450	
White	21	209	.043 ^a
Other	14	87	
Income (n = 2977)			
\$0-\$24 999	123	1832	
\$25 000-\$74 999	38	379	.193
\$75 000+	8	54	
Education level (n = 2929)			
Elementary/middle	90	1085	
High school	77	1154	.004 ^a
College/technical	57	466	
Acculturation (n = 2977)			
High affiliation Spanish	83	1392	
Moderately acculturated	126	1082	.000 ^a
High affiliation English	22	272	
County (n = 2977)			
County 1	160	1229	
County2	57	1416	.000 ^a
County 3	14	101	

^a P < .05

TABLE 3

Adjusted Odds Ratios (AOR) for Coastal Respondents' Intention to Comply With Mandatory Evacuation Order, 2008

Variables	Description	AOR	95% CI	P Value
Age	Years	0.98	0.97; 0.99	.000
Gender and ethnicity	Male Hispanic	1.0	Referent	...
	Male White	2.8	1.3; 6.2	.012
	Female Hispanic	1.6	1.3; 2.0	.000
	Female White	1.9	1.1; 3.0	.015
Education level	Elementary/middle	1.0	Referent	...
	High school	1.4	1.02; 1.9	.037
	College/technical	0.7	0.5; 0.97	.033
Acculturation	High affiliation Spanish	1.0	Referent	...
	Biacculturation	0.5	0.4; 0.6	.000
	High affiliation English	0.6	0.4; 0.97	.037
County	County 1	1.0	Referent	...
	County2	9.3	5.2; 16.7	.000
	County 3	1.1	0.9; 1.3	.502
Distance	Miles	0.97	0.95; 0.98	.000

comply with a mandatory evacuation order. Participants who were younger were less likely to intend to evacuate under mandatory orders than those who were older. This finding may have been because younger participants feel more invincible in the face of a major hurricane or because older individuals feel

less inclined to want to experience the discomforts associated with hurricanes both during and after the event.

Participants who completed education above a high school level were less likely to report intention to evacuate under

mandatory orders than people who completed less than a high school education. Those with a high school education reported the greatest intention to comply. Residents with higher education may have had less trust in local government officials and may not have believed the government's orders when it proclaimed a mandatory evacuation order. Higher education levels also showed a relationship with higher income in our sample. However, income alone was not statistically significant in χ^2 analysis or the logistic regression. This statistical insignificance could be due to the limited variance in the income variable, as the majority of respondents was low income. However, because of the correlation (0.48) between education and income, it may be that people with higher education and economic means felt more able to care for themselves, had a greater concern for protecting their households and its contents during an emergency, and therefore were less likely to report intention to comply with evacuation orders. Respondents with a Spanish-only affiliation were more likely to follow the evacuation orders. These participants could have been recent or first-generation immigrants to the United States and felt compelled to respond to official government orders.

Participants from County 2, located approximately 50 miles inland, proved to be more likely to evacuate than those from the other counties in the sample that had at least one boundary at the shoreline after adjusting for ethnicity, educational level, distance from the coastline, and other covariates. Examining population characteristics more fully, we found that County 2 had the highest percentage of Hispanics, was the most densely populated county, with large urban areas, and had a slightly higher median income.⁴⁴ We believed that residents from County 2 may have had a greater intention to comply with evacuation orders because they had access to more resources to support evacuation, such as urban transportation options and 2 easily accessible highway routes for evacuation compared to only 1 easily accessible route in the other counties. In addition, County 2 constituted by far the greatest number of unincorporated, impoverished neighborhoods (Colonias) along the Texas-Mexico border,⁴⁵ many of which are prone to long-term flooding problems post-hurricanes.

We also found that, in general, the closer a census tract was to the shoreline the more likely respondents were to report an intention to comply with evacuation orders. Previous studies have also noted that the stronger the storm and the closer one's home is to the shore the greater the probability of the population evacuating.^{26,41,42,46} However, as past hurricanes have demonstrated, large storm systems that include flooding and tornadoes in unpredictable paths threatened people living inland as well as along the coast.

We reviewed our findings in the light of the conclusions from large telephone surveys performed by the Harvard School of Public Health in 2005²⁴ and in 2008⁴⁷ across a multiethnic population, in which intended compliance with evacuation

orders was lower than in our study. These earlier studies primarily accessed homes with landlines, presumably indicating residents with higher incomes than our participants, 80% of whom were low income. Indeed, we found that people we sampled with higher income were less likely to intend to comply, although income was not statistically significantly associated with stated intentions. Our study had a larger sample size in a single area with higher response rate, door-to-door interviews, and a population that was mainly Hispanic, many of whom lived close to the Gulf shore (areas specifically omitted in the 2007 study). Our data therefore may have more accurately reflected the attitudes and intentions of low-income Hispanic communities living close to the Gulf.

CONCLUSIONS

Overall, this study demonstrated that the vast majority of residents (93%) living in 1 low-income region prone to hurricanes intended to comply with mandatory evacuation orders regardless of income level. Given that the majority of respondents in this population were low income, their need for assistance with mandatory evacuation scenarios was potentially great. Based on previous scenarios in other coastal areas where demand outweighed assistance for evacuation among the poor and vulnerable, this study's results provided evidence that preparedness planning does not need to focus on increasing intentions to comply with evacuation orders among Hispanics but should focus on closing the gap between intention and actual evacuation behaviors during a hurricane.

The percentage of people reporting their intention to comply in this survey was greater than in other surveys conducted along coastal areas, where approximately 75% of the population reported intention to comply with mandatory evacuation orders.²⁴ It is possible that our reported intention to comply was higher because the survey was conducted during hurricane season and a hurricane made landfall during the study period. However, post hoc analysis examining intention to evacuate before and after landfall showed no significant differences. Our results may have been influenced by the large number of women responding to the survey, as past studies have shown that women are more likely to evacuate in the face of a storm.^{26,27,38} It is also possible that Hispanic populations, in spite of having multiple characteristics that would classify them as unable to evacuate in the face of a storm may have had high levels of intention to comply. It was difficult to compare our findings to other studies examining intention to comply with mandatory evacuation orders with sample sizes powered to draw conclusions about Hispanic populations because few exist. However, a related study examined actual evacuation behaviors in regions of Florida where the Hispanic population accounted for between 3% and 32% of the regional samples. That study found no significant differences in evacuation behavior by ethnicity.²⁷ Another study of Hispanic community-based organizations found high levels of willingness to participate in emergency planning (96%), but lower levels of capacity to

do so.⁴⁸ One other possible explanation for our results showing higher than expected intention to comply with evacuation orders could be found in the majority of our sample, which were lower income and potentially living in home structures that were perceived as unsafe. Other studies have found this belief to influence decisions about evacuation.^{39,41} We were unable to examine this association more specifically because these items were not included in the survey.

Our results showed significant variation of intention to comply with mandatory evacuation orders by demographic characteristic and geographic location among a 3-county sample of people likely to be exposed to the ravages of hurricanes. This study suggested the importance of planning to evacuate large numbers of people who report intending to comply with evacuation orders but who may lack the means to do so in the event. In addition, our results would suggest that planning efforts should include recovery and relief plans for individuals who remained after evacuation orders were issued and would likely include a greater proportion of Hispanic men and individuals educated at a high school level. In addition, we found that individuals in census tracts more distally located from the coastline were less likely to intend to comply with evacuation orders. Therefore, in cases of larger more powerful storms for which devastation far from the coastline is expected, recovery plans should be considered to distal areas where individuals may have sheltered in place.

Results from this study also suggest that populations with higher affiliation toward Spanish are likely to already possess intention to comply with evacuation orders and populations who report speaking English and Spanish equally or more English are less likely to intend to comply with mandatory evacuation orders. These findings may be useful for emergency managers tailoring messages about evacuation orders in Spanish and English. Spanish-language messages should focus on moving audiences from intention to action, whereas English messages need to build support for intention and action. These messages should be consistently given before, during, and after the hurricane to provide clear instructions to the intended audience.

Future research should build on the results presented in this study. For example, targeting research to explore dissonance between intentions and actions during evacuation scenarios, particularly among Hispanic populations, would be appropriate. Moreover, our results indicate that females are more likely than men to report intention to comply with evacuation orders, although overall both genders report high intention. Future research could include a cultural examination of gender-based decision-making regarding evacuation within households in hurricane-prone areas. Also, given that within this region prone to hurricane damage, census tract and county differences regarding compliance with mandatory evacuation orders were found, a study examining official government communication patterns and strategies for activation of local resources by geographic location may be useful.

Limitations

The large sample size and study design allowed for accurate representation of the Hispanic population were notable strengths to this study. However, because this was a cross-sectional study, causation could not be assumed. Also, because of the ethnic and income demographic characteristics of the sample, generalization to other non-Hispanic or populations with greater income may not be appropriate. Weighting the data presented in this study was done to ensure that the sample represented the whole population of the counties of focus. Another limitation, which is found in all interview survey studies, was that interviewees exaggerate or under-represent their true views. In this study, we conducted careful monitoring of data collection procedures including accompanying interviewers, providing specific probes to questions, and retraining interviewers as needed. A final caveat to consider is that the constructs of intention to behave and actual behavior are different but have been shown to be related. A recent meta-analysis of 47 experimental studies examining intention and behavior confirmed that medium to large changes in intentions engender medium to small behavior changes.⁴⁹ Thus, for evacuation planning purposes, this study provides a cross-sectional view of intention to behave and therefore provides only estimates of actual evacuation behavior.

In summary, this study investigated intention to comply with mandatory hurricane evacuation orders among a respondent group generally uncharacterized in the literature. Our results indicated that this vulnerable population has high levels of intention to comply with mandatory evacuation orders and showed statistically significant differences in these intentions by age, gender, ethnicity, education, acculturation, county of residence, and distance from shoreline. Moreover, given that evacuation failures have occurred among equally impoverished populations during past disasters, our results suggested that in spite of high levels of intention to comply with evacuation orders, emergency managers must consider how targeted messages, education, and programs can ensure that good intentions to comply with mandatory orders for evacuation manifest into actual evacuation behavior.

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