

FACTORS INFLUENCING MEDIA USE IN THE EVACUATION DECISION-MAKING
PROCESS DURING APPROACHING CYCLONES IN THE BAHAMAS

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The undersigned, appointed by the dean of the Graduate School, have examined the thesis entitled

FACTORS INFLUENCING MEDIA USE IN THE EVACUATION DECISION-MAKING
PROCESS DURING APPROACHING CYCLONES IN THE BAHAMAS

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..... Two people have been my backbone throughout my life and I dedicate this thesis to them: My mother Nona and grandfather Uncle Bobby. Both have supported me financially and emotionally throughout my entire life and I thank both of them for that. I would not be who I am today if it were not for them.

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..... Deo Gratias

..... In Hoc Signo Vincas

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FACTORS INFLUENCING MEDIA USE IN THE EVACUATION DECISION- MAKING PROCESS DURING APPROACHING CYCLONES IN THE BAHAMAS

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ABSTRACT

A survey of Bahamians living on the island of New Providence (N = 381) explored the different factors that influence media use in the evacuation decision-making process along with investigating the different outlets used in the process. Results of the survey showed that Bahamians preferred to use state media (both television and radio), Internet sources, and television generally when making the decision to evacuate. Personal factors such as false alarm experience, threat knowledge, and perceived quality of the home had no influence on media use in the evacuation decision-making process. However the results showed that affective response (fear/worry) and information insufficiency both increased media use in the evacuation process (specifically state media). The results of the study are discussed in light of the uses and gratification paradigm along with several segments of the risk information seeking and processing model.

Keywords: Bahamas, hurricanes, tropical storms, cyclones, media use, television, radio, newspapers, RISP, false alarm experience, Caribbean, uses and gratification, risk information seeking and processing, information insufficiency, Bahamians.

Chapter 1: Introducing the Study

The Bahamas is the closest country to the United States that does not share a border. This proximity is summed up in a popular idiom by its citizenry in that: “When the USA sneezes, The Bahamas catches a cold.” So when Caribbean basin cyclonic action kicks up, the Bahamian electronic media outlets along with the American electronic media outlets increase coverage. This means that Bahamians have a slew of options to choose from to gather information about a storm in deciding what to do as the storm approaches. The plethora of media outlets available to Bahamians forms the basis for the overarching research question: **“During an approaching cyclone, what influences Bahamians weather information gathering decisions in the evacuation decision-making process?”**

The Background of The Bahamas

In 1492, Rodrigo de Triana, a sailor on the main boat of Christopher Columbus’ first voyage was the first person from the New World to spot The Bahamas, an archipelagic country in the Atlantic Ocean just off the coast of Florida. The English-speaking country is made up of around 700 islands, cays, and reefs. Geographically, The Bahama islands lie in the same island chain as Cuba, Hispaniola and the Turks and Caicos Islands. Politically and culturally the country is considered a part of the Caribbean even though it does not lie in the Caribbean Sea. The country has the highest GDP of all member countries of the Caribbean Community (CIA World Factbook, 2011)

but does not participate in the free movement of goods and human capital in the Caribbean region.

Lucayan Indians first inhabited the islands and through the years the Spanish, the French and most recently the British, who earlier depended deeply on the slave trade. After slavery was abolished by the British Empire in 1833 many of the freed slaves remained in the country and settled. This group makes up about 85% of the population. Until 1963 the Caucasian minority ruled the country but that changed with the general elections of that year. The country declared independence from the United Kingdom on July 10, 1973.

The Weather of The Bahamas

The trade winds that blow almost continually throughout island give the country a warm, agreeable climate that varies little year-round. Between September and May the temperature averages between 70-75°F. The rest of the year is a bit warmer with temperatures averaging between 80-90°F and can get as high as the 100's. The U.S. National Hurricane Center designates the dates between June 1st and November 30th hurricane season. This is when cyclone formation is prevalent but storms have been known to pop up outside of this season. Just in 2005 two storms—Hurricane Epsilon and Tropical Storm Zeta—formed and persisted outside after the season had officially ended.

In the North Atlantic region tropical cyclones are classified into seven categories with increasing intensity from tropical depression, tropical storm and hurricanes (with five designations of intensity from one to five on the Saffir-Simpson scale). On the Saffir-Simpson scale, hurricanes of intensity three, four, or five are considered major or

intense hurricanes (National Hurricane Center, 2011). A system such as Hurricane Andrew in 1992 is short listed as “catastrophic” (National Hurricane Center, 2011) with highest sustained winds of around 175 miles per hour (Landsea et al. 2004, p.1707) and some such as Tropical Cyclone Olivia that struck Australia in 1996, the strongest storm on record, had a measured sustained wind-speed of 253 miles per hour (National Hurricane Center, 2011).

For clarity, a hurricane at some time has to have been a tropical storm and the National Hurricane center defines a tropical cyclone as “the generic term for a non-frontal synoptic scale low-pressure system over tropical or sub-tropical waters with organized convection (i.e. thunderstorm activity) and definite cyclonic surface wind circulation” (National Hurricane Center). All weather systems defined as cyclonic can have some sort of impact on a landmass either from wind damage or sustained rain fall. Case in point: In 2007, Tropical Storm Noel dumped 15 inches of rain on the Bahamian island of Long Island, left four feet of accumulation in some areas, knocked out electricity and telecommunications for days, closed the two airports on the island and forced farmers from the flooded fields for almost 8 months. (McKenzie, 2007).

For ease of nomenclature, this paper refers to cyclones to encompass a tropical depression, tropical storm or hurricane—as they all require some sort of evacuation behavior or mitigation behavior.

The Risk of Tropical Storms And Hurricanes in The Bahamas

The Bahamas has a rich hurricane history with some stretching as far back as the 1500’s (Neely, 1996). Because of its location in the Caribbean Sea, the country has a

high risk of storm strikes (Hughey 1998, p. 19) and has recorded the largest number of storm events passing within 60 nautical miles of the major Caribbean Islands (Hughey 1998, p.19). The country lies in shallow seas and has experienced multi-island, multi-year, and multi-hurricane impacts. Even though this is a part of life living in a Caribbean country, the nature of The Bahamas as a long chain of islands and a chain of low-lying islands make cyclonic strikes all the more prevalent.

Why Is This Study Relevant

For The Bahamas, media usage in this time of an approaching storm is heightened because of relevant information that is needed by residents. Media use by Bahamians and the factors influencing this usage forms the basis of the reasoning for the research questions of this study. The researcher also seeks to also identify the variables that influence media usage by residents in the evacuation decision-making process during approaching cyclones. The researcher seeks to discover not only the varying degrees by which Bahamian residents use media to gather information, but also the factors that influence Bahamian media use during the evacuation decision-making process.

There needs to be explication of what is expected in the terms: “weather information” and “evacuation decision-making process”. First “weather information” for the purposes of this question, relates to storm data, projected path, strike time and all other data on the storm system. Perry, Lindell, and Green (1981) write that after receiving a warning about an impending disaster there are five reactions:

(1) Continuation of normal activities, (2) attempted confirmation of warning, (3) family-oriented behaviors such as warning other relatives or assembling household members, (4) undertaking some protective action to person or property with the intention to evacuate, and (5) beginning preparations to evacuate” (p. 45).

The “evacuation decision-making process” refers to the procedure of selecting an activity during an impending emergency. This behavior would not only include residents leaving their primary dwelling for another island or local shelter but also undertaking some sort of mitigation behavior at the primary dwelling such as sandbagging the home, putting down storm shutters or boarding up the home. In some cases this evacuation can be mandatory but many times this is voluntary. “Media usage” generally means electronic media as those outlets would be the only outlets continuing coverage directly prior to and during cyclonic activity. However for the purpose of this study, media will be expanded to include all form of mass communication including: radio, television, Internet, other online networks and newspapers. The media outlets that will be studied include the media in the capital. The capital is being used as a frame of reference because it contains about 79% of the population and the island also provides a ready-made political grid to utilize in a systematic process of survey distribution.

Disaster researcher Wilkins points out that “journalists have a duty to save lives and attempt to prevent property damage during such times” (2010, p.311). However, much of the public have difficulty understanding terms used in an emergency. Wilkins points out the difficulty by some in the public of distinguishing between a watch and warning (2010, p.314). A watch warns of winds affecting an area within 48 hours and a warning cautions that winds could be affecting an area within 36 hours or less. This

research can assist media outlets in determining where to allocate resources during a storm along with giving governmental agencies better focus on where to direct messages to instigate evacuations, negate evacuations, and in the process protect as much of the population as possible from danger.

Chapter 2: Reviewing The Literature

Individuals use media with the expectation of an outcome: information, enjoyment, connecting with family and friends (Rubin, 2009; Katz & Foulkes, 1962; Cutler & Danowski, 1980; Edelstein, 1973; Atkins, 1973). For Bahamians during the hurricane season many times the reason to consume media is to find out information about approaching storms. However, not everyone will attend to media at the same level because personal perception regarding risks associated with the cyclones. After receiving information about the storm, Bahamians are required to make some sort of evacuation or mitigation decision; however, not everyone will have to or want to take action, and there are several factors that influence this decision including previous experiences with storms, perceived home quality and the personal knowledge about the risks associated with cyclones. Considering that residents have differing motivations and reasons to evacuate, the level of media use in the evacuation decision-making process will be different based on the aforementioned factors. This chapter reviews the literature that explores these premises that utilize the uses and gratification theory along with several segments of the risk information seeking and processing model (RISP).

Why people seek out media

Individuals use media for various reasons and expect different outcomes or gratification from whatever media used. People usually use media for two reasons: the experience of using it or the content of the media (Cutler & Danowski, 1980, p. 269-270). In other words, two people could be listening to the same radio program for multiple

reasons. One could listen to gain information about the city, though the other listen as an escape from day-to-day activities. Further, listening to the radio or television “may be used to increase general sensory stimulation, or to create a particular pattern of sensory engagement” (Cutler & Danowski, 1980, p.270).

In everyday life, many things happen to shape desires for seeking out media. For some, those outside forces could conflict and people look to the media to ease that tension (Katz & Foulkes, 1962). Everyday problems in social interaction can cause an awareness of problems and people can look to the media to find information on how to fix these problems (Edelstein, 1973). Media use might also satisfy a need of some sort of companionship (Rosengren & Windahl, 1972). As Atkins (1972) points out, there is a certain level of communal familiarity with some media and to maintain this community, the media needs to be consumed for continued socialization.

Using Uses And Gratification Theory.

Blumler (1979) wrote that there is no theory that specifically names “uses and gratifications.” In reality, “plenty of theories about uses and gratifications phenomena, {may} well differ with each other over many issues” (p. 11). Blumler adds that “the distinctive mission of uses and gratifications research is to get to grips with the nature of audience experience itself” (p. 12). Despite these differences, Blumler found three distinct features of the phenomenon: information-seeking, diversion and a personal identity function (p.17). The information-seeking segment of this phenomenon is probably most important during an emergency. As Rubin (2009) explains, “communication behaviors, including the selection and use of the media, (are) goal-

directed, purposive, and motivated” (p. 167). Acquiring information is intentional because people select the medium they want to use and which “satisfies wants or interests such as seeking information to solve a personal dilemma” (Katz, Gurevitch, & Haas, 1973; Rubin, 2009). The expectation of resolution causes people to “intentionally participate and select media or messages from communication alternatives” (p. 167).

Some researchers also believe that motivations are intrinsically psychological and have two anticipated outcomes—either to “obtain a tangible reward or to avoid a punishment” (Deci & Ryan 2008, pg 15). This motivation, though, has differences in that some people utilize media for different reasons and anticipate different outcomes. Blumler (1979) found that there are three overriding motivations driving people to consume media: gaining information, looking for diversion, and forming a personal identity (p. 18-19). People also use the media to either connect with or separate from family, friends and society (Katz, Gurevitch, and Haas, 1973). McQuire (1974) writes that media in essence helps to create networks of humans. However, Nordernstreng suggests that media should be used so that—without looking at gratifications—the media could be used to develop society and that media usage is simply “an unarticulated need for social contact” (p. 132). Rubin, Perse, and Barbato (1988) found six reasons people feel compelled to communicate with others: pleasure, affection, inclusion, escape, relaxation, and control. Taking the aforementioned into consideration, it is logical that people utilize media for multiple reasons and differing motivations.

Katz, Gurevitch, and Hass (1973) believe that there is also a functional approach taken to media in that “people bend the media to their needs more readily than the media

overpower them; that the media are at least as much agents of diversion and entertainment as of information and influence” (pp. 164-165). They added that looking at the media in this way not only allows them to view media as gratifiers of needs but also as vital participants in the societal (dynamics).

Thus, if individuals select certain media, or certain types of content, in their roles as citizens, or consumers, or church members, we gain insight into the relationship between the attributes of the media (real or perceived) and the social and psychological functions which they serve. (Katz, Gurevitch, & Hass, 1973, p. 165)

Katz et al. also found that “strengthening information, knowledge, and understanding” (p.166) as one of the major grouping of needs associated with media usage across the five media: books, newspapers, television, radio and the cinema. Even though Katz et al. found that newspaper usage was “very useful” in being a dominant factor in fulfilling many needs, television only fulfilled a few needs and the medium of radio fulfilled none. It is clear that different media have differing expected need fulfillment (p.170-171). Even the content of television and radio shows have some sort of inherent gratification. As Klapper (1963) points out, the reason people watch or listen to the news is to not only be informed but also to “feel informed, more or less regardless of whether the feeling is justified” (p. 519); while at the same time the same newscast is used by some as “tranquilizers” (p.519).

Rosengren and Windahl (1972) write that “almost any type of content may serve basically any type of function” (p.166). Yet, “all channels do not satisfy all motives equally well” (Graham, Barbato, Perse, 1993, p. 173). People are aware of what functions might be served by exposure to one medium versus another (McGuire, 1974).

Media are selected depending on the gratification sought and obtained. Rubin (1983) found that people used television for relaxation, habit, entertainment, information, and escape. However, McQuail, Blumler, and Brown (1974) found that television was used for diversion, personal relationships, personal identity, and surveillance. Palmgreen and Rayburn (1979) found seven gratifications for public television use: relaxing, learning about things, communication utility, forgetting, passing time, companionship, and entertainment. The same medium of television has differing gratifications not only sought but also obtained.

Although it seems as if people consume media for many varied and purposeful reasons, some, such as Bogart (1965), believe otherwise. Bogart—even decades ago—proposed that because of the oversaturated media environment, consumption of certain media is purely coincidental and by chance. Grunig (1983) supports this thought as well in that the processing aspect of media consumption happens “randomly” (p. 12).

In summary, people not only have differing motivations in using media but also differing expected outcomes. Even identical uses of media in terms of time allocated and attention given could have differing motivations and expected outcomes as well. In an evacuation decision-making context the usage generally will have similar motivations and expected outcomes. It would be difficult to postulate that citizens would be watching a news bulletin on an approaching storm in their area simply to pass time.

Dealing With Risk

Researchers point out that one reason people use media is to find out what is going on in the individual’s community (McQuail, Blumler, & Brown, 1974; Palmgreen

& Rayburn, 1979). In the Caribbean and many other part of the world, the weather is a main concern for residents. An unexpected cyclone could wipe out entire farms or destroy unprotected homes. So residents in areas with a high risk of cyclonic strikes are keen to consume information about the weather—specifically tropical storms and hurricanes. Residents who live in prone areas need seek information on the approaching risk.

But for an individual to respond to risk, that individual has to actually perceive a risk in that individual's environment. Slovic (2000) writes that for organism to survive, it is necessary to “sense and avoid harmful environmental conditions” (p. 220) and in humans this survival is helped by the innate ability to learn from and adapt in response to prior experience. Humans also have the ability to “alter their environment as well as respond to it” (Slovic, 2000, p.220). And even with experts available with the most sophisticated technology and methods available to assess risk, people generally “rely on intuitive risk judgments, typically called ‘risk perceptions’” (Slovic, 2000, p.220). For these people, “experiences with hazards tend to come from the news media, which rather thoroughly documents mishaps and threats occurring throughout the world” (Slovic, 2000, p.220).

Researchers believe that as people perceived an increase in benefit, the perception of risk declined (Fischhoff et al. 1978), and the subsequent perception of benefit was linked to the person's emotional evaluation of the hazard (Alhakami & Slovic, 1994) coupled with sociological influences. (Finucane et al., 2000, Margolis, 1996; Short, 1984). Perry & Lindell (1986) found that citizens with low perceived property risk

combined with low perceived personal risk were unlikely to take protective action (p. 80). The inverse was found as well. It was also interesting to note that Perry and Lindell (1986) found that any perceived risk—either to property or person—also made it more likely that an individual would take some sort of mitigation or evacuation would be taken.

But not all judgments—and decisions based on those judgments—are based on emotion, as Damasio et al. (1994) point out, and these judgments of risk are influenced by emotion and reason simultaneously, albeit in differing levels. People are likely then to make judgments about the level of risk being either dreadful or acceptable (Wilkins, 2001; Slovic et al. 1980; Fischhoff et al. 1981). Wilkins (2001) summarized dread risk as one that a person has little personal control over, doesn't know much about, must participate in and as a risk that can be extremely catastrophic, unavoidable and unfair (Wilkins 2001, pp. 167-168). On the other extreme, acceptable risk is one that Wilkins (2001) describes as a risk that is controllable, familiar, tending not to be catastrophic, and containable (p. 167). A part of this controllable feature of acceptable risk is the ability for residents to avoid the risk posed. For Caribbean residents facing tropical cyclones, this avoidance is the final step in a process that starts with gathering information about the approaching storm followed by making a mitigation decision. At the extreme, that decision is leaving the home or evacuating the island completely.

Communication During Risky Situations.

Scholars have focused an entire section of communication research on risk. However this area of communication is relatively new. The process of assessing the

dangers of risk began with the Environmental Protection Agency (EPA) in the early '70s. The U.S. government gave that body the task of monitoring and reporting the cleanliness of that country's water (Wilkins, 2001). That agency believed the hypodermic needle model of communicating (Anderson, 1997) in that the EPA believed that public would simply accept the information given to them about the risks associated with chemicals in the water and "agree with the government that the water was generally safe to drink or, in cases of contamination, would follow the appropriate instruction for boiling, and so on" (Wilkins, 2001, p 166). Unfortunately this did not happen. The public did not understand the risk, didn't believe the risk, ignored the risk, and sometimes "questioned whether the smallest amounts of some chemicals (arsenic, for example) were safe, despite the risk assessments" (Wilkins, 2001, p. 166). Wilkins (2001) pointed out that the scientists making the risk assessments in the water thought purely scientifically and not humanistically. The scientists thought humans would react systematically and not, well, like humans. Social scientists knew all along that "different people respond differently to the same inputs" (Wilkins, 2001, p.166). The experience the EPA had with risk communication spurred research in this area in the 1980's (Wilkins, 2001).

The goals for social scientists then became to understand why different people reacted differently to the same risk assessment, to develop ways of communicating about risk that would take these predictable differences into account and, hence, to help the EPA and others construct messages that were more effective. (Wilkins, 2001, p.166)

The EPA's ineffectiveness highlighted another issue for risk communication. That issue was that people generally didn't change their minds on issues, which goes inherently opposite to the hypodermic needle model (Lowery & DeFleur, 1986, p.110).

Risk Information Seeking And Processing

To understand how messages are perceived by the audience, the audience itself needs to be evaluated in the different ways people consume media, the motivation for this consumption and how this consumption affects behavior (Eagly & Chaiken, 1993; Eveland, 2002, Fitzmaurice, 2005; Griffin, 1981; Griffin, Dunwoody, & Neuwirth, 1997, Grunig, 1981; Kosiski & McLeod, 1990; Mano & Oliver, 1993, Petty & Cacioppo, 1986). The risk information seeking and processing (RISP) model developed by Griffin, Dunwoody, and Neuwirth (1999) is based on Eagly and Chaiken's (1993) heuristic-systematic model (HSM) and Ajzen's (Ajzen, 1988; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) theory of planned behavior. The heuristic-systematic model looks at how people consume information about risky events either superficially or more systematically, while the theory of planned behavior looks at how information consumption affects the behavior in these risky situations such as evacuations or preventative action.

When looking at the heuristic-systematic model, two items are taken into account: capacity and motivations. This means the capacity to process the information and the motivation to go beyond heuristic consumption to a more systematic level of consumption (Griffin, Dunwoody, & Neuwirth, 1999, p. 231). However crossing into systematic processing does not mean ignoring heuristic processing. The need for information sufficiency though drives the motivation towards systematic processing based on Eagly and Chaiken's (1993) sufficiency principle that "asserts that people will

exert whatever effort is required to attain a 'sufficient' degree of confidence that they have accomplished their processing goals (p. 330).

Risk Judgments Influenced By Fear And Worry

Just as there is an inherent difference in every risk, individuals will perceive risk differently based on personal factors including fear and worry about the specific risk. MacLeod, Williams, & Berkerian, (1991) define worry as being "concerned with future events where there is uncertainty about the outcome, the future being thought about is a negative one, and this is accompanied by feelings of anxiety (p. 478). Freud (1936) believes that fear is simply a reaction to danger in that "one feels anxiety lest something occur" (p. 147). He adds that fear "is a reaction characteristic of probably all organisms, certainly of all of the higher ones" (p.93) and that it probably develops in all organisms—albeit to different degrees (p.94). But Hallowell (1941) believes that the development of fear is complicated by the society of each organism and "these cultural variables operate through the socialization process that all human beings undergo and result in the definition of situations as dangerous in one society which, in another, may be viewed as less dangerous or not dangerous at all" (p.869).

Freud (1936) makes it clear that not all felt anxiety is borne from the same psychological places and points out two differences in anxiety being "real" (or objective) and "neurotic" in that "a real danger is a danger, which we know, a true anxiety, the anxiety in regard to such a known danger. Neurotic anxiety is anxiety in regard to a danger which we do not know" (p. 147).

This “reflective fear” or “normal fear” as Janis (1962) talks about has four possible but not exclusive properties: the fear is influenced by environmental cues, an arousal of need for vigilance, an arousal of need for reassurance, and the development of compromise formation involving discriminative vigilance and reassurance (pp.60-61). Environmental cues including warning communications and the arousal of the need for influence including searching for information on the impending disaster (Janis, 1962, p. 60) involved the media and media usage. In other words, fear of changes to the group or society may drive the need to consume more information about the impending cyclone.

Taking all of the interplay of hazard judgment and affective response produces the following research question:

RQ1: What is the relationship between the perception of a hazard and fear/worry?

Expanding The Risk Information Seeking and Processing (RISP) Model

In situations that involve risk—from tropical storms to health emergencies—individuals have a sense that they need a certain amount of information about the risk to cope with the risk. This information sufficiency defined by researchers (Griffin et al. 2004, Griffin et al., 1999) has been shown to be as a component of information-seeking behavior (Griffin et. al. 2004, p. 24).

In a health communication paradigm, Griffin et al. (2004) propose that people need “varying levels of confidence in the information (relevant facts) that they hold about a topic—especially as the basis for developing their beliefs, attitudes, and behavioral intentions” (p.26) and this thought is held by observations from other researchers as well (Ajzen & Timko, 1986; Griffin, Neuwirth, & Dunwoody, 1995). Taking this level of

confidence into account along with the motivation aspect of the heuristic-systematic model, Griffin et al. (2004) propose that the difference between the level of information held by an individual and the level of information the individual will need to deal with a risk not only affect the manner in which that individual will consume the information (either heuristically or systematically) but also the manner in which it is consumed (active, routine, avoidance). Information sufficiency then is summed up by Griffin et al. (1999) as the “amount of information people say they need to deal adequately with a given risk in their own lives” (p. 233).

Studies have shown support for a relationship between information sufficiency and risk information-seeking and information-processing (Griffin, Dunwoody, Neuwirth, & Giese, 1999; Trumbo, 2002) as a part of the larger risk information seeking and processing model. Also, risk-related beliefs influence behaviors in taking action (Griffin et al. 2002, p. 722-723) and this influence suggests that the need for information affects motivations along with the action and method of media consumers in these risk-related scenarios.

The risk information seeking and processing model also suggests that there are other factors—both direct and indirect—that drive the need for information sufficiency including: risk judgments (made up of perceived probability and perceived severity), institutional trust, and personal control. All of these factors have an impact on the effective response (or worry) of individuals and in turn affects information insufficiency (Griffin et al. 2004; Griffin, Dunwoody & Neuwirth, 1999).

The Influence of Risk Judgments (Perceived Probability and Perceived Severity) on Affective Response.

Judging the risk involved in a situation can be thought of in two main categories: perceived probability and perceived severity. Perceived probability is the “subjective perceptions of the probability of personal harm that would come from the risk” (Griffin et al., 2004, p. 29). Perceived severity is the perception of the seriousness of the harm from the risk (Griffin et al., 2004, p. 29). It would follow that the more a person thought that he or she would get hurt and the more severely he or she thought he or she could get hurt in a risky situation, the more that individual would fear or worry about the risky situation. So taking this thinking to the Bahamian populous, the more likely Bahamian residents thought that they or their property would be damaged in a tropical cyclone, the more likely they would “fear or worry” about tropical cyclones. This leads to the following hypothesis, borrowed from Griffin et al. (2004):

H1.1: Perceived probability will be positively related to fear/worry of tropical cyclones.

Taking the next step, the greater the perception Bahamian residents have about the severity of getting hurt in a tropical cyclone, the more likely they would “fear or worry” about tropical cyclones. This leads to the following hypothesis, borrowed from Griffin et al. (2004):

H1.2: Perceived severity will be positively related to fear/worry of tropical cyclones.

The Influence of Personal Control/Institutional Trust on Affective Response.

Prior research has defined personal control as an individual perception of the level of control that a person has over preventing vulnerability of harm from any given hazard (Ajzne & Timko, 1986; Schwarzer, 1992). Others have found a negative correlation between control and perception of risk (Morrison, Ager, & Willcock, 1999) which would imply a negative correlation between personal control and “fear and worry”. The more a person could control a situation the less “fear or worry” of the situation would occur. Stipek & Weisz (1981) refer to "internal control" as the belief by an individual that events and the outcomes of those events are controlled by them personally because of their own personal resources and abilities (p.102). Internal control is opposite that of “external control”, which is the belief that events are out of an individual’s control such and dependent only on “luck, task difficulty, powerful others” (Stipek & Weisz, 1981, p. 102). As “fear and worry” are related to an unknown future, it would follow that belief in controlling your own future would reduce your worry and fear. So then it follows that more a Bahamian resident thinks that they could avoid or control the risk of tropical cyclones, the less “fear and worry” resident would have of tropical cyclones. This leads to the following hypothesis, borrowed from Griffin et al. (2004):

H1.3: Personal control will be negatively related to fear/worry of tropical cyclones.

Griffin et al., (2004) describe institutional trust as “the judgment of the amount of trust that the respondent has in the ability of others to prevent the respondent from coming to harm” (p. 30). This definition along with other research (Earle & Cvetkovich,

1995, p. 19; Flynn, Burns, Mertz & Slovic, 1992; Slovic, 1987) seems to imply that the more an individual judges relevant agencies to protect and warn them in a hazardous situation, the less worry and fear that individual would have of that hazardous situation. Based on this logic, the more a Bahamian resident believes governmental institutions would either protect the population or warn the population about the risk of a cyclone, the less that resident would “fear and worry” about tropical cyclones. This leads to the following hypothesis, borrowed from Griffin et al. (2004):

H1.4: Institutional trust will be negatively related to fear/worry.

Why Do People Evacuate

So it seems that the perception of the risk associated with cyclones affects the level of fear associated with cyclones. After judging the risk of a cyclone, there are more steps in the process of deciding if that individual and family will evacuate as evacuation is just “one of several possible protective measures that may be taken in response to a warning message,” (Perry, Lindell & Green 1982, p.25) by a group of people. Previous research has looked at the bigger picture of how citizens decide to respond to warnings by social structure of the message and response (Chapman 1962, Janis 1962, Williams 1964, McLuckie 1970, Millet 1974). But as Drabek (1968) points out, societies are essentially made up of individuals reacting to outside influences:

Societies are composed of individuals interacting in accordance with an immense multitude of norms, i.e., ideas about how individuals ought to behave. ... Our position in that activities of individuals ... are guided by a normative structure in disaster just as in any other situation ... In disaster, these actions ... are largely governed by emergent rather than established norms, but norms nevertheless. (pp. 143-144).

When these norms are challenged, as in an impending cyclone, Perry, Lindell

Greene (1981) found four variables important to the evacuation decision-making process:

(1) The individual's definition of the threat being real (that is, the development of a belief in the warning); (2) the level of perceived personal risk (beliefs about the personal consequences of disaster impact); (3) the possession of an adaptive plan (acquaintance with a means of protection); and (4) the family context in which the warning is received (that is, whether or not all family members are accounted for). (p.28)

Looking at the first point of the perception of the threat being real seems to be the first step in a series of decisions. Without this first step none of the consequential decisions or actions can or will be taken. The literature supports this thinking in that no protective measures such as bracing homes or evacuations will be undertaken without the confirmation (Anderson, 1968; Janis, 1962; Janis & Mann, 1977; Williams, 1964).

Drabek (1969) points out three ways citizens get these warnings: from authority, from peers and the mass media (p.340). Each of these "warning mechanisms elicited different responses" (p.340) but generally people will react in one of three ways: leave immediately, confirm the warning threat or ignore it and continue with normal routines (p.340). In an effort to confirm the threat, Drabek (1969) found four main processes of confirmation: Appeal to peers, observation confirmation, latent confirmation and appeal to authority—including turning to the mass media for either confirmation or further confirmation (p. 343). After this confirmation then the next step could be evacuation. In summary, an individual receives a warning of a threat, that individual then attempts to confirm the threat, and then makes a decision on evacuation.

Taking all this together produces the following research questions:

RQ2: What media outlets do Bahamians residents rely on in deciding to take action during an approaching tropical cyclone?

RQ3: What influences media use by Bahamians in the evacuation decision-making process?

Getting The Information To Make A Decision

The electronic mass media—television and radio—seems to be the preferred method for most disasters in terms of warning of an impending event (Baker, 1991; Cate, 1994; CDERA, 2004; Drabek, 1969; Driscoll & Salwen, 1996; Perry, Lindell & Greene, 1982; Perry & Lindell, 1986; Moore, Bates, Layman & Parenton 1963; Prater et al, 2000; Quarantelli, 1980; Mileti, 1975; Rattien, 1994, Senkbeil et al. 2010; Vultee & Wilkins 2004). And even though most of this research is United States centric, The Caribbean Disaster Emergency Response Agency (CDERA, 2004, p.24) points out that local television and radio stations should be the primary source of warning information. CDERA even encourages Caribbean residents to ignore other electronic media.

When a cyclone is approaching your country the only authoritative and legal source of information is your meteorological office – not the Internet, not the Weather Channel, nor any foreign news weather service. Only your local meteorologist has the knowledge of your local area and only they can issue a realistic and accurate forecast. (CDERA, 2004, p.23)

However in the absence of television stations, radio takes priority in credibility and reliance for information (Perry & Lindell, 1986). There is research that suggests that television presents more credible warnings (Perry 1979, Perry & Lindell, 1986) but in

the long run television may be effective at first but newspapers are better in the long run of a disaster in communicating threats (Turner, 1983).

In some Caribbean countries original warning systems such as the “ringing of church bells, hoisting of hurricane warning flags, sounding of sirens” (CDERA, 2004, p. 24) may still be part of the message process. Sometimes the mass media fails to alert the public about an evacuation order or an emergency. When the mass media don’t alert the population or don’t alert the population with accurate information, it shows just how important television and radio are in the decision making process (Perez-Lugo, 2001) because more people are unprepared for the approaching disaster.

Many other factors seem to affect the likelihood of receiving messages about an evacuation or evacuation order. Having and maintaining close ties to a family is directly correlated with receiving evacuation messages (Perry et al. 1981) as is involvement in the community (Perry et al., 1982; Scanlon & Frizzel, 1979, Perry et al., 1986) and experiencing some sort of previous disaster (Perry & Lindell, 1986, Drabek & Boggs, 1968).

Event specific studies, such the one Prater et al. (2000) conducted, found that television broadcasts on the local and U.S. national level to be the chief information source in deciding to evacuate. Of lesser importance were local radio, peers, and local authorities. And of least importance were newspapers and the Internet. Lindell, Jing-Chen, and Prater (2005) found similar results in studying evacuations during Hurricane Lili. In 1996 Driscoll and Salwen found that in studying media consumption during Hurricane Andrew, television was rated as higher than other mediums in terms of

credibility and expertise (p, 300). It seems that television is the first medium residents use to find out information in a disaster generally and it would follow that the same occurs when making a decision about evacuating. In the Bahamas, because state media—both television and radio—are the voice of the government, they would be used more prevalently. And even though other international local news stations (meaning local network affiliates in the south Florida market) are available on the cable systems and over the air, the literature suggest that those outlets would not be relied on as heavily and would be outranked by other local media, including newspapers.

All of this taken together leads to the following which mimics a hypothesis of Lindell, Jing-Chein, and Prater (2005) :

H2 – Residents will rank media as effective in this order: state television> other local electronic media> international local news > international cable weather > local newspapers > Internet sources.

After residents have gathered the information and essentially confirmed that there is a threat to that individual’s home and family, other factors influence the decision to actually evacuate, or not evacuate, or to simply take some sort of mitigation effort.

Factors contributing to evacuation

Tropical cyclones are characterized by their destructive winds, storm surges and exceptional levels of rainfall which may cause flooding that is caused by storm surge or “water that is pushed toward the shore by the force of the winds swirling around the storm” (CDERA, p. 19) and is one of the biggest threats to property damage and loss of life (National Hurricane Center, 2011b). For many disasters, mitigation is the preferred

course of action (Rattien, 1994, p.44). For hurricanes, preparedness is emphasized over mitigation (Dow & Cutter 1998) because this type of disaster has not produced a culture that emphasizes mitigation over preparedness (Sheets 1995). This does not mean evacuations do not occur. But what contributes to that evacuation?

As individuals and the individuals' circumstances such as home, previous experience, and knowledge differ, so to will the individuals' motivation to evacuate differ. Deci and Ryan (2000) make the assumption that "people initiate and persist at behaviors to the extent that they believe the behaviors will lead to desired outcomes or goals" (p. 277). While Maslow (1943) postulates that the behavior of humans is based on wants and desires and that unsatisfied needs are the ones that influence behavior and that there are many needs that are triaged in order of importance. The needs are broken down into five levels from low to high: physiological, safety, love, esteem and the need for self-actualization. The second of five is the need for safety and is not limited to only physical but could also take into account psychological as well.

However, Rodgers and Sheldon (2002) point out that people "are most motivated when situational opportunities "match" their personal needs" (p. 86). The functionalism of media usage is summed up by Rodgers and Sheldon (2002) in that "the meaning of a behavior can only be understood with reference to its function for the person who behaves" (p. 86). Clary et al. (1998) posit that "people can and do perform the same actions in the service of different psychological functions" (p. 1517). In other words, people make decisions on media usage based on the outcomes they believe will occur along with their own personal psychology. So as it seems as motivation is influenced by

outside forces such as safety and if that individual's personal needs are met by the action; it would then follow that motivation to evacuate would be influenced by outside forces as well.

Living in a high-risk area was found by Baker (1991) to be a chief indicator or probability of evacuation when compared to those living in low risk areas (p. 294). In a study of the behavior of residents in seven high-risk areas over seven hurricanes, an average of 83% evacuated as opposed to a 37% evacuation rate in nearby low-risk areas over the same seven storms.

Whether because residents of high-risk areas are aware of the hazardousness of their locations or because public officials make greater efforts to evacuate the residents of those areas, it is clear that those who most need to leave are those who are most likely to do so. (Baker, 1991, p. 294).

However there are some chilling reminders that even with a high evacuation rate, lives are not always saved. For Hurricane Katrina's strike on New Orleans, Louisiana in 2005, the National Oceanic and Atmospheric Administration (NOAA, 2006) estimated an 80% evacuation rate. However 1,353 people died as a direct result of the storm, 275,000 homes were damaged or destroyed, insured damage estimated around \$40.6 billion, and the total economic loss pegged at \$100 billion (NOAA, 2006). Those numbers made Katrina the costliest hurricane in the United States and ranked the storm in the top five deadliest hurricanes to strike the United States (NOAA, 2006).

There are some non-indicators that Baker (1991) wrote may be "intuitively obvious" (p. 293) but are not good predictors of evacuation during a hurricane such as storm hit belief (p. 299) and hurricane awareness (p. 304). However Turner et al. (1984)

contradict Baker (1991) in that it was found that those having some knowledge about the disaster were more likely to receive the message about an evacuation or storm information. Age, gender, and past experience of a hurricane have been indicated as poor predictors of evacuations (Aguirre, 1991; Baker 1991). However some studies have shown that age does play a role in general evacuations (Perry et al. 1981; Mack & Baker 1961, p.51) and that past experience in some sort of disaster (not necessarily a cyclone) does have an influence as well (Quarantelli, 1980, p. 41). Quarantelli (1980) though, does emphasize that even though its not clearly a single thematic role of past experience, “there do appear to be some relationships between experience and evacuation; however, the literature and research data has so far failed to clearly establish the nature of the probable relationships and the conditions under which they hold” (p. 42).

In relation to gender though Fothergill (1996) in synthesizing the available literature on gender roles in disasters found that women not only were more likely to hear evacuation messages (Turner et al. 1979, 1981) but also more likely to evacuate (Beady and Bolin 1986) and men were more likely the gender to stay with the home in a protective role (Fothergill, 1996). Looking at ethnicity, Perry & Lindell (1991) found little influence on compliance rates of evacuation orders. In that study, it was found that perceived risk was the best indicator of compliance.

Another factor influencing evacuation is peer action (Baker, 1991). If the majority of the neighborhood has decided to evacuate, then residents are more likely to evacuate as well. This follows the confirmation paradigm (Baker, 1991) in that individuals are more likely to evacuate after having confirmed that there is a reason to

evacuate. However, more residents in a certain area may be evacuating because the majority of the residence in the area perceiving the same acceptability of the risk involved in that area. If that area is more likely to flood then more people will leave and the inverse can occur as well. Baker (1991) points out that the confirmation effect “probably exists (but) is unlikely to be as strong as often claimed” (p. 308).

However, following the uses and gratification paradigm, there is some influence on the differences of expectations from messages as “expectations and desires emanate from, and are constrained by, personal traits, social context, and interaction” (Rubin, 2009, p. 167). Because societies and people differ in expectations and desires, individuals have different motivations to evacuate and therefore different motivations to attend media in the evacuation decision-making process.

Home quality influences evacuation decision and media usage.

Mobile home owners are more likely to evacuate than any other housing group (Baker, 1979, p. 19) and this happens either because of evacuation orders being targeted specifically at this group or “because of their own recognition of the hazardousness of their homes” (Baker, 1991, p 298). Baker (1979) also found that those who had lived in homes for fewer than five years were also more likely to evacuate (p. 18) but the age of the home itself was not related to evacuation behavior (p. 19).

Another factor related to home quality was evidenced when Hurricane Gilbert struck Cancun, Mexico in 1988. Aguirre (1991) found that the less stable a home was rated in self-reports by homeowners the more likely they were to evacuate. Other existing research also backs this up (Perry and Lindell,1990; Drabek 1986, pp. 105-10).

But this indicator may very well be indicating something else. Whitehead et al (2000) writes that “since housing is strongly associated with economic status, analyses examining the effect of each individually may not be able to single out whether economic constraints or housing type has the more salient impact on individuals’ decisions” (p.135).

In the Bahamas, residents don’t live in mobile homes. In the United States, residents who live in mobile home are usually of a lower socio-economic stratum of society. Bahamian shantytowns inhabited by legal and illegal immigrants can be thought of being analogous to mobile home parks—from an economic, educational, and home structure standpoint. So it may be hard to separate the two variables as they are so seemingly connected and interconnected. However, because those with less sturdy homes have been found to be more likely to evacuate this population will be more likely to seek out media to make this decision on mitigation behavior.

Perry & Lindell (1986) found that individuals who perceived more risk to property and person are more likely to take some sort of action. So as the need for action increases, it would follow—the information-seeking characteristic of the uses and gratification paradigm activated—that the need for information would increase thereby increasing media consumption. Taking all of that into consideration, the following hypothesis is formed:

H3 – Perceived home quality will be negatively related to increased media consumption in the evacuation decision making process.

Another factor that influences evacuation behavior, and in turn media usage in the evacuation decision-making process, is false alarm experience.

False alarm experience influences evacuation decision and media usage.

In the story of “The Boy who Cried Wolf”, a young shepherd tends to the flock and to get attention he calls to the villagers that a wolf is attacking. Several times the villagers come and find no wolf so they start to not believe him. Soon there is an actual wolf attack and the shepherd calls out but no one comes to save the ravaged sheep. The moral of the story is that with so many lies, it’s hard to tell when the truth is being told. In the real world, the parallel is that with so many alerts that turn out to be false, it is hard to spot a believable alarm. The reaction to the actual threat is dampened. Alexander the Great used this desensitizing effect during one of his battles with “repeated noisy marches and counter-marches of Alexander’s cavalry kept[ed the enemy] on tenterhooks, and then, through repetition, dulled” the enemy’s reaction (Hart, 1962, p. 41). Afterwards Alexander easily took down his enemy. False alarms and the cry wolf syndrome occur all around us—even in the media.

World-wide communications—including the mass media—is central to reducing the loss of life and property caused by natural disasters though “public education, early warning, evacuation, and post-disaster relief” (Rattien, 1994, p.39) and is “in inextricably entwined with disasters and hazard mitigation” (Rattien, 1994, p.40). More and more technology and experts are used in all phases of disaster (Mileti, 1975; Rattien, 1994, p.40; Wenham, 1994, p. 35). And even with all of this involvement and prediction, nature is inherently unpredictable. So many times there will be warnings sounded for

events that never materialize. This phenomenon has been called false alarm or cry wolf syndrome based on the fable. This phenomenon summed up by several researchers is that when warnings are sounded and nothing happens future warnings will have been somewhat negated (Drabek, 1986, Breznitz 1984, Baker, 1979, 1991, 2002; Wilkinson et al. 1970; Wilkins, 2010; Killian, 1954; Moore et al., 1963; Dow and Cutter, 1998; Regnier, 2008; Quarentelli, 1980; Windham et al. 1977). False promises like false alarms both “provide information about the disconfirmation of an anticipated future” (Breznitz, 1984, p. 217). Similar to the false promise effect, false alarms “automatically reduce the credibility of the source of that promise” (Breznitz, 1984, p. 218).

Dow and Cutter (1998) actually used the variable “crying wolf” in assessing evacuation complacency. In that study (1998) of two hurricane hits on South Carolina within weeks of each other on different impact points. Those researchers found that there was some difference in the respondents who would definitively evacuate the area after an unnecessary evacuation two month earlier in the hurricane season. However almost half of the participants in both impact points indicated they would have to evaluate the situation (p. 249) and base their evacuation plans on the situation and not the evacuation alert.

There are opposing views of the cry wolf syndrome. Irish and Falconer (1979) found that experience with a disaster increases the likelihood of action in a future similar event. Killian (1954) found the same effect in Panama City in that residents felt duped by the false alarm but would still evacuate if there were another evacuation order. However, Drabek (1986) believes that, if officials are going to repeat warnings in the

same area and want to avoid the new warning being perceived as a false alarm, then the new warning needs to point out why the current warning differs from previous warnings (p.77). The efficiency of agencies to warn, though, is the problem with an efficient warning system. The more sensitive the detective systems are, the higher the frequency of false alarms (Green & Swets, 1966; Breznitz, 1984) and this in turn causes a devaluation of the credibility of the source from where the storm information comes from (Breznitz, 1984, p. 11).

The literature suggests that the individual is less likely to evacuate the more the individual is exposed to false alarms. Because an individual is less likely to evacuate, it would follow that the individual would need less information about the weather to decide if any mitigation action would be taken. All of this taken together leads to the following hypotheses:

H4 – False alarm experience will be negatively related to media usage likelihood during the evacuation decision-making process.

Baker (1991) points out that it is possible that residents living in a high risk area are more aware of the risk in the area; therefore more likely to evacuate and therefore needing more information to make a decision. Taking this along with the uses and gratification information seeking segment into account:

H5 – Knowledge of hurricane threat will be positively related to media usage likelihood consumption during the evacuation decision-making process.

Individuals though are as varied as the individual DNA strands that make up each individual. So there could be other factors that are inter-connected in the motivation to use media.

The Interplay Of Fear and Worry With Information Insufficiency, Media Usage

There is research that suggests that emotional reactions and moods have an influence on the way people attend to media (Batra & Stayman, 1990; Isen & Simmonds, 1978; Petty & Cacioppo 1986). Grunig (1983) adds that there are two more overarching outcomes when people use media: information processing and information seeking—the former being passive and the latter being active and purposeful (p. 11). This information-seeking function occurs when “a person purposively seeks information that has utility for him in deciding what to do in a situation” (Grunig, 1983, p.11).

Because of the interconnectivity of information-seeking and affective responses such as fear and worry the following research question is asked:

RQ4: How does fear and worry influence information insufficiency and media usage in the evacuation decision-making process?

Griffin et al. (2004) suggest that worry influences motivations toward information seeking. Based on previous explications, this researcher suggests that fear would have a similar and synchronous effect in that “fear and worry” would lead residents to believe that they need more information to deal with the risk of hurricanes and therefore lead to a information insufficiency—or the difference between the individual’s perceived level of knowledge to deal with a risk and the individual’s perceived current knowledge of that risk. This anticipated interplay is shown in diagram 1. In sum, the more a Bahamian

resident worried about the risk of a tropical cyclone, the greater information that resident would perceive is needed to cope with the risk. This thinking leads to the following hypothesis, adopted from Griffin et al., (2004):

H6.1: “Worry and fear” will be positively related to information insufficiency.

Taking this risk information seeking and processing model into account, the more a Bahamian resident feared a tropical cyclone, the more information the resident would think is required to deal with the risk from a tropical cyclone. This thinking leads to the following hypothesis adopted from Griffin et al., (2004):

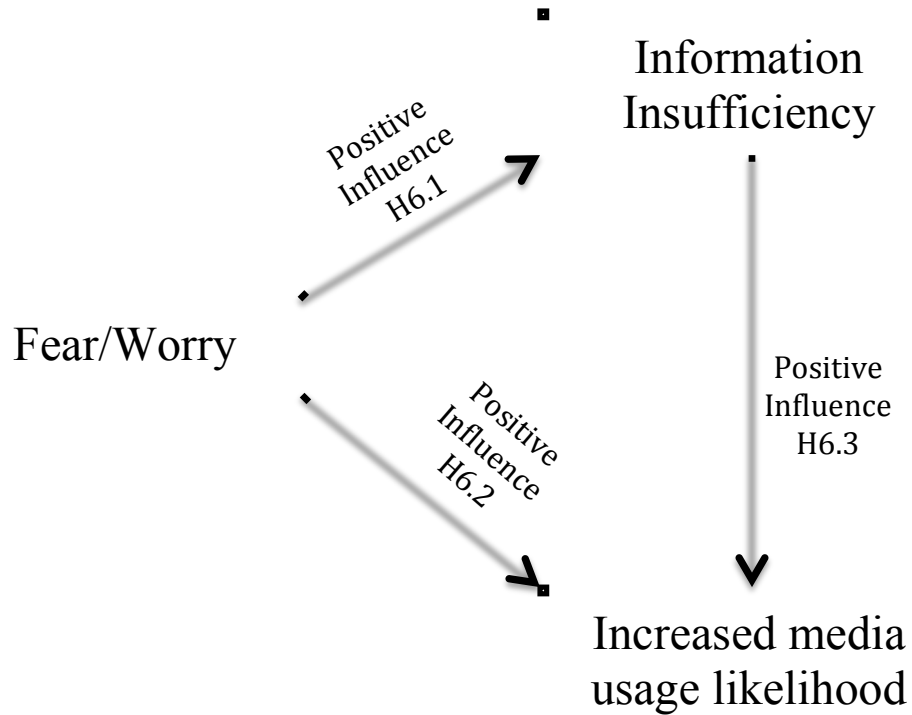
H6.2: “Worry and fear” will be positively related to media usage in the evacuation decision-making process.

The more a Bahamian resident believes that he or she lacks information to deal with the risk of a tropical cyclone, the more likely he or she is to judge that a higher level of information is required to decide what action—if any—to take during an approaching tropical cyclone. This thinking leads to the following hypothesis, adopted from Griffin et al., (2004):

H6.3: Information Insufficiency will be positively related to media usage in the evacuation decision-making process.

Diagram 1

Heuristic representation of anticipated interplay of variables fear/worry, information insufficiency, and increased media usage likelihood.



Research Questions and Hypotheses

In summary, people seek many gratifications when using media generally but during an approaching storm it would seem that the information-seeking segment of the uses and gratification paradigm would be the most prominent gratification sought. How much information residents need is influenced by several factors: socio-economic status, perceived home quality, previous false-alarm experience, “fear and worry”, information insufficiency. Fear and worry is also influenced by several factors that could also seem to have some influence on media use: perceived probability of damage to home, perceived personal control of events and the trust of social institutions.

The first research question is: “What is the relationship between fear and worry with hazard perception?” Another influence on the desire for information is the variable of “fear and worry”, which is influenced by several variables. If residents believe they are more likely to be injured in a storm they will be more fearful and worried about a storm. Therefore:

H1.1: Perceived probability will be positively related to fear and worry.

However the more perceived personal control residents have over their fate and the more trust residents have in social institutions the less likely they will be fearful and worried. Therefore:

H1.2: Perceived severity will be positively related to “fear and worry” of hurricanes and tropical storms.

However the more perceived personal control residents have over their fate and the more trust residents have in social institutions the less likely they will be fearful and worried about the risk of tropical cyclones. Therefore:

H1.3: Institutional trust will be negatively related to “fear and worry” of hurricanes and tropical storms.

H1.4: Personal control will be negatively related to “fear and worry” of hurricanes and tropical storms.

The second research question of the study is: “What media channels do Bahamian residents rely on in deciding to take action during an approaching tropical cyclone?” Because so many media outlets are available from international television to local radio, residents will have differing reliance on media leading to:

H2 – Residents will rank media as effective in this order: state television > other local electronic media > international local news > international cable weather > local newspapers > Internet sources.

Many factors affect the evacuation process and in turn should affect media use. This leads to the third research question: “What influences media use by Bahamians in the evacuation decision-making process?” It is clear that not every resident will have the same concerns when attending media during the evacuation decision-making process. Nor will everyone have the same motivators and influences to seek information. From the research, it seems that residents can be jaded by previous unnecessary efforts of mitigation or previous unnecessary evacuations. Others will believe their homes will be able to withstand a storm and will not have to make any decision because they will not be evacuated as their home is so structural sound.

Taking these personal characteristics into account, the following hypotheses are formulated:

H3 – Perceived home quality will be negatively related to media usage likelihood in the evacuation decision making process.

H4 – False alarm experience will be negatively related to media usage likelihood in the evacuation decision-making process.

H5 – Knowledge of hurricane threat will be positively related to media usage likelihood in the evacuation decision-making process.

The fourth research question is “How does how does fear and worry influence information insufficiency and media usage in the evacuation decision-making process?”

Given that worry about the risk of a cyclonic strike will lead residents to believe that they need more information to deal with the threat, it is expected that:

H6.1: Worry and fear will be positively related to information insufficiency.

H6.2: Information insufficiency will be positively related to media usage in the evacuation decision-making process.

H6.3: Information insufficiency will be positively related to media usage in the evacuation decision-making process.

The literature makes it clear that people use media for different reasons and with very different expected gratifications. During an approaching storm the main reason residents use media is to find out information about the storm to decide if an evacuation or mitigation action is warranted. However, because several factors affect evacuation behavior, the level at which an individual seeks out media will be varied. Factors that influence evacuation behavior include, but are not limited to, previous experiences with storms, perceived home quality, personal knowledge about the risks associated with cyclones, fear of cyclones, and how the individual perceives the government and personal efficacies. This study looks at media use in the evacuation decision-making process and some of the factors that influence that media use utilizing the uses and gratification paradigm and several segments of the risk information seeking and processing (RISP) model.

Chapter 3: Designing The Study

This study seeks to answer four overarching research questions and test eleven hypotheses about media uses and factors influencing that media use during the evacuation decision-making process during approaching cyclones in the Bahamas. A uses and gratification theoretical basis was used to investigate the overarching question of the connectivity of media use and hazard perception for Bahamians. The study looks specifically at the information-seeking segment of the use and gratification paradigm, as this is an intentional act of satisfying a need with a specific outcome. As Cutler & Danowski (1980) point out, individuals could be consuming the same message but with differing expectations and motivations (Deci & Ryan, 2000; Rogers & Sheldon 2002). The risk information seeking and processing (RISP) is also employed to investigate factors influencing hazard perception and how that perception interacts with fear and worry of the risk. A segment of the risk information seeking and processing model is employed as well to measure information insufficiency and how this information insufficiency influences media use in the evacuation decision-making process.

The study's first research question: "What is the relationship between hazard perception with fear and worry?" seeks to understand the interconnectivity between the way Bahamians perceive the risk of cyclones and their affective response or fear and worry about the risk. Four hypotheses are tested to help answer this question:

H1.1: Perceived probability will be positively related to fear and worry.

H1.2: Perceived severity will be positively related to fear/worry of hurricanes and tropical storms.

H1.3: Institutional trust will be negatively related to fear and worry of hurricanes and tropical storms.

H1.4: Personal control will be negatively related to fear and worry of hurricanes and tropical storms.

The second research question: “What media channels do Bahamian residents rely on in deciding to take action during an approaching tropical cyclone?” leads to the study’s first hypothesis:

H2 – Residents will rank media as effective in this order: state television > other local electronic media > international local news > international cable weather > local newspapers > Internet sources.

The third research question: “What influences media use by Bahamians in the evacuation decision-making process?” leads to the following hypotheses:

H3 – Perceived home quality will be negatively related to media usage likelihood in the evacuation decision making process.

H4 – False alarm experience will be negatively related to media usage likelihood in the evacuation decision-making process.

H5 – Knowledge of hurricane threat will be positively related to media usage likelihood in the evacuation decision-making process.

The study’s final research question: “How does how do fear and worry influence

information insufficiency, and media usage in the evacuation decision-making process?”

Given that fear and worry about the risk of a cyclonic strike will lead residents to believe they need more information to deal with the threat, it is expected that:

H6.1: Fear and worry of hurricanes and tropical storms will be positively related to information insufficiency.

H6.2: Fear and worry of hurricanes and tropical storms will be positively related to media usage likelihood in the evacuation decision-making process.

H6.3: Information insufficiency will be positively related to media usage likelihood in the evacuation decision-making process.

Gathering Data With A Survey

There are many ways to find out information about people including interviews, field observations, focus groups, case studies, and even ethnographic studies (Wimmer & Dominick, 2006). Each of these methods produce differing results and depend on exactly what the researcher is trying to achieve in terms of data.

Uses and gratification research has found that self-reports are an accurate way for people to provide data about their media use and motives (Rubin, 2009). Babbie (1973) points out that survey research is generalizable and is “almost never conducted for purposes of describing the particular sample under study. Rather, they are conducted for purposes of understanding the larger population from which the sample was initially selected” (p.47). This chapter looks at what a survey is and how it will be used to collect data to answer the research questions of this thesis along with testing the various

hypotheses. The chapter also explains the method employed in collecting data, factors affecting the collection of data and finally the variables that the survey measured.

Conducting Surveys: What Are They?

Researchers use survey research to collect information about people in many ways. The survey asks about the respondents feelings, values, behavior, even to explain their knowledge about certain topics (Fink, 2006). Surveys essentially “collect information about the same variables from at least two cases (normally far more)” (de Vaus 1995, p. 3) and compile this data into a matrix that can be analyzed. The questionnaire itself though can take several forms. First there are two types of surveys: self-administered questionnaires or interview; and generally four ways the survey is administered: in-person, over the phone, mail or on the computer including online.

Using self-administered questionnaires online and through the mail.

Researchers use self-administered questionnaires—either through the mail or online—most frequently especially when measuring variables with several values or response categories (Nardi, 2006; Wimmer & Dominick 2006, Bourque & Fielder 2003) that would be unreasonable to complete in an interview setting. Other reasons for using this type of questionnaire are for “investigating attitudes and opinions that are not usually observable” (Nardi, 2006, p. 67), generalizing to the population and for asking questions that may be uncomfortable in a face-to-face setting (Bourque & Fielder, 2003; Nardi, 2006, p.67). Because this type of questionnaire provides anonymity, respondents may be more likely to answer more candidly (Nardi, 2006; Wolf, 2008). Also because of the lack of interaction with a researcher, it is less likely that a researcher could influence

the responses when compared to a face-to-face interview (Nardi, 2006) but that also means there is a possibility that ambiguous questions cannot be clarified.

Self-administered questionnaires though have drawbacks—especially response rates (Babbie, 1999; Wimmer & Dominick, 2006; Bourque & Fielder, 2003; Nardi, 2006, p.68) and this low rate can “seriously affect how accurately researchers can generalize the results to the larger population” (Nardi, 2006, p.68). Some researchers (Bourque & Fielder, 2003) found a response rate for online-self administered questionnaires to be in the range of 10% and 20% however those questionnaires that were finished were more complete in terms of more questions being fully answered. The researcher is also not even sure who actually filled out the questionnaire and that could bias the results (Wimmer & Dominick, 2006; Nardi, 2006, p. 68; Brill, 2008)

The interview approach.

The self-administered questionnaire is the opposite of a survey interview where the researcher follows a specific script to “minimize any potential impact of individual interviewers' behavior on respondents' answers and the resulting data” (Schober, 2006) and respondents generally don't see the actual questionnaire (Wimmer & Dominick, 2006), which is usually highly structured (Nardi 2006). This type of questionnaire generally achieves a higher response rate than other types sometimes as high as 80 to 85 percent (Babbie, 1999, p. 242). The researcher can also make casual observations about the respondent such as race, home quality, language mastery, and even dress (Babbie, 1999, p.242). There is also the possibility—for in-person interviews at least—to confirm the identity of the respondent (Nardi, 2006), which is not possible with self-administered

questionnaires or telephone interviews. One problem researchers found with traditional method of data collection such as surveys—especially with minority groups—is a question of literacy (Hunt & Bhopal, 2003) and one way to cut through that illiteracy—either lack of language or cognition—is to use face-to-face interviews (Chaturvedi, McKeigue, 1994; Allison, Ahmad, Brammah, Symmons, & Urwin, 2003, McCluskey & Topping, 2011). This method has some obvious drawbacks in that the interviewer is making some sort of interaction with the respondent and that interaction could have some bearing on the resulting data. The interviewer’s characteristics such as gender, race, sexual orientation, age, tone, body language, and even voice could affect the answers the respondents offer (Nardi, 2006, p. 70).

Using the telephone to complete the questionnaire.

The telephone interview has a relatively low cost, can include more detailed items, and has a high response rate (Outwater, 2008; Wimmer & Dominick, 2006). Some researcher such as Rogers (1986) found that there was little difference in the quality of data collected when comparing telephone interviews with in-person interview on “complex attitudinal and knowledge items” (p. 207). This seems to suggest that people generally have no difficulty in expressing their attitude towards a subject and their knowledge of subjects. The telephone interview has obvious drawbacks as well. Members of the population without a telephone or unlisted numbers are systematically eliminated from the sample (Babbie, 1999, p. 247) along with those who have asked to have their numbers listed on “do not call lists” (Outwater, 2008). An entire segment of the population in the United States and worldwide has started using cell-phones

exclusively (Blumberg, 2008; Buskirk, 2008, Lavrakas, Shuttles, Steeh & Fienberg, 2007) or the “cell-phone only population” (Lavrakas, Shuttles, Steeh & Fienberg, 2007, p.841). Ehlen and Ehlen (2007) predicted that by the end of 2009 more than 40 percent of adults in the United States under 30 years of age would have adopted a “cell phone only” lifestyle; while at the same time only 5 percent of adults over the age of 65 years would have done the same (Ehlen & Ehlen, 2007). This means that using conventional sampling techniques of using numbers from a landline phone book would not only exclude less of the population generally but also fewer younger persons would be included. Any attempt to include the “cell phone only” users would add costs and would probably not be as precise as landline methods (Lavrakas et al. 2007).

Using Online Questionnaires

Online surveys have been found to have some drawbacks (Kaplowitz et al. 2004) but this method offer the advantage of reaching a large section of the population without direct intervention. Some of those drawbacks include a lower response rate when compared to traditional mail surveys (Krosnick, 2000). Kaplowitz et al. (2004) point out that one of the major issues with online surveys and the response rates could be traced to the relative newness of the technology when compared to mail surveys. Kaplowitz (2004) points out that “less time and attention have been devoted to developing and testing motivating tools to increase Web survey response, compared to the time spent studying tools employed in mail surveys (e.g., the use of personalization, precontact letters, follow-up postcards, and incentives)” (p.95). Some researchers have found that phone surveys and personal interviews have higher response rates even though Internet

administered surveys are a cheaper alternative (Kaplowitz, 2004). However there are some positive attributes of using online surveys including “completeness of data” (Kongsved, 2007) but that comes with a reduced response rate (Kongsved, 2007). In fact, Leece et al. (2004) pointed out that despite “the widespread availability and potential ease of Internet-based surveys” researchers should not think that it would translate into a higher response rate when compared to traditional paper surveys.

General concerns with survey research

Correct use of survey methodology requires a systematic sampling of a representative random sample with a high response devoid of any sampling bias (Cook, Heath, Thompson, 2009; Krosnick, 2000; Hox and deLeeuw, 1994). Despite the differences in response rates a representative sample is still the goal of any design (McCluskey, and Topping, 2011). Careful planning and tailoring of the survey design to the characteristics of target populations can increase response rates and representativeness of lifestyle survey data. When comparing an incentivized and non-incentivized rate, there was a more than a 100% increase in response rates with incentivized questionnaires (Edwards et al. 2009, p.314). Edwards et al. (2009) also found some interesting factors that contribute to increased response rates for electronic questionnaires when used:

- When personalized salutation was used, or when a white background was used over a black background the response rate increased by a quarter.
- When a picture was in the recruitment email the response rate tripled.

- When told others had already answered, or had an instant notification, or when a shorter questionnaire was used the response rate increased by half.
- When a non-monetary incentive, such as early grade feedback (Edwards et al. 2009 p.5) the response rate increased by about a quarter.
- When a deadline was given the response rate increased by a tenth.

However an appeal for help in the subject line did not increase a response rate (Edwards et al. 2009 p.11). In addition, the response rate decreased by more than a half when the recruitment email was signed by a male (p. 9-10) and decreased by a fifth when the word “survey” was in the subject line of the recruitment email (p.10-11).

Survey research can collect a lot of data but there are some drawbacks with this type of research. Researchers use surveys to measure attitudes of the whole from a generalizable or even representative sample. But even with this power, a survey cannot assist in make several judgments about causality between two variables.

Why a survey is appropriate for this study

Even though a survey can be descriptive or explanatory (Calder, 1998), Babbie (1973) points out that survey research has the power to make “explanatory assertions about the population” (p. 58) and would allow for multi-variate analysis. This is especially true when the researcher undertakes probability and representative sampling of the population under study (Babbie, 1999, p. 234). Calder (1998) adds that survey research can perform both descriptive and explanatory functions simultaneously (p.639). Even though mostly explanatory, this study does have descriptive attributes. Surveys provide data that are essentially “descriptions of feelings and perception, values, habits”

(Fink, 1999, p.4) along with socio-economic status information such as age, gender, income, education; and this information may not be available from other available sources or other methods.

Other researchers (Calder, 1998) follow Wimmer & Dominick's (2006) suggestion that survey research is also best when measuring "lifestyle information, attitudes, motives, intentions and so on" (p. 180). Most of this study is looking at those specific attributes—especially feelings, perceptions, and habits. Also because the researcher may not be able to be physically present in the Bahamas—the area of the study—the fact that a survey is "not constrained by geographic boundaries (and) can be conducted almost anywhere" (Wimmer & Dominick, 2006, p.180) was another consideration when selecting the survey method. This study looks at, as Babbie (1973) describes, a "single-time description" (p. 68) and will be used for the "determination of relationships between variables at the time of study" (p. 62), a cross-sectional survey would seem be appropriate.

This method not only allows the researcher to identify patterns in media usage but also as Wimmer and Dominick (2006) explain: "the results allow researchers to examine the interrelationship among variables and to develop explanatory inferences" (p.179). And even though sometimes challenged in terms of their "ambiguity" (p.74) or lack of precision in measuring the population, Babbie (1973) adds, "ultimately, sample surveys can provide very accurate estimates about the population that that they portray" (p. 74). However this would only be accomplished with a probability or representative sample of that population.

Why use New Providence As The Population

The capital city of Nassau is located on New Providence and of the 330,000 residents of the country almost 79% or 260,000 live on that island (IMF, 2011). Nassau is the commercial and political center of the country and presents a cluster of the majority of people. The Bahamas currently has 41 constituencies or political divisions similar to districts in the United States. Of that number more than half (25) are located on New Providence. Each of these constituencies changed over time as the government attempts to keep each with about 3,000 eligible voters in each. Before each general election—about every 5 years—a commission redraws boundaries to account for population shifts¹.

How The Sample Was Collected

The researcher conducted data collection in two manners: online self-administered questionnaire and a self-administered paper questionnaire. In the first instance, the researcher sent an Internet link to the questionnaire utilizing the website SurveyMonkey.com. The various email lists used to send the questionnaire link were gathered by the researcher through contacts within the political, business, banking, and non-profit communities on the island. A flyer was also included in the introductory email hoping to increase the response rate (Edwards et al. 2009). It was intended that those constituencies or areas without representative numbers would then be targeted for face-to-face interviews utilizing the same survey instrument. Also, the paper self-administered

¹ Preliminary reports of the 2011 Bahamian Boundaries Commission recommends a reduction of constituencies from 41 to the constitutional minimum of 38. The Commission recommends the elimination of two existing constituencies and redrawing—and renaming—the remaining 23 constituencies. Many of the names of the constituencies used in this study could be eliminated and changed in the upcoming elections of 2012. This is common practice in The Bahamas.

questionnaire was also distributed through social institutions such as churches and political parties on the island of New Providence.

It was intended that in the second phase, constituencies that did not have sufficient responses would be enlisted through door-to-door recruitment. A systematic recruitment process was to be followed in areas with the highest voter turnout in the previous election would have been enlisted first, and then the area with the second highest voter turn out etc. until a representative number of responding households was achieved. However this did not happen because the researcher had left the island before the completion of online data collection.

A response rate of about 30% was anticipated for the Internet survey and about 40% for the door-to-door recruitment (Wimmer & Dominick p.205); even though it is thought that response rates to most survey research is declining (Krosnick, 1994; Cook, Heath, Thompson 2000). It should be pointed out that these anticipated response rates are based on U.S. data and comparable data for the Bahamas is not available. A sample size of around 400 was desired for the study because a sample of that size would have a sample error of about +/-5% at the 95% confidence level. The sample of 381 had a sample error of +/- 5.02% at the 95% confidence level.

What Did Happen Was

A flyer (see appendix) and a link to the online version of the instrument using SurveyMonkey.com was sent to several online lists of Bahamians living on the island of New Providence. The questionnaire, in both forms, was administered between August 4, 2011, and September 15, 2011. The total number of email addresses utilized was 3,949

which yielded 372 completed surveys. This resulted in a response rate of 9.4%. A total of 100 paper surveys were printed and disseminated to various community offices throughout the island. Of the paper surveys, 47 were returned but only 9 were completed for a response rate of 9%. The overall response rate was 9.4%. The researcher discarded a total of 37 online surveys and 38 paper surveys because of incompleteness.

Weather threatens the island of New Providence.

During the period of survey administration four cyclones either threatened or hit the county as a whole or specifically the island of New Providence and are discussed here and summarized in Table 2. Tropical Storm Emily was the fifth named storm of the North Atlantic basin hurricane season and with winds up to 50 miles per hour threatened the country, causing meteorologists to issue tropical storm warning for some of the southernmost islands of the archipelagic country. On New Providence, interest was high as this was the first named storm to threaten the country in general and that island specifically for the 2011 Atlantic basin hurricane season. However on New Providence the only effect was a deluge of rain and severe thunderstorm warnings (Brown, 2011).

Hurricane Irene followed a few days later when that storm formed on August 20, 2011 as the ninth named storm of the North Atlantic basin hurricane season. When it formed just east of the Lesser Antilles, it formed the telltale cyclonic spin early and prompted the National Hurricane Center to issue advisories within hours (National Hurricane Center, 2011). After trekking through the Caribbean, the storm took aim on the Bahamas as a category 3 hurricane with sustained winds of 120 miles per hour and gusts up to 140 miles per hour (National Hurricane Center, 2011). The early project path track

of the storm had it taking direct aim for New Providence island, however it changed path a few hours out and skirted the island (BBC, 2011) and moved on to the eastern seaboard of The United States. No deaths were reported in the Bahamas (Robards 2011) but the storm left between \$200M and \$300M worth of damage in the country. Hurricane Katia formed August 29, 2011 and Tropical Storm Maria formed September 6, 2011 becoming the 11th and 13th named storms of the season. Neither made landfall near the Bahamas but had initial tracks that mimicked Hurricane Irene (NOAA 2011).

Effects on reporting.

Many of the variables in the study could very well have been skewed as a consequence of experience with the storms during the surveying period. In some instances this effect could have been positive and sometimes negative. Take for example one of the hazard experience variables, “false alarm experience”, and the immediate effect that experiencing a storm such as Hurricane Irene could have had on respondents. A respondent would probably rate their experience with false alarm high after experiencing Hurricane Irene than those who didn’t experience that particular storm. Consequentially those who responded without that immediate experience of a storm and took the survey before the storm even formed may not be evaluating their false alarm experience similarly to those who did experience it. This may explain some variance in results. Other variables that may have been skewed are threat knowledge, current knowledge and information threshold in that during coverage of a storm most local press outlets churn out information on the storm and storms in general. This again could lead

respondents who took the survey before the formation of Hurricane Irene to have a different perception of their knowledge of the storm and the threat of a storm in general.

*Table 1
Cyclonic Events Effecting New Providence & Bahamas during the survey period of August 8 and September 15, 2011.*

Event	Storm Formed	Storm Concluded	Actions	Reference
Tropical Storm Emily	August 1	August 7	Tropical storm warnings issued for the parts of the Bahamas	Brown 2011
			Tropical storm watch issued for New Providence island.	Nancoo-Russe 2011
Hurricane Irene	August 20	August 29	Tropical Storm warnings/watches posted in southern islands.	Tribune 2011
			Tropical storm force winds felt for two days on New Providence.	Tribune 2011
			Extensive damage reported on several islands near New Providence.	BBC 2011
			Even though forecasted to make landfall on New Providence, the storm skirts the island and avoids a direct hit.	BBC 2011
			Costs country between \$200M and \$300M in damages.	AIR 2011
		No deaths reported.	Robards 2011	
Hurricane Katia	August 29	Sept. 10	Storm follows similar path of Hurricane Irene but does not make landfall.	NOAA 2011
Tropical Storm Maria	Sept. 6	Sept. 16	Storm follows similar path of Hurricane Irene but does not make landfall in The Bahamas	NOAA 2011

Variables Measured

A total of nine independent and four dependent variables were measured in the study utilizing the questionnaire that was approved by The University of Missouri-Columbia's Institutional Review Board (IRB) on August 4, 2011. The variables are discussed further.

Measuring Hazard Perception And Fear/Worry Of Cyclones – Hypothesis One

Hypothesis one has four independent variables (perceived probability, perceived severity, perceived institutional trust, and perceived personal control) and one dependent variable (fear/worry of a storm). Information that speaks to the first independent variable of hypothesis one—perceived probability—was measured by a single item responded to

on a 7-point bi-polar scale ranging from “no chance” to “certain chance”: “How likely are you to be hurt in the future from a hurricane or tropical storm.” This single item measure was based on the 2009 study by Griffin et al. on risk information seeking and processing. A larger score indicated a larger “subjective perceptions of the probability of personal harm that could come from” (Griffin et al., 2004, p. 29).

Information that speaks to the second independent variable of hypothesis one—perceived severity—was measured by a single item responded to on a 7-point bi-polar scale ranging from “not serious at all” to “as serious as it is possible”: “How do you think you would be hurt in a storm?” This single item was again consistent with the risk information seeking and processing model (Griffin, Neuwirth, Dunwoody, and Giese, 2004). A larger score indicated a higher perception of the seriousness of a storm.

Information that speaks to the third independent variable of hypothesis one—institutional trust—was measured by a 4-item index that measured trust in government and its agencies about the risk associated with hurricanes and tropical storms. Agreement with the following statements was measured on 7-point Likert scale with “strongly disagree” and “strongly agree” as the bi-polar anchors:

- Government officials care about the health and safety of people like me.
- The Government is doing a competent job of protecting people from risks related to hurricanes and tropical storms.
- I trust government to protect me from risks related to hurricanes and tropical storms.

- I trust that government agencies will alert me to the risks of an approaching hurricane or tropical storm.

The values for each response was averaged with a mean value of 4.08 (SD=1.63) and a Cronbach’s $\alpha = 0.894$ was calculated for the variable. The four responses loaded on one factor as well.

Table 2
Factor Loadings, Reliability, and Variance Explained for Institutional Trust Variables

Items	Loading	Cronbach’s Alpha (α)
Government officials care about the health and safety of people like me.	0.914	
The Government is doing a competent job of protecting people from risks related to hurricanes and tropical storms.	0.941	0.894
I trust government to protect me from risks related to hurricanes and tropical storms.	0.895	
I trust that government agencies will alert me to the risks of an approaching hurricanes or tropical storm.	0.733	
Variance Explained=76.53%		

Information that speaks to the fourth independent variable of hypothesis one—perceived personal control—was measured by a single item responded to on a 7-point Likert scale with the anchors of “strongly disagree” and “strongly agree”: “In my life, it would be easy for me to avoid becoming hurt in a hurricane or tropical storm strike.” This measure was borrowed from Griffin et al. (2004) who, themselves, based the item on Ajzen’s (1988) measure of perceived behavioral control and expected that the item would “represent a summary judgment the individual makes about both personal efficacy

... and response efficacy ...” (p. 53).

Information that speaks to the lone dependent variable of hypothesis one—fear and worry of a cyclone—was measured by an eight-item index on a 7-point Likert scale with the anchors of “strongly disagree” and “strongly agree”. Borrowing from Murriss et al. (2001), Muris (2002) and the Fear Survey Schedule for Children-Revised (FCCS-R) from Ollendick (1983), respondents were asked about their agreement with the following:

- I am fearful of the threat of hurricanes and tropical storms in my area.
- When a hurricane or tropical storm has been detected I get scared.
- During a storm/hurricane, I’m scared of having no electricity.
- During a storm/hurricane, I’m scared of getting hurt.
- During a storm/hurricane, I’m scared of my home being damaged or destroyed.
- I am scared of hurricanes.
- I am scared that I may get killed if a hurricane or tropical storm strikes my island.

The mean value of responses was 3.83 (SD=1.71). A factor analysis (Table 10) showed that showed that these variables sufficiently loaded on to one variable explaining 66.4% of the variance with a Cronbach’s α value of 0.923; thereby creating a the variable “fear/worry”.

Table 3

Correlation values between demographics and hazard perception variables: perceived probability (P.P.), perceived severity (P.S.), institutional trust (I.T.), and personal control (P.C.); and fear/worry (F/W)

	P.P.	P.S.	I.T.	P.C.	F/W
Gender					
Pearson correlation	-0.060	-0.096	-0.038	0.026	-0.038
p-value	0.241	0.061	0.465	0.610	0.459
Age					
Pearson correlation	0.047	0.038	0.046	-0.038	0.144
p-value	0.357	0.455	0.369	0.455	0.026
Education					
Pearson correlation	-0.213	-0.139	0.097	0.059	-0.162
p-value	<0.000	0.007	0.060	0.252	0.002
Household Income					
Pearson correlation	-0.293	-0.244	-0.097	0.128	-0.278
p-value	<0.000	<0.000	0.058	0.012	<0.000

Measuring media in the evacuation decision-making process – Hypothesis Two

Information that speaks to hypothesis two was measured with a 20-item index made up of the different media outlets available. The index was measured by asking respondents about the likelihood of using different media outlets to decide what action to take as a hurricane approaches. The media outlets that respondents were asked about broadly were: state media (ZNS-TV and ZNS-Radio), other local electronic media (Love 97 Radio, 100 Jamz Radio, MORE 94 Radio, and Joy FM Radio), local newspapers (The Tribune, The Nassau Guardian, The Bahama Journal, and The Punch), international local TV or south Florida affiliates (NBC South Florida, WSVN South Florida, CBS South

Florida, and ABC South Florida), international national TV (The Weather Channel, CNN, MSNBC, Fox, and The BBC) and Internet news sources. The likelihood was asked on a 7-point scale with the anchors of “not at all likely” and “very likely”. The responses for outlets included in each category were averaged to form each variable. A Cronbach’s α value for each of the variables was calculated. The six variables had Cronbach’s α values ranging between 0.941 and 0.754 (see Table 7).

Table 4
Reliability of Storm Usage Variables

Variable	Cronbach’s α
State	0.754
Other local electronic media	0.808
International local news	0.941
Cable station	0.802
Local newspapers	0.756
Internet website usage	n/a

Measuring Perceived Home Quality - Hypothesis Three

Information that speaks to the independent variable of hypothesis three—perceived home quality—was measured by a six-item index of statements of which respondents were asked to rate the likelihood of damage to their home on an increasing gradual scale of storm strength beginning at thunderstorm ending at a category 5 hurricane. The likelihood of damage was be asked on a 7 point Likert scale with the anchors of “strongly disagree” and “strongly agree”. “Strongly disagree” was weighted at “7” and “strongly agree” was weighted at “1”. The scores from each were summed and a larger value would indicate the respondent had a higher perception of the quality of their home. Respondents were asked to rate the following statements:

- My home would be damaged during a thunderstorm.
- My home would be damaged during a tropical depression.
- My home would be damaged during a tropical storm such as Bonnie in 2010.
- My home would be damaged during a small hurricane such as Noel in 2007.
- My home would be damaged during a medium strength hurricane such as Francis and Jeanne in 2004.
- My home would be damaged during a major hurricane such as Hurricane Andrew in 1993 or Floyd in 1999.

The responses were summed; therefore a larger value would indicate a larger perception of home quality. The mean response to this question was 34.23 (SD=6.35). A Cronbach's $\alpha = 0.86$ was calculated for this variable. A perfect score would have been 42.

Measuring False Alarm Experiences – Hypothesis Four

Information that speaks to the independent variable of hypothesis four—false alarm experience—was measured by a three-item index responded to on a 7-point Likert scale with the anchors of “strongly disagree” and “strongly agree”. Respondents were asked to think about the last storm that they could remember and then asked about their agreement with statements about taking unnecessary action (evacuation or mitigation action) during that storm. The statements were:

- I boarded up my home unnecessarily in that there was little damage in my area.
- I left my home unnecessarily as there was no damage in my area.

- I sandbagged my home unnecessarily as there was no flooding in my area.

The agreements with each statement were summed and larger score would indicate a larger false alarm experience. The mean of this variable was calculated at 3.33 on a 7-point scale (SD=2.038). The closer a respondent's responses got a perfect 7.0 the more false alarm experience they had. A Cronbach's $\alpha = 0.86$ was calculated for this variable.

Four other statements were included in the questionnaire that were expected to be used as opposite question and those statements where:

- I would likely board up my home given the same warning.
- I would likely leave the island given the same warning.
- I would likely do nothing given the same warning.
- I would sandbag my home given the same warning.

However since these questions asked about expected projected behavior and not necessarily opposite questions of false alarm experience, the data were not used.

Measuring Threat Knowledge – Hypothesis Five

Information that speaks to the independent variable of hypothesis five—threat knowledge—was measured by a single item responded to on a 7-point Likert scale with the anchors of “strongly disagree” and “strongly agree”. Similar to other researchers (Griffin et al. 2004, Griffin et al., 1999), respondents were asked their agreement with a statement about perceived knowledge of the treat of cyclones: “I am aware of the threat of hurricane and tropical storm strikes in my area.”

The variable threat knowledge was calculated as the mean of agreement with a statement about perceived knowledge of the threat of cyclones. The responses were measured on a 7-point scale; so that the closer a respondent scored towards 7.0 the more that respondent thought they knew about the threat of cyclones. The mean of this variable was 6.16 (SD=1.30).

Measuring Differences In Media Usage Likelihood—Dependent Variable of Hypotheses Three, Four, Five and Six

Information that speaks to the dependent variable—difference in media usage during the evacuation decision-making process—for hypotheses three, four, five, and six was measured in several steps. Respondents were asked about the likelihood of using different media on a normal day and during the evacuation decision-making process. The media channels respondents were asked about broadly were: state media (TV and radio), other local media (TV and radio), international local TV (ie South Florida affiliates), international national TV (ie Weather Channel, CNN, etc) and Internet news sources. The likelihood of usage was asked on a 7 point scale with the anchors of “not at all likely” = 1 and “very likely” = 7. A factor analysis showed that emergency usage loaded primarily on four categories:

- State Media
- Major Local Newspapers
- Local Electronic Media/Cable Channels/International Localized Media/Internet Usage
- Smaller Local Newspapers.

Each of these categories was then recoded into four variables based on loading concentration coherence (see Table 5). The same overall variables were used for regular usage (State media, major local newspapers, local electronic media/cable channels/international localized media/Internet usage, and smaller local newspapers).

It has to be noted that originally, the item “internet usage” loaded slightly higher on the variable that included minor local newspapers. However, the researcher decided to include “internet usage” in the new variable that included “local electronic media, cable networks, and international local media” despite the item have a slightly lower loading figure. This was done because “internet usage” fit better in that category conceptually—with the media being generated outside of the country generally—and reliably (a higher Cronbach’s alpha score) in that fourth new variable.

The same categories were used for normal usage to create four new variables based on normal usage. The difference between emergency usage and normal usage was created to form four new variables called difference in media use-state media, difference in media use-major local newspapers, difference in media use-local electronic media/cable channels/international local media/Internet, and difference in media use-local newspapers.

For hypotheses three, four, five, and six, media use was grouped together using the same loading concentration coherence used for the variable “differences of media use in a storm”. A paired sample t-test was ran between normal media usage and usage during the evacuation decision-making process utilizing the same four factors derived for the variable “difference of media use in a storm” based on loading concentration

coherence: media use-state media, media use-major local newspapers/Internet use, media use-local electronic media/cable channels/international local media, and media use-minor local newspapers. A significant increase was found in three of the four factors (see table 6).

*Table 5
Factor Loadings, Reliability, and Variance Explained Emergency Media Usage*

Variable	Items	Loading	Cronbach's alpha (α)
State Media	ZNS – TV13	0.849	0.745
	ZNS – Radio	0.827	
	Variance Explained = 8.29%		
Major Local Newspapers	Tribune Newspaper	0.585	0.842
	The Nassau Guardian	0.520	
	Variance Explained = 6.74%		
Minor Local Newspapers	The Bahama Journal	0.503	0.717
	The Punch	0.541	
	Variance Explained = 13.18%		
Local Electronic Media, Cable Networks, International Local Media, & Internet	Love 97 – Radio	0.531	0.894
	100 Jamz – Radio	0.605	
	More 94.9 – Radio	0.549	
	Joy FM – Radio	0.540	
	NBC – South Florida	0.748	
	WSVN – South Florida	0.760	
	CBS – South Florida	0.794	
	ABC – South Florida	0.776	
	CNN – Cable	0.753	
	MSNBC – Cable	0.768	
	Fox – Cable	0.674	
	The Weather Channel	0.396	
	BBC – Cable	0.508	
Internet	0.404		
Variance Explained=33.74%			

For state media the largest statistically significant increase of usage likelihood was found. For major local papers and the combined variable of local electronic media, cable TV, international local media and internet use there was a slight but statistically significant increased usage likelihood during the evacuation process for each of those variables. For minor local papers there was a decrease in usage likelihood however this decrease was not statistically significant.

Table 6
Change in Emergency Media Usage

Variable	Mean Change	t-value (df = 380)
State Media	2.33	21.29***
Major Local Papers	0.29	2.99**
Local Electronic Media, Cable TV, International Local Media, and Internet Usage	0.54	8.30***
Minor Local Papers	-0.03	-0.562

Note. * p < 0.05, ** p < 0.01, *** p < 0.0001

Measuring Information Insufficiency – Hypothesis Six

Hypothesis six utilized two independent variables—fear/worry of cyclones & information insufficiency—and two dependent variables—differences in media usage likelihood and information insufficiency. Two of these three variables have already been explicated: fear/worry (hypothesis one) and difference in media usage likelihood (hypotheses three, four, and five). Information that speaks to measuring the variable information insufficiency in hypothesis six was measured in two steps. Respondents were asked two questions. The first question was about amount of information the individual currently has about hurricanes and the second question was about the amount

of information the individual believes they need to address the risk of a hurricane. Respondents used a scale of zero to 100, where zero means knowing nothing and 100 means knowing everything they could possibly know about hurricanes. The value asked in the first question was used to form the variable “current knowledge” and the second variable was used to create the variable “information threshold”. The difference between “information threshold” and “current information” formed the new variable “information insufficiency”.

Chapter 4: Presenting The Results Of The Study

This thesis investigates media use and factors influencing that use during the evacuation decision-making process during approaching cyclones in the Bahamas. Many variables factor into the decision to take some sort of mitigation action during an approaching storm. However the mitigation action—or lack of action—is the final step in the process. Before a decision can be made, the relevant threat information has to be known to the individual and several factors effect how much information that individual believes is required to make a decision. These factors include hazard influences such as false alarm experience; personal characteristics such as perceived knowledge of the threat of cyclones coupled with demographical influences (age, gender, income, education); perception of the sturdiness or quality of shelter; and the way the hazard itself is perceived including the way the risk from the storm is judged. Utilizing the uses and gratification model, with the information-seeking element activated, the more information that individual needs—or believes is needed—the more that individual would attend to media in the decision-making process.

The Makeup of the Sample

To test the study's hypotheses and answer the research questions, a cross-section survey was administered in two formats—online and paper—utilizing the same battery of questions and was administered between August 4, 2011, and September 15, 2011. The sample (n=381) represented individuals from the general population of residents on the island of New Providence in the Bahamas and pretty much matched with the overall

demographical mean of the island.

The mean age of respondents was 34.8 years (SD=12.1) and a median age of 32.0. The Bahamas Department of Statistics projected a median age for the island of New Providence for 2011 at 29 (Bahamas Department of Statistics 2008b) and the projected median age for the country is 31 (Bahamas Department of Statistics 2008c). The sample was almost evenly split in terms of gender with 50.7% reporting being female which is consistent with the country wide average of 51.29% being female (Bahamas Department of Statistics, 2009).

In terms of education, most of the respondents had attended at least some college and almost a third actually had a first college degree (see table 3). About an eighth of the sample had two more years of education beyond the first degree (either a masters degree or bar school). While only a small portion had not completed high school. It is impossible to compare this representation to the Bahamas, as the Department of Statistics does not collect this type of information in the countrywide census.

The latest reported average household income on New Providence was \$46,692² (Bahamas Department of Statistics, 2008a) and a large portion of those sampled reported income levels either within a range that encompassed that average or a range near that average. In that, the two largest segments of the sample reported a household income between \$30,000 and \$44,999 (91 responses or 23.9%) and between \$45,000 and \$59,999 (66 responses or 17.3%). These two ranges accounted for 41.2% of the sample. Also, more than half of the sample (64.0%) reported a household income less than \$60,000;

² The Bahamian Dollar (\$BD) is pegged to the United States Dollar (\$USD) at a ratio of 1:1.

almost a quarter of the sample (22.2%) reported a household income between \$60,000 and \$89,999. The remaining 14.7% reported a household income over \$90,000. The reported average household income in the country is \$43,427 (Bahamas Department of Statistics 2008a) which is lower than the reported average for the island of New Providence which is \$46,692 427 (Bahamas Department of Statistics 2008a).

Table 7
Educational levels of respondents

Level of Education	Males	Female	Total
Some primary school	0 (0%)	2 (1.9%)	2 (0.5%)
Some high school	2 (1.1%)	4 (2.1%)	6 (1.4%)
High school graduate	21 (11.2%)	17 (8.8%)	44 (10.3%)
Some college education	55 (29.4%)	77 (39.7%)	145 (33.9%)
Bachelors degree	67 (35.8%)	58 (29.9%)	147 (34.3%)
Some graduate school	8 (4.3%)	8 (4.1%)	17 (4.0%)
Masters degree or completion of legal bar school training	30 (16.0%)	22 (11.3%)	57 (13.3)
Phd, M.D.	4 (2.1%)	6 (3.1%)	10 (2.3%)
Total	187 (49.1%)	194 (50.9%)	381

When looking at the 24 constituencies on the island (see table 4), the sample deviated from the actual population of the island on average by 1.53 percentage points, meaning that generally the sample mimicked the population in terms of distribution. Interestingly, half of the constituencies deviated by less than 1 percentage point of the actual population on the island. The largest number of respondents (36) listed Montagu as their home accounting for 9.4% of the sample and was followed by Killarney with 33 or 8.7% of the sample. Only two constituencies received less than a 2% report rate: Bain and Grants Town and Elizabeth. In each area only 7 respondents or 1.7% of the sample indicated that residence in those areas.

When looking at where the sample lived, almost 3/4ths of respondents (74.3%) owned their home and lived at their current residence for 14.9 years (SD=10.6). Those who rented (25.7%) had lived at their home on average 6.0 years (SD=6.7). Overall respondents had lived at their residence for 12.6 years (SD=10.5). Home ownership of the sample was hugely different from the population where only 57.8% Bahamians actually owned a home (Bahamas Department of Statistics, 2001). However the only estimate available was nationwide and the actual level of home ownership on the island of New Providence may be different.

The sample for this study represented the actual population of New Providence in many respects such as gender, household income and where they live on the island. However because of a lack of data to compare with, it is impossible to make a comparison when it comes to education levels.

Table 8
Comparison of sample's residence to population's residence

Constituencies	Actual	Sample	Difference between sample & actual population %
Bain and Grants Town	3.7% (8,767)	1.8% (7)	-1.9
Blue Hills	5.2% (12,282)	3.4% (13)	-1.8
Carmichael	3.5% (8,302)	4.7% (18)	1.2
Clifton	4.2% (9,930)	3.4% (13)	-0.8
Elizabeth	5.7% (13,645)	1.8% (7)	-3.9
Englerston	4.6% (11,026)	2.9% (11)	-1.7
Farm Road and Centreville	4.1% (9,877)	3.1% (12)	-1.0
Fort Charlotte	3.4% (8,212)	4.7% (18)	1.3
Fox Hill	4.1% (9,866)	5.5% (21)	1.4
Garden Hills	4.8% (11,338)	3.9% (15)	-0.9
Golden Gates	3.2% (7,570)	2.9% (11)	-0.3
Golden Isles	5.6% (13,345)	3.1% (12)	-2.5
Kennedy	3.8% (9,166)	2.9% (11)	-0.9
Kilarney	5.5% (10,726)	8.7% (33)	3.2
Marathon	3.5% (8,329)	4.2% (16)	0.7
Montague	4.4% (10,472)	9.4% (36)	5.0
Mount Moriah	3.6% (8,586)	3.4% (13)	-0.2
Pinewood	3.7% (8,810)	2.9% (11)	-0.8
Seabreeze	4.5% (10,699)	5.2% (20)	0.7
South Beach	4.1% (9,685)	3.9% (15)	-0.2
St. Anne's	3.9% (9,316)	4.7% (18)	0.8
St. Cecelia	4.1% (9,679)	3.4% (13)	-0.7
St. Thomas Moore	4.5% (10,689)	2.9% (11)	-1.6
Yamacraw	3.5% (8,225)	6.8% (26)	3.3

The Influence of Hazard Perception On Affective Response

Research has shown that the greater the risk a person expects from a threat and the greater the anticipated effect of that risk on a person the more that person will fear the event and worry about the event (Griffin et al. 2004, Griffin et al., 1999). However the more a person believes that they can manage the risk or even avoid it, the less that person will fear the event and the less that person would worry about an event(Griffin et al. 2004, Griffin, Dunwoody, & Neuwirth, 1999). This lead to the following hypotheses:

H1.1: Perceived probability will be positively related to fear and worry.

H1.2: Perceived Severity will be positively related to fear/worry of hurricanes and tropical storms.

H1.3: Institutional trust will be negatively related to fear and worry of hurricanes and tropical storms.

H1.4: Personal control will be negatively related to fear and worry of hurricanes and tropical storms.

The variable perceived probability was the value of the respondent's agreement with a statement personal perception of the probability of injury during a storm strike. The bi-polar anchors on a 7-point scale were "no chance" and "certain chance". A larger value indicated a greater level of perception of respondents that they could be hurt in storm. The mean value of responses was 3.03 (SD=1.41). There was no statistically significant correlation between the perception of the probability of a storm and the variables of gender ($r(379) = 0.241, p > 0.05$) and age ($r(379) = 0.357, p > 0.05$). However there was a statistically significant negative correlation between the perception

of the probability of a storm and the variables of education ($r(379) = -0.213, p < 0.001$) and household income ($r(379) = -0.293, p < 0.001$) (see Table 5).

The variable personal control was calculated by asking respondents about their agreement with a single item on their perceived personal control. Agreement was measured on 7-point Likert scale with “strongly disagree” and “strongly agree” as the bi-polar anchors. The larger the value the more respondents thought they could avoid the threat of a cyclone. The mean value of responses was 4.93 (SD=1.86). There was no statistically significant correlation between the level of the perception of personal control and the variables of gender, age, and level of education. However there was a statistically significant but weak positive correlation between perceived personal control and the variable household income ($r(379) = 0.128, p < 0.05$) (see Table 10).

The variable institutional trust was measured by a 4-item index that measured trust in government and its agencies about the risk associated with hurricanes and tropical storms measured on a 7-point Likert scale with “strongly disagree” and “strongly agree” as the bi-polar anchors. The responses were averaged to form one value for the perception of trust in government institutions. The larger the value the more the respondent trusted institutions to warn or protect the respondent during a storm strike. The mean value of responses was 4.08 (SD=1.63) and a Cronbach’s $\alpha = 0.894$ was calculated for the variable. There was no correlation between perceived institutional trust and none of the demographical data (age, gender, household income or level of education).

The variable fear/worry was measured by an 8-item averaged index measuring fear and worry of a cyclone. The respondent's agreement with each item was measured on a 7-point Likert scale with "strongly disagree" and "strongly agree" as the bi-polar anchors. The larger the value of fear/worry the more the respondent feared the strike of a cyclone. The mean value of responses was 3.83 (SD=1.71). A factor analysis (Table 10) showed that showed that these variables sufficiently loaded on to one variable explaining 66.4% of the variance with a Cronbach's α value of 0.923; thereby creating a the variable "fear/worry".

There was no correlation between the fear/worry and gender. However there was a statistically significant but weak negative correlation between fear/worry of a storm and the variables of education ($r(379) = -0.162, p < 0.05$) and household income ($r(379) = -0.278, p < 0.001$). There was a statistically significant but weak positive correlation between fear/worry of a storm and the age of the respondent ($r(379) = 0.114, p < 0.05$).

Also it would be interesting to note that perceived probability and perceived severity had a statistically significant and strong positive correlation ($r(379) = 0.725, p < 0.001$); and perceived personal control and institutional trust also had a statistically significant but weak positive correlation ($r(379) = 0.267, p < 0.001$). Also fear/worry of storms had a statistically significant and strong positive correlation with two variables: perceived probability of being hurt in a storm ($r(379) = 0.645, p < 0.001$) and the perceived severity of a possible storm hit ($r(379) = 0.586, p < 0.001$). However fear/worry of a storm had a statistically significant but weak negative correlation with institutional trust ($r(379) = -0.173, p < 0.001$). Interestingly, the correlation between

fear/worry of a storm and the variable personal control was borderline statistically significant and weak ($r(379) = -0.586, p = 0.059$).

Table 9

Mean responses of hazard perception variables: perceived probability (P.P.), perceived severity (P.S.), institutional trust (I.T.), and personal control (P.C.); and fear/worry

	P.P.	P.S.	I.T.	P.C.	Fear/Worry
Gender					
Men	3.12	3.08	4.14	4.88	3.89
Women	2.95	2.77	4.02	4.97	3.76
Education					
Some primary school	3.00	2.50	3.75	6.50	2.94
Some high school	4.33	4.00	3.87	5.33	4.52
High school graduate	3.66	3.45	4.14	4.87	4.53
Some college	3.19	3.11	3.74	4.55	4.06
Bachelors (not including law)	2.80	2.61	4.29	5.26	3.53
Some graduate school	3.25	3.38	4.38	4.31	3.77
Master's/Called to the bar	2.67	2.60	4.20	5.17	3.52
Phd, MD	2.20	2.80	4.63	5.10	3.29
Household Income					
\$0 - \$14,999	3.25	3.17	3.98	5.33	3.96
\$15,000 - \$29,000	3.76	3.41	3.84	4.33	4.57
\$30,000 - \$44,999	3.10	3.16	3.97	4.86	4.00
\$45,000 - \$59,999	3.03	2.86	4.20	5.12	3.78
\$60,000 - \$74,999	2.93	2.93	4.04	4.83	3.76
\$75,000 - \$89,000	2.38	2.51	4.29	5.05	3.37
\$90,000 - \$104,999	2.50	2.26	4.13	4.83	3.04
\$105,000 above	2.34	2.12	4.45	5.76	2.89
Age					
Under 20 years old	4.13	3.87	4.12	4.87	4.82
20 – 29 years old	2.86	2.72	3.75	4.95	3.58
30 – 39 years old	2.99	2.98	4.39	4.95	3.81
40 – 49 years old	2.96	2.85	4.25	5.11	3.83
50 – 59 years old	3.14	2.79	3.81	4.79	3.56
60 – 69 years old	3.85	3.77	4.17	3.85	5.59
70 – 79 years old	3.25	3.25	3.88	5.50	5.16

Table 10
Factor Loadings, Reliability, and Variance Explained for Fear/Worry Variables

Items	Loading	Cronbach's Alpha (α)
Fear of storm strike	0.776	0.923
Fear after a storm is detected	0.874	
Fear of having no electricity during a storm	0.585	
Fear of getting hurt in a storm	0.866	
Fear of home getting damaged in a storm	0.821	
General fear of hurricanes	0.893	
Fear of being killed in a storm	0.866	
Worry from the risks associated with a storm	0.794	
Variance Explained=66.40%		

A multiple hierarchal linear regression was calculated utilizing “fear/worry” as the dependent variable and education, household income, gender and age in the first block of independent variables (to control for the effects that these variables would have on the dependent variables). The variables of perceived probability, perceived severity, institutional trust and personal control were then entered into the second block of independent variables. There was a statistically significant difference between the effects of the control variables (age, gender, household income, and level of education) and the effect of variables of perceived probability, perceived severity, institutional trust and personal control ($R^2\Delta = 0.364$; $F(4, 370) = 64.031$, $p < 0.001$). The regression equation with a statistically significant result was found ($F(8,370) = 41.727$, $p < 0.001$), with a total R^2 of 0.474. Overall the variables of perceived probability and perceived severity were significant positive predictors of the level of fear and worry of a storm in that as the more a respondent thought a storm was going to hit or that they would be hurt in a storm the greater their level of fear of a storm. Also found from the results was that the more a

respondent trusted the government and government institutions to warn or protect the respondents from a storm strike the less the respondents worried about a storm. It was predicted that the more a respondent could avoid a storm the less likely the respondent was to fear or worry about a storm. However the results in this study found the opposite in that as the variable personal control had a positive and statistically significant effect on fear and worry of a storm. The contribution of each of the second set of independent variables will be discussed in each hypothesis and summarized in table 11.

The influence of perceived probability on fear/worry of a storm.

Hypothesis 1.1 (H1.1) predicts that: “perceived probability will be positively related to fear/worry of hurricanes/tropical storms. It was found that perceived probability was a statistically significant positive predictor of fear/worry in the multiple regression equation with a $B = 0.432$, $p < 0.001$. This result indicated that the more a respondent thought a cyclone would hurt them the more the respondent feared or worried about the threat of a cyclone. This result supported H1.1.

The influence of perceived severity on fear/worry of a storm.

Hypothesis 1.2 (H1.2) predicts that: “perceived severity will be positively related to fear/worry of hurricanes/tropical storms”. It was found that perceived severity was a statistically significant positive predictor of fear/worry in the multiple regression equation with a $B = 0.247$, $p < 0.001$. This result indicated that the more a respondent thought they would get hurt in a cyclone the more the respondent feared or worried about the threat of cyclones. This result supported H1.2.

The influence of institutional trust on fear/worry of a storm.

Hypothesis 1.3 (H1.3) predicts that: “institutional trust will be negatively related to fear/worry of hurricanes/tropical storms. It was found that institutional trust was a statistically significant negative predictor of fear/worry in the multiple regression equation with a $B = -0.101$, $p < 0.05$. This result indicated that the more trust a respondent had in the government and the agencies, the less the respondent feared or worried about the threat of cyclones. This result supported H1.3.

The influence of personal control on fear/worry of a storm.

Hypothesis 1.4 (H1.4) predicts that: “personal control will be negatively related to fear/worry of hurricanes/tropical storms”. It was found that personal control not a statistically significant predictor of fear/worry in the multiple regression equation with a $B = 0.083$, $p < 0.05$. The result seemed to indicate that the more a respondent thought they could avoid a cyclone the more likely it was that the respondent would fear or worry about the threat of a cyclone, the result was statistically significant but had a weak positive beta-value. Therefore H1.4 was not supported.

Table 11
Influence of Hazard Perception and Demographics on Affective Response (Fear/Worry)

Predictors	Fear/Worry
Gender	-0.055
Age	0.163**
Education	-0.098
Income	-0.269***
R² Block 1	0.110***
Perceived Probability (H1.1)	0.432***
Perceived Severity (H1.2)	0.247***
Institutional Trust (H1.3)	-0.101*
Personal Control (H1.4)	0.083*
R² Block 2	0.364***
Total R²	0.474***

Note: Entries are beta weights from the multiple regression equation.

** $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$*

Overall, it was found that the more a respondent thought a cyclone would hit their area and a respondent thought they would get hurt by a cyclone the more fearful and worrisome the respondent was of the threat of cyclones. However, the more a respondent trusted government agencies to warn and protect the populous in the face of a storm, the less likely the respondent was to worry and be fearful of the threat of cyclones. Even though it was expected that the more a respondent perceived personal ability to avoid a cyclone the less likely they would fear a cyclone. The results seemed to indicate the opposite effect however.

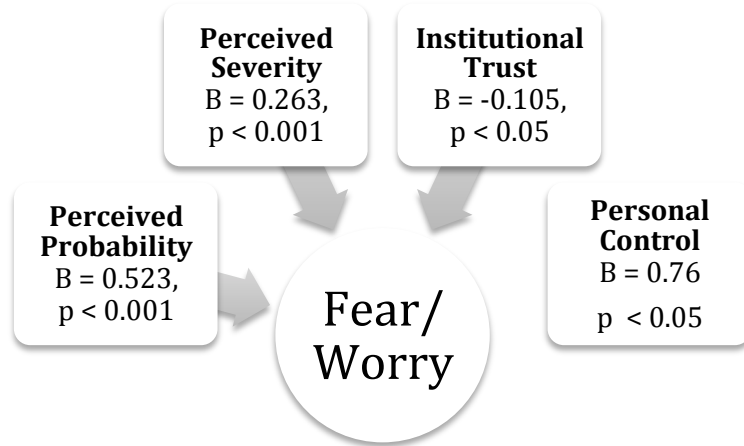


Diagram 2. Relationship between fear/worry and perceived hazard characteristics.

Media Used In The Evacuation Decision-Making Process

Hypothesis 2 (H2) predicts that: Residents will rank media as effective in this order: state television > other local electronic media > international local news > international cable weather > local newspapers > Internet sources. Respondents were asked about the likelihood of using different the different outlets to decide what action to take when a hurricane/tropical storm approaches. The channels respondents were asked about broadly were: state media (TV and radio), other local media (TV and radio), local newspapers, international local TV (i.e. South Florida affiliates), international national TV/cable (ie Weather Channel, CNN, etc.) and Internet news sources. The likelihood was asked on a 7-point Likert scale with the anchors of “not at all likely” = 1 and “very likely” = 7. The means of each media usage response were compared. A larger mean would indicate a larger likelihood of usage.

A Cronbach's α value for each of the variables was calculated. The six variables had Cronbach's α values ranging between 0.941 and 0.754 (see Table 12).

Table 12
Reliability of Storm Usage Variables for Hypothesis Two

Variable	Cronbach's α
State	0.754
Other local electronic media	0.808
International local news	0.941
Cable station	0.802
Local newspapers	0.756
Internet website usage	n/a

In partial support of H2, respondents reported the highest likelihood of usage of state media (M=5.60, SD=1.87) in the evacuation decision-making process. Internet sites were next in order of likelihood (M=5.27, SD=2.33), which was predicted to be the least likely source for information in the process. International localized media (or south Florida affiliates available in the Bahamas) ranked third (M=3.78, SD=2.23) followed by cable channels (M=3.62, SD=1.6), other local electronic media (M=2.81, SD=1.72), and local newspapers (M=2.24, SD=1.29).

A statistical difference was found between the likelihood of using state media in the evacuation decision-making process and other media (see Table 13). It should also be noted that these variables are used solely for calculating media use in the evacuation decision-making process in regards to hypothesis two and where based on previous research.

Table 13
Difference in Emergency Media Usage in Hypothesis Two

Variable	Mean	t-values (df = 380)
State Media	5.60	----
Internet Sites	5.27	2.016*
International Localized Media	3.78	13.247***
Cable Channels	3.62	16.939***
Other Local Electronic Media	2.81	22.823***
Local Newspapers	2.24	31.115***

Note: The t-values represent the difference between that variable and state media.
 * p < 0.05, ** p < 0.01, *** p < 0.001

Calculating False Alarm Experience, Threat Knowledge, And Home Quality

The variable false alarm was calculated from the mean of responses to statements about unnecessary evacuation or mitigation efforts in the most previous storm a respondent could remember. The mean of this variable was calculated at 3.33 on a 7-point scale (SD=2.038). The closer a respondent's responses got a perfect 7.0 the more false alarm experience they had. A Cronbach's $\alpha = 0.86$ was calculated for this variable. Men in the sample seemed to have more experience with false alarms than women (See Table 12); however a statistically significant but weak correlation was found between the two variables of gender and false alarm experience ($r(279) = -0.108, p < 0.05$) (see Table 12). Similarly, education and household income had statistically significant but weak correlations with false alarm experience. The age of respondents had no statistically significant correlation with false alarm experience.

The variable threat knowledge was calculated as the mean of agreement with a statement about perceived knowledge of the threat of cyclones. The responses were measured on a 7-point scale; so that the closer a respondent scored towards 7.0 the more

that respondent thought they knew about the threat of cyclones. The mean of this variable was 6.16 (SD=1.30). Women in the sample seemed to have more perceived knowledge of the threat of cyclones however there was no correlation between gender and threat knowledge ($r(279) = 0.042, p < 0.05$) (see Tables 13 and 14). The level of education and household income each had statistically significant but weak correlations with the variable threat knowledge. However there was no correlation between gender or age and threat knowledge.

The variable home quality was calculated from the sum of responses of agreement with six statements measuring home quality. Respondents were asked to rate the likelihood of damage to their home on an increasing gradual scale of storm strength beginning at thunderstorm ending at a category 5 hurricane. The likelihood of damage was be asked on a 7 point Likert scale with the anchors of “strongly disagree” and “strongly agree”. The responses were summed; therefore a larger value would indicate a larger perception of home quality. The mean response to this question was 34.23 (SD=6.35). A Cronbach’s $\alpha = 0.86$ was calculated for this variable. A perfect score would have been 42. It is interesting to note that there was no significant correlation with the variable home quality and any of the demographical information (see table 14).

It should also be noted that four statements intended to test false alarm experience were excluded from use because it was determined after concluding data collection that the four statements did not accurately measure false alarm experience and actually was asking respondents to judge about future experience. The four statements also were not internally reliable with a Cronbach’s α value of 0.505.

Table 14
Correlation values between demographics and hazard experience variables

	Threat Knowledge	False alarm experience	Home Quality
Gender			
Pearson correlation	0.042	-0.108	0.002
p-value	0.207	0.018	0.486
Age			
Pearson correlation	0.071	-0.033	-0.056
p-value	0.084	0.258	0.139
Education			
Pearson correlation	0.232	-0.163	0.030
p-value	<0.000	0.001	0.276
Household Income			
Pearson correlation	0.185	-0.230	0.054
p-value	<0.000	<0.000	0.145

The next step in testing the three variables false alarm experience, home quality, and threat knowledge was to calculate four multiple hierarchal regression equations. The dependent variables in the four equations were the differences in usage variables created earlier:

- Difference in usage of state media
- Difference in usage of major newspapers
- Difference in usage of minor newspapers
- Difference in usage of local electronic media, cable TV, international local media, and Internet use

The variables education, household income, gender and age were then entered in the first block of independent variables to control for the effect those variables would have on the dependent variables. The researcher then entered the variables home quality, false alarm experience, and threat knowledge into the second block of independent

variables to run the regression equation. Each hypothesis will be discussed individually and collectively further.

The Influence Of Home Quality

The expectation was that because a respondent perceived their home more sturdy and secure, the less likely it would be that they would need to take some sort of mitigation action such as boarding up their home or even leaving their home during a storm. Taking that logic a step further, the more likely a resident would need to take some sort of action the more likely for that resident would need information about an approaching storm to make a decision. That leads to the inverse would be the case well and leads to Hypothesis 3 (H3) that predicts that: “perceived home quality will be negatively related to media consumption during the evacuation decision-making process.”

Table 15
Mean responses by gender, educational levels & household income on hazard influences

	Threat Knowledge	False alarm experience	Home Quality
Gender			
Men	6.11	3.56	34.22
Women	6.22	3.13	34.24
Education			
Some primary school	6.00	4.17	30.50
Some high school	5.67	4.33	29.50
High school graduate	5.55	3.51	33.84
Some college	6.01	3.72	34.55
Bachelors degree (not including law)	6.24	3.08	34.39
Some graduate school	6.31	3.10	33.00
Master's degree or been called to the bar	6.77	3.03	34.46
Phd, MD	6.50	1.90	33.90
Household Income			
\$0 - \$14,999	5.83	4.50	34.08
\$15,000 - \$29,000	5.68	4.16	34.41
\$30,000 - \$44,999	5.97	3.42	34.03
\$45,000 - \$59,999	6.47	2.96	34.11
\$60,000 - \$74,999	6.57	3.28	31.57
\$75,000 - \$89,000	6.49	2.53	35.36
\$90,000 - \$104,999	6.09	3.32	36.26
\$105,000 above	6.45	2.55	35.30
Age			
Under 20 years old	5.47	4.93	30.33
20 – 29 years old	5.90	3.34	35.11
30 – 39 years old	6.50	3.16	34.47
40 – 49 years old	6.22	3.27	33.65
50 – 59 years old	6.14	3.31	32.03
60 – 69 years old	6.08	3.33	34.15
70 – 79 years old	6.00	3.92	35.75

Out of the four regression equations, the only dependent variable that was influenced statistically significantly by perceived home quality was the difference in state media usage and that was a positive influence. The variable perceived home quality had

no statistically significant effect on the other three dependent variables. Each dependent variable is discussed further and summarized in table 13.

For the dependent variable “difference in usage for state media” a statistically significant difference was found between the effects of the control variables of gender, age, household income, and education; and the effect of the variable perceived home quality ($R^2\Delta = 0.040$; $F(3, 373) = 5.235$, $p < 0.05$). A regression equation with a significant result was found as well ($F(7,373) = 2.652$, $p < 0.05$) with a total R^2 of 0.047. A beta value for the variable perceived home quality was found at 0.030 ($p < 0.05$). This result indicates that taking into account the influence of the control variables of gender, age, household income, and education; the variable perceived home quality was a statistically significant predictor of the difference in the usage of “state media” during the evacuation decision-making process.

For the dependent variable “difference in usage for minor local papers” no statistically significant difference was found between the effect of the control variables of gender, age, household income, and education; and the effect of the variable perceived home quality ($R^2\Delta = 0.032$; $F(3, 375) = 0.703$, $p > 0.05$). The regression equation did not produce a statistically significant result either ($F(7,373) = 1.776$, $p > 0.05$) with a total R^2 of 0.032. A beta value for perceived home quality was found at -0.012 ($p > 0.05$). This result indicated that taking into account the effects of age, gender, household income, and educational status, the variable perceived home quality had no significant effect on the difference in the usage of “minor local papers” during the evacuation decision-making process.

For the dependent variable “difference in usage for local electronic media, cable TV, international local media, and Internet use” no statistically significant difference was found between the effects of the control variables of gender, age, household income and education and the effect of the variable perceived home quality ($R^2\Delta = 0.010$; $F(3, 373) = 1.329$, $p > 0.05$). The regression equation did not produce statistically significant results either ($F(7,373) = 1.289$, $p > 0.05$) with a total R^2 of 0.024. This result indicated that taking into account the effects of age, gender, household income, and educational status, the variable perceived home quality was not a statistically significant predictor of usage of “local electronic media, cable TV, international local media, and Internet usage” during the evacuation decision-making process.

For the dependent variable “difference in usage for major local newspapers” no statistically significant difference was found between the effects of the control variables of gender, age, household income, and education; and the effect of the variable perceived home quality ($R^2\Delta = 0.002$; $F(3, 373) = 0.270$, $p > 0.05$). The regression equation did not produce a statistically significant result either ($F(7,373) = 0.440$, $p > 0.05$) with a total R^2 of 0.008. This result indicated that taking into account the effects of age, gender, household income, and educational status, the variable perceived home quality was not a statistically significant predictor of usage of “major local newspapers” during the evacuation decision-making process.

Overall, state TV and radio were the only media channels that had a significant difference in usage during the evacuation decision-making process and at the same time

had a significant influence from the variable perceived home quality. However that influence was positive; therefore H3 was not supported.

*Table 16
Values of the Effect of False Alarm Experience, and Threat Knowledge on Differences in Media Use during the Evacuation Decision-Making Process*

	State Media	Major local newspapers	Other media	Minor local newspapers
Gender	0.025	-0.030	0.103*	0.016
Age	0.040	0.045	0.041	0.076
Education	0.069	0.029	-0.042	0.131*
Income	-0.059	-0.63	0.011	-0.117*
R² change	0.008	0.006	0.014	0.027*
Home Quality (H3) False	0.089	-0.009	-0.044	-0.070
Alarm Exp. (H4) Threat	0.154**	-0.040	0.087	0.517
Knowledge (H5)	-0.068	0.017	-0.028	0.003
R² Change	0.040*	0.002	0.010	0.005
Total R²	0.048	0.008	0.024	0.032

Note: Entries are beta weights from the multiple regression equation.

p < 0.05, **p < 0.01, *p < 0.001*

The Influence Of False Alarm Experience

During disasters—especially unpredictable weather-related disasters—many times officials will sound warnings for impacts that never happen. Disaster administrators warn American seaboard residents and Caribbean residents in the path of a storm to prepare for it. These residents prepare for the storm strike by boarding up their homes or leaving their homes. If the strike does indeed hit and the mitigation effort has saved lives or homes then everyone is happy. On the flipside though, if residents are continually warned and there is little, if any, impact from the storm, then fatigue can set in. The next time the alarm is sounded there is complacency to react. It would follow

then that residents who have had more of this false alarm experience would be less likely to take some sort of mitigation when a storm alert is sounded. The information-seeking segment of the uses and gratification paradigm not activated means that these residents would be less likely to consume media during this time. Because of this rationale, hypothesis 4 predicted that: “false alarm experience will be negatively related to media consumption during the evacuation decision-making process.”

Out of the four regression equations, the only dependent variable that was influenced significantly by false alarm experience was the difference in state media usage and that was a positive influence. The variable false alarm experience had no statistically significant effect on the other three dependent variables. Each dependent variable is discussed further and summarized in table 16.

For the dependent variable “difference in usage for state media” a statistically significant difference was found between the effect of the control variables of gender, age, household income, and education; and the effect of the variable false alarm experience ($R^2\Delta = 0.040$; $F(3, 373) = 5.235$, $p < 0.05$). A regression equation with a statistically significant result was found as well ($F(7,373) = 2.652$, $p < 0.05$) with a total R^2 of 0.047. A beta value for the variable false alarm experience was found at 0.161 ($p < 0.05$). This result indicated that taking into account the effects of age, gender, household income, and educational status, the variable false alarm experience was a statistically significant positive predictor of the difference of usage of “state media” during the evacuation decision-making process.

For the dependent variable “difference in usage for minor local papers” no statistically significant difference was found between the effect of the control variables of gender, age, household income, and education; and the effect of the variable false alarm experience ($R^2\Delta = 0.005$; $F(3, 375) = 0.703$, $p > 0.05$). The regression equation was not statistically significant either ($F(7,373) = 1.776$, $p > 0.05$) with a total R^2 of 0.032. A beta value for the variable false alarm experience was found at 0.016 ($p > 0.05$). This result indicated that taking into account the effects of age, gender, household income, and educational status, the variable perceived home quality was not a statistically significant predictor of the difference in the use of “minor local papers” during the evacuation decision-making process.

For the dependent variable “difference in usage for local electronic media, cable TV, international local media, and Internet websites” no statistically significant difference was found between the effect of the control variables of gender, age, household income and education; and the effect of the variable false alarm experience ($R^2\Delta = 0.010$; $F(3, 373) = 1.329$, $p > 0.05$). The regression equation was not statistically significant either ($F(7,373) = 1.289$, $p > 0.05$) with a total R^2 of 0.024. This result indicated that taking into account the effects of age, gender, household income, and educational status, the variable false alarm experience was not a statistically significant predictor of the difference in the use of “local electronic media, cable TV, international local media, and Internet use” during the evacuation decision-making process.

For the dependent variable “difference in usage for major local newspapers” no statistically significant difference was found between the effect of the control variables of

gender, age, household income, and education; and the effect of the variable false alarm experience ($R^2\Delta = 0.002$; $F(3, 373) = 0.270$, $p > 0.05$). The regression equation did not produce a statistically significant result either ($F(7,373) = 0.440$, $p > 0.05$) with a total R^2 of 0.008. This result indicated that taking into account the effects of age, gender, household income, and educational status, the variable false alarm experience was not a statistically significant predictor of the usage of “major local newspapers” during the evacuation decision-making process.

Overall, state TV and radio were the only media channels that had a significant difference in usage during the evacuation decision-making process and at the same time had a significant influence from the variable false alarm experience (see Table 15). Both effects were positive; therefore H4 was not supported.

The Influence Of Threat Knowledge

The more residents understand about the threat that hurricanes and tropical storms pose to their lives and homes, the more likely these residents will take action when a storm is approaching the island. It follows then that to take some sort of action residents need to gather more information from the various media channels available to them to make a decision about what action—if any—will be taken. Again, with the information-seeking segment of the uses and gratification paradigm activated, hypothesis 5 predicts “knowledge of the threat of cyclones (hurricanes and tropical storms) will be positively related to media consumption during the evacuation decision-making process.”

However this was not found. The variable threat knowledge had no statistically significant effect on any of the four dependent variables that indicated a difference in

media use during the evacuation decision-making process. Each dependent variable is discussed further and summarized in table 16.

The dependent variable “difference in usage for state media” came the closest to being influenced by threat knowledge. A statistically significant difference was found between the effect of the control variables of gender, age, household income, and education; and the effect of the variable threat knowledge ($R^2\Delta = 0.040$; $F(3, 373) = 5.235$, $p < 0.05$). A regression equation with a significant result was found as well ($F(7,373) = 2.652$, $p < 0.05$) with a total R^2 of 0.047. However, a statistically insignificant beta value for the variable threat knowledge was found at -0.109 ($p > 0.05$). This result indicates that taking into account the effects of age, gender, household income, and educational status; the variable threat knowledge was not a statistically significant predictor of the difference in the usage of “state media” during the evacuation decision-making process.

For the dependent variable “difference in usage for minor local papers” no statistically significant difference was found between the effect of the control variables of gender, age, household income, and education; and the effect of the variable threat knowledge ($R^2\Delta = 0.005$; $F(3, 375) = 0.703$, $p > 0.05$). The regression equation did not produce a statistically significant result either ($F(7,373) = 1.776$, $p > 0.05$) with a total R^2 of 0.032. A beta value for the variable threat knowledge was found at 0.003 ($p > 0.05$). This result indicates that taking into account the effects of age, gender, household income, and educational status; the variable threat knowledge was not a statistically

significant predictor of the difference in the use of “minor local papers” during the evacuation decision-making process.

For the dependent variable “difference in usage for local electronic media, cable TV, international local media, and Internet” no statistically significant difference was found between the effect of the control variables of gender, age, household income, and education; and the effect of the variable threat knowledge ($R^2\Delta = 0.010$; $F(3, 373) = 1.329$, $p > 0.05$). The regression equation did not produce a statistically significant result either ($F(7,373) = 1.289$, $p > 0.05$) with a total R^2 of 0.024. This result indicates that taking into account the effects of age, gender, household income, and educational status; the variable threat knowledge was not a statistically significant predictor of the difference in usage of “local electronic media, cable TV, international local media, and Internet” during the evacuation decision-making process.

For the dependent variable “difference in usage for major local newspapers” no statistically significant difference was found between the effect of the control variables of gender, age, household income, and education; and the effect of the variable threat knowledge ($R^2\Delta = 0.002$; $F(3, 373) = 0.270$, $p > 0.05$). The regression equation did not produce a statistically significant result either ($F(7,373) = 0.440$, $p > 0.05$) with a total R^2 of 0.010. This result indicates that taking into account the effects of age, gender, household income, and educational status; the variable threat knowledge was not a statistically significant predictor of the difference in usage of “major local newspapers” during the evacuation decision-making process.

Overall, state TV and radio were the only media channels that had a statistically significant difference in usage during the evacuation decision-making process and at the same time had a statistically significant influence from the variable threat knowledge. However a statistically insignificant negative beta-value did not support the hypothesis; therefore H5 was not supported.

The interplay of fear/worry, information insufficiency, and media use during the evacuation decision-making process

Research suggests that emotional reactions and moods have an influence on the way people use media (Batra & Stayman, 1990; Petty & Cacioppo 1986, p. 214; Isen and Simmonds, 1978). A major component of the risk information seeking and processing model (RISP) suggests that worry about an event, that goes along with fear of an event, influences the motivation to seeking information in a risk situation (Griffin et al. 2004). This implies that residents who fear or worry about cyclones will perceived a deeper deficit of information about the subject of cyclones and this deficit leads to information insufficiency. This information insufficiency and fear and worry would therefore activate the information-seeking segment of the uses and gratification paradigm leading to an increased usage during an emergency situation. This leads to three hypotheses that are represented in diagram 2 as well:

H6.1: Fear and Worry of hurricanes and tropical storms will be positively related to information insufficiency.

H6.2: Fear and Worry of hurricanes and tropical storms will be positively related to media usage in the evacuation decision-making process.

H6.3: Information insufficiency will be positively related to media usage in the evacuation decision-making process.

The differences in demographics.

The variable gender had a statistically significant but weak correlation with the difference in usage of local electronic media, cable channels, international local media and Internet use ($r(379) = 0.104, p < 0.05$); this despite men having a larger overall mean score than women. Gender was not correlated with any of the other difference nor fear/worry of a cyclone.

The variable age had no statistically significant correlation with any of the differences in usage variables but did have a statistically significant but weak positive correlation with the variable fear/worry of cyclones ($r(379) = -0.114, p < 0.05$), meaning that as a respondent got older the more the respondent would probably worry about the threat of cyclones.

The variable level of education had a correlation with three variables: fear/worry, information insufficiency and the difference in usage of minor local papers. The variables level of education and fear and worry had a statistically significant but weak negative correlation ($r(379) = -0.162, p < 0.05$), meaning that as respondents level of education increased the less likely the respondent was to fear the threat of cyclones. This may also explain the statistically significant but weak correlation between the variables of level of education and information insufficiency ($r(379) = -0.141, p < 0.05$) which means that the level of education of a respondent increased the respondents information insufficiency decreased. This decrease meant that the respondent actually thought they

had closer to sufficient information to deal with the threat of cyclones. Also there was a statistically significant but weak correlation between the variables difference in use of minor local papers and the level of education ($r(379) = 0.102, p < 0.05$).

The variable household income had statically significant and moderately strong negative correlations with the variables fear/worry ($r(379) = -0.278, p < 0.001$) and information insufficiency ($r(378) = -0.278, p < 0.001$). The variable household income had no statistically significant correlation with any of the differences in usage variables.

Table 17
Correlation values between demographics and information sufficiency

	Gender	Age	Education	Income
<i>Information Sufficiency</i>				
Pearson correlation	-0.080	0.067	-0.141	-0.278
p-value	0.119	0.190	0.006*	0.000**

Note. * $p < 0.001$, ** $p < 0.05$

Table 18

Mean values of difference in media use for state media (State), major local papers (Major), minor local papers (Minor) and local electronic media, cable channels, international local media and Internet use (LEM); information sufficiency (I.S.) values; and fear/worry responses

	State	Major	Minor	LEM	I.S.	Fear/Worry
Gender						
Men	2.28	0.35	-0.04	0.41	12.52	3.89
Women	2.38	0.23	-0.02	0.67	6.60	3.76
Education						
Some primary school	2.25	2.00	0.75	1.43	-32.50	2.94
Some high school	0.58	0.25	-1.42	0.62	25.00	4.52
High school graduate	2.68	0.38	-0.12	0.56	14.49	4.53
Some College	2.22	0.14	-0.08	0.64	16.89	4.06
Bachelors (not including law)	2.26	0.27	0.01	0.45	5.55	3.53
Some graduate school	3.25	0.27	0.13	0.37	7.31	3.77
Master's/Called to the bar	2.24	0.66	0.11	0.50	-2.33	3.52
Phd, MD	3.40	0.24	0.20	0.65	7.30	3.29
Household Income						
\$0 - \$14,999	1.83	-0.29	-0.04	0.13	12.00	3.96
\$15,000 - \$29,000	2.68	0.19	-0.02	0.38	23.47	4.57
\$30,000 - \$44,999	2.46	0.63	0.13	0.85	18.73	4.00
\$45,000 - \$59,999	2.15	0.24	-0.15	0.47	4.78	3.78
\$60,000 - \$74,999	2.06	0.54	-0.02	0.52	8.14	3.76
\$75,000 - \$89,000	1.82	0.21	0.12	0.51	-5.87	3.37
\$90,000 - \$104,999	2.22	0.02	-0.26	0.34	-12.09	3.04
\$105,000 above	2.74	-0.12	-0.27	0.57	-4.24	2.89
Age						
Under 20 years old	1.77	0.17	-0.50	0.56	24.87	4.82
20 – 29 years old	2.30	0.21	-0.13	0.52	7.47	3.58
30 – 39 years old	2.47	0.38	0.09	0.50	5.82	3.81
40 – 49 years old	2.25	-0.04	-0.07	0.61	15.45	3.83
50 – 59 years old	1.97	0.88	0.29	0.88	1.76	3.56
60 – 69 years old	2.54	0.46	-0.27	0.42	36.00	5.59
70 – 79 years old	3.75	0.00	0.00	-0.18	34.00	5.16

Note: Information sufficiency is the difference between a respondent's perceived current knowledge about the risk of cyclones and the respondent's perceived amount of knowledge required to deal with the threat of cyclones. A positive value indicates information insufficiency. A negative value indicates a respondent has more than the amount of perceived knowledge to deal with the risk associated with cyclones.

Note: Media usage difference values were calculated as the difference between likelihood usage responses during the evacuation decision-making process and likelihood usage responses during a normal day.

Fear and worry's effect on information insufficiency.

Hypothesis 6.1 (H6.1) predicts that: “fear and worry of hurricanes/tropical storms will be positively related to information insufficiency”. A multiple linear regression analysis was run with the dependent variable of information insufficiency and two blocks of independent variables. The control variables of gender, age, household income, and education were entered in the first block to control for the effect these variables would have on the dependent variable. The variable fear/worry was entered in the second block. A statistically significant difference was found between the effect of the control variables of gender, age, household income and education and the effect of the variable fear/worry on information sufficiency ($R^2\Delta = 0.073$; $F(1, 374) = 31.414$, $p < 0.001$). A regression equation with a significant result was found as well ($F(5,374) = 10.783$, $p < 0.001$) with a total R^2 of 0.126. A beta value for fear/worry was found at 4.271 ($p < 0.001$). This result indicated that taking into account the effect of the control variables of gender, age, household income, and education; the more a respondent feared or worried about a cyclone the more the respondent felt personally lacking in knowledge to deal with the threat of a cyclone. Therefore H6.1 was supported.

The influence of fear/worry on media use.

Hypothesis 6.2 (H6.2) predicts that: “worry and fear of hurricanes/tropical storms will be positively related to media usage in the evacuation decision-making process.” Four multiple linear regression analyses were run with the dependent of each of the four factors created for the difference in usage discussed previous. In the first of two blocks of independent variables gender, age, household income, and education were entered into

the first block to control for the effect these variables could have on the variable of fear/worry. The variable fear/worry was entered into the in the second block of independent variables. Out of the four regression equations, only one produced a statistically significant result with a positive effect. Of the other three variables, one regression equation produced a statistically significant result but with a negative effect and the remaining two regression equations produced non-statically significant results. The four results will be discussed further and are summarized in Table 19.

For the dependent variable “difference in usage for state media” a statistically significant difference was found between the effect of the control variables of gender, age, household income, and education; and the effect of the variable fear/worry ($R^2\Delta = 0.036$; $F(1, 375) = 13.944$, $p < 0.001$). A regression equation with a statistically significant result was found as well ($F(5,374) = 3.361$, $p < 0.05$) with a total R^2 of 0.043. A beta value for fear/worry was found at 0.251 ($p < 0.001$). This result indicated that taking into account the effect of the control variables of gender, age, household income and education; the variable fear/worry was a statistically significant positive predictor of the increase of usage likelihood of “state media” during the evacuation decision-making process. So as a respondent’s fear/worry of a cyclone increase so did the likelihood of using state media.

For the dependent variable “difference in usage for minor local papers” a significant difference was found between the effect of the control variables of gender, age, household income, and education; and the effect of the variable fear/worry ($R^2\Delta = 0.011$; $F(1, 375) = 4.239$, $p < 0.05$). A regression equation with a significant result was

found as well ($F(5,374) = 2.935, p < 0.05$) with a total R^2 of 0.038. A beta value for fear/worry was found at $-0.071 (p < 0.05)$. This result indicated that taking into account the control variables of gender, age, household income and education, the variable fear/worry had a statistically significant but negative effect on the usage likelihood “minor local papers” during the evacuation decision-making process. So as a respondent’s fear/worry of a storm increased, the likelihood of the respondent using minor local papers decreased.

For the dependent variable “difference in usage for local electronic media, cable TV, international local media, and Internet” no statistically significant difference was found between the effect of the control variables of gender, age, household income and education; and the effect of the variable fear/worry ($R^2\Delta = 0.004; F(1, 375) = 1.500, p > 0.05$). The regression equation did not produce a statistically significant result either ($F(5,375) = 1.305, p > 0.05$) with a total R^2 of 0.017. This result indicated that taking into account the control variables of gender, age, household income and education; the variable fear/worry was not a significant predictor of the difference in usage likelihood of “local electronic media, cable TV, international local media, and Internet use” during the evacuation decision-making process.

For the dependent variable “difference in usage for major local newspapers” no statistically significant difference was found between the effect of the control variables of gender, age, household income, and education; and the effect of the variable fear/worry ($R^2\Delta = 0.005; F(1, 375) = 1.713, p > 0.05$). The regression equation did not produce a significant result either ($F(5,375) = 0.800, p > 0.05$) with a total R^2 of 0.011. This result

indicated that the taking into account the control variables of gender, age, household income, and education; the variable fear/worry was not a significant predictor of the difference in the usage likelihood of “major local newspapers” during the evacuation decision-making process.

Overall, state TV and radio were the only media outlets that had a significant increase in usage likelihood in the evacuation decision-making process and at the same time were effected statistically significantly positively by the variable fear/worry. This would indicate partial support of H6.2.

*Table 19
Values of the Effect of Fear/Worry on Differences in Media Use during the Evacuation Decision-Making Process*

	State Media	Major local newspapers	Other media	Minor local newspapers
Gender	0.025	-0.030	0.103*	0.016
Age	0.040	0.045	0.041	0.076
Education	0.069	0.029	-0.042	0.131*
Income	-0.059	-0.63	0.011	-0.117*
R² change	0.008	0.006	0.014	0.027*
Fear/Worry (H6.2)	0.201***	-0.071	0.067	-0.111*
R² Change	0.036***	0.005	0.004	0.011
Total R²	0.048**	0.011	0.018	0.038*

Note: Entries are beta weights from the multiple regression equation.

p < 0.05, ** p < 0.01, *p < 0.001*

Information insufficiency’s effect on media use in the evacuation decision.

Hypothesis 6.3 (H6.3) predicts that “information insufficiency will be positively related to media usage in the evacuation decision-making process.” Four multiple linear regression analyses were run with the dependent variables of each of the four factors created for the difference in usage discussed previous. In the first of two blocks of

independent variables, the control variables of gender, age, household income, and education were entered. The variable information insufficiency was entered in the second block of independent variables. Out of the four regression equations calculated only the dependent variable “state media” had a statistically significant positive influence from the variables information insufficiency. Minor local papers seemed to have a statistically significant but negative effect from the variable information sufficiency. While the variable information insufficiency had no statistically significant influences on the remaining two variables. The four regression equations will be discussed individually and are summarized in Table 19.

For the dependent variable “difference in usage for minor local papers” a statistically significant difference was found between the effect of the control variables of gender, age, household income, and education and the variable information insufficiency ($R^2\Delta = 0.014$; $F(1, 374) = 5.580$, $p < 0.05$). A regression equation with a statistically significant result was found ($F(5,374) = 3.199$, $p < 0.05$) with a total R^2 of 0.041. A beta value for information insufficiency was found at -0.004 ($p < 0.05$). This result indicated that accounting for the effect of the variables gender, age, household income, and education; the variable information insufficiency was a statistically significant predictor of the difference in the use of “minor local papers” during the evacuation decision-making process. However this influence was a negative one; in that as a respondent’s information insufficiency increased, the respondent’s usage likelihood of minor local papers decreased in the evacuation decision-making process.

For the dependent variable “difference in usage for state media” a statistically significant difference was found between the effect of the control variables of gender, age, household income, and education; and the variable information insufficiency ($R^2\Delta = 0.059$; $F(1, 374) = 23.658$, $p < 0.001$). A regression equation with a statistically significant result was found as well ($F(5,374) = 5.338$, $p < 0.001$) with a total R^2 of 0.067. A beta value for the variable information insufficiency was found at 0.015 ($p < 0.001$). This result indicated that accounting for the effect of the variables gender, age, household income, and education; the variable information insufficiency was a statistically significant positive predictor of the difference in usage of “state media” during the evacuation decision-making process. So that as a respondent’s information insufficiency increased so did the usage likelihood of state media increased.

For the dependent variable “difference in usage for local electronic media, cable TV, international local media, and Internet” no statistically significant difference was found between the effect of the control variables of gender, age, household income and education; and the variable information insufficiency ($R^2\Delta = 0.001$; $F(1, 374) = 0.472$, $p = 0.493$). The regression equation did not produce a statically significant result either ($F(5,374) = 1.213$, $p = 0.302$) with a total R^2 of 0.016. This result indicated that the variable information insufficiency was not a statistically significant predictor of the difference in usage of “local electronic media, cable TV, international local media, and Internet” during the evacuation decision-making process.

For the dependent variable “difference in usage for major local newspapers” a statistically significant difference was found between the effect of the control variables of

gender, age, household income, and education; and the variable information insufficiency ($R^2\Delta = 0.013$; $F(1, 374) = 5.059$, $p = 0.025$). However, the regression equation did not produce a statistically significant result ($F(5,374) = 1.473$, $p = 0.198$) with a total R^2 of 0.019. This result indicated that accounting for the effect of the variables gender, age, household income, and education; the variable information insufficiency was a not a statistically significant predictor of the increase of usage of “major local newspapers” during the evacuation decision-making process.

Overall, state television and radio were the only media outlets that not only had a statistically significant increases in usage likelihood in the evacuation decision-making process but also a statistically significant positive influence from the variable information insufficiency. This would indicate partial support of H6.3.

Table 20
Values of the Effect of Fear/Worry on Differences in Media Use during the Evacuation Decision-Making Process

	State Media	Major local newspapers	Other media	Minor local newspapers
Gender	0.025	-0.030	0.103*	0.016
Age	0.040	0.045	0.041	0.076
Education	0.069	0.029	-0.042	0.131*
Income	-0.059	-0.63	0.011	-0.117*
R² change	0.008	0.006	0.015	0.027*
Information Insufficiency (H6.3)	0.257***	-0.122*	0.037	-0.126*
R² Change	0.059***	0.013*	0.001	0.014*
Total R²	0.067**	0.019	0.016	0.041*

Note: Entries are beta weights from the multiple regression equation.

p < 0.05, **p < 0.01, *p < 0.001*

Chapter 5: What Do The Results Mean?

This study answers four over-arching research questions concerning the media Bahamians use when making a decision about what action to take during an approaching cyclone, what influences the evacuation decision-making process, how does the perception of risk affect emotional response and how does that emotional response along with perceived knowledge of the risk of cyclones effect media usage in the evacuation decision-making process. Based on these questions and prior research, eleven hypotheses were developed. A set of these hypotheses evaluated how perceived home quality, false alarm experience, and knowledge of cyclones relates to media usage likelihood in the evacuation decision-making process. Another set of hypotheses tested the influence of residents' perception of the risk of cyclones, perceived personal control, and perceived institutional trust effects fear and worry of cyclones. And finally another set of hypotheses evaluated the interplay of emotional response, media usage likelihood, and information insufficiency.

Bahamians in the study reported that when deciding what to do during an approaching cyclone that state media, television, and the Internet were top sources of information gathering. The study also found support for some segments of the risk information seeking and processing (RISP) model including the influence of risk perception on emotional response and the influence of emotional response to hurricanes on information insufficiency.

Bahamians Like State Media Outlets and Television

In this study Bahamians gravitate to state media outlets at a statistically significant rate. Respondents had an increased likelihood of using these outlets without regard to many of the other variables in the study such as false alarm experience, home quality perception, threat knowledge, “fear and worry” about a storm, and information insufficiency. This finding follows broadly with prior research of the reliance on local television (Prater et al., 2000), but can be explained by a study by Driscoll and Salwen (1996) that found residents ranked local television as the highest source of weather information in terms of expertise and trustworthiness. However, message quality was not investigated in this study.

Bahamians in the study also had a propensity to gravitate to state media outlets (TV and radio) specifically, and generally indicating a preference for television in making an evacuation decision. It was predicted that Bahamians would prefer local state media in gathering information during the evacuation decision-making process rather than other options such as other local electronic media, international local news (south Florida affiliates), local newspapers and the Internet.

This preference for state media could be explained in conjunction with the high level of institutional trust, which makes sense in that if residents trust the government as an institution then residents would trust the messages being received from the state run media outlets as well. Institutional trust had a statistically significant effect on state TV usage in the evacuation-decision making process when ruling out socio-economic factors and “fear and worry”.

Residents also had a preference for using television—both cable networks and affiliates in south Florida—and the Internet to gather information in the evacuation decision-making process. Following the uses and gratification paradigm, a preference for television makes sense especially in a situation as important as protecting house, home, and loved ones. As Katz, Guerevitch, & Haas (1973) point out media consumption satisfies needs such as seeking information to solve a problems in life such as what to do during an approaching hurricane. Getting that information as fast as possible allows that medium to be intentionally selected over other alternatives (Katz et al., 1973).

The results from this study also supports researchers' (Driscoll & Salween, 1996, Lindell, Jing-Chein & Prater 2005, Prater et al., 2000) position that residents would prefer television for information to make an evacuation decision because, with the exception of Internet usage, television dominated usage likelihood (state media including television, international localized media or South Florida affiliates available in the Bahamas, and other cable channels). It was interesting to note that local electronic media outlets (not including the state media outlets) were not ranked as high as expected even though previous studies have shown local electronic media to be highly preferred in gathering weather information specifically when deciding what to do during hurricanes (Lindell, Jing-Chein & Prater 2005). This deviation from the expected results could be explained by the lack of experience by the other local Bahamian electronic media in covering storms or could be explained by residents' preference for the more instant gratification provided for by state TV, Internet websites, and television in general, over the localness of these outlets. State radio launched in 1937 and state television launched

in 1977. Other outlets did not enter the market until law broke the state monopoly in 1993. The preference for state media could also be habitual use caused by the previous monopoly of state media.

Interestingly, respondents ranked Internet websites as second in usage likelihood even though this usage was predicted to be the least likely source for information in the evacuation decision-making process. This stark difference and prominence of Internet usage could be explained with the uses and gratification paradigm. Rubin (2009) suggests that media usage behavior is “goal directed, purposive, and motivated” and because Internet websites provide more instant and controllable gratification by providing information instantly about the storm more residents may be turning to the World Wide Web to satisfy their information-seeking behavior. The Pew Research Center (Smith, 2010) found that home Internet usage in the United States has increased over the past few years from 63% of Americans in 2009 to 66% in 2010. Although comparable data are not available it would seem that Bahamian growth could mirror American growth because of the interconnectivity of the two country’s economies.

Personal Attributes Have Little Influence on Media Use

It was predicted that false alarm experience and perceived home quality would have a negative influence on media usage in the evacuation decision-making process; and perceived threat knowledge would have a positive influence on media usage. Two variables (false alarm experience and threat knowledge) did not have a significant influence on media use and a third variable had the opposite effect than what was predicted (home quality).

However, it must be restated there were some complications with the research. Some respondents took the questionnaire prior to an actual storm strike on the island and others took it after an actual strike. Because of when residents took the questionnaire, some respondents could have had more current or more severe false alarm experience than the rest of the sample. Also respondents who took the questionnaire either during or after the storm strike may have been primed by an overabundance of hurricane and tropical storm information, thereby causing them to rate threat knowledge differently than those respondents who took the questionnaire prior to the storm strike. The respondents who took the questionnaire after a storm strike may have a different—even more accurate—perception of the sturdiness of the home than those who took the questionnaire before the storm strike. All of this speculation on the effect on result of the storm strikes could be just that—speculation and in reality the variables of home quality, false alarm experience, and threat knowledge have no influence on media use in the evacuation decision-making process.

However, looking at Baker's 1991 study that showed that living in an area of high risk of a hurricane strike—such as The Bahamas—is a chief indicator of the probability to evacuate, could explain why personal attributes (false alarm experience, threat knowledge, and perceived home quality) have little influence on media use in the evacuation decision-making process. The fact that Bahamians live in a high risk area may trump all other attributes and lead to a higher use of media—specifically state media and television—to decide what to do as a storm approaches the island. Another explanation for these distinct findings could be that residents “fear and worry” about

cyclones at such a high level that regardless of previous experience with false alarms, the perception of the sturdiness of the home, or how much residents know about the risk posed by cyclones, residents attend to media for information about approaching cyclones. Slovic (2000) points out that humans could have the ability to “sense and avoid harmful environmental conditions” (p. 220), Bahamians may have a heightened awareness of the impact of storms to the point that those residents would be more inclined to want to avoid—or at least mitigate—the impact of a storm (Perry & Lindell, 1986; Drabek & Boggs, 1968).

Another reason for media use regardless of previous experience and knowledge of the threat of hurricanes could be societal. The literature indicates that two reasons—family ties (Perry et al. 1981) and involvement in society (Perry & Greene, 1982; Scanlon & Frizzel, 1979; Perry & Lindell, 1986)—increase the likelihood of receiving messages. Bahamians generally maintain close family ties throughout the island and the country and more than likely have family living throughout the island and the country as well. Because of these ties to family, residents may more likely receive information about approaching storms from interpersonal communication as well as mediated sources. Also because of the large population on the small island of New Providence, most people don't live too far from one another. This proximity makes community involvement very common. Katz, Gurevitch, and Haas (1973) wrote that people use the media to connect with society including friends and family. So it may be that Bahamians use media in the evacuation decision-making process not only to make personal decisions about evacuating or making some other sort of mitigation effort, but to have information to

assist family and friends in making an evacuation or mitigation decisions. So even though not directly affected by the cyclonic strike, residents may have family members or friends who could be affected by the impending strike and would want to offer information—or just want to be informed—about the approaching storm.

Bahamians Fear the Unknown, and the Unpredictable, but Trust Government

Based on the results, there seems to be a distinct relationship between the level at which Bahamians perceived the threat of a cyclone and the level at which Bahamians “fear and worry” about a cyclone. The more Bahamians thought they would be hurt by a cyclone or the more a Bahamian thought a cyclone would impact the island, the more Bahamians “feared or worried” about a cyclone. The positive relationship between “fear and worry” of cyclones and two of the perceived hazard characteristics (perceived probability and perceived severity) follows the risk information seeking and processing (RISP) model. Researchers find that the more someone is concerned about a future event that they have no real control over (perceived probability) and the more the outcome of that event could produce personal harm (perceived severity) the more a person would worry about the event (Griffin et al., 1999; MacLeod et al., 1991; Matthews, 1990). So then, the more Bahamians thought a cyclone would either hit the island or hurt them when it did, or both, the more Bahamians fear the risk associated with cyclones, which is consistent with the risk information seeking and processing (RISP) model.

The study also found further support for the risk information seeking and processing (RISP) model. Respondents who had a higher perception of trust in governmental institutions to protect or warn about the risk of cyclones were less likely

to worry or fear the risk associated with cyclones. The correlation between institutional trust and fear/worry was consistent with the RISP model and research about the judgment of governmental effectiveness in preventing harm to the populous (Griffin et al., 1999; Earle & Cvetkovich, 1995, p. 19; Flynn et al., 1992; Slovic, 1987). The more Bahamians trusted the government to warn and protect the population from a cyclone the less Bahamians feared and worried about cyclonic strikes.

Fear And Worry Influence on Information Insufficiency And Media Usage In The Evacuation Decision-Making Process

As an individual feels more fear about a risk, it would then follow that that individual would believe that more surveillance of the risk or environment is required. Because an individual feels the need for more surveillance, two situations may arise: the individual may underestimate the current knowledge possessed by that individual or the individual overestimates the amount of knowledge required to deal with a risk. Either or both of these situations can lead to a greater level of information insufficiency, which was shown in this study.

Based on prior research it was expected that the more Bahamian residents worried about the risk of a tropical cyclone, the more information they would perceive they needed to cope with the risk. The reduced level of perceived knowledge to deal with the threat could lead to a greater difference between that individual's perceived required level of knowledge and that individual's current knowledge about cyclones. This difference—if positive—is referred to as information insufficiency. The influence of fear/worry on information was shown in this study, which was a predicted as a component of the risk

information seeking and processing model (Griffin et al., 1999, Griffin et al., 2004). The phenomenon makes sense when taking into account the non-exhaustive list of fear properties the Janis (1962) writes about: the influence of environmental cues, an increase in the need for vigilance, an arousal of need for reassurance (pp.60-61).

Janis (1962) writes that the more an individual fears or worries about an event the more that individual would probably want to gain information about the event itself. So as fear of an event increased the more media that individual would consume about the event. This study found some support for this position. State media outlets (television and radio) were the only outlets that had a statistically significant increase in usage and a statistically significant influence from fear and worry of cyclones. This finding follows with the research from Prater et al. (2000) which found that local news media—specifically television—are used the most to find out information about hurricanes by residents who live in hurricane-prone areas. Bahamian residents may turn to the local media outlets (state TV and radio) because of the assumption that those outlets provide the more up-to-date and official stance of the government on the cyclone's movements and track. Bahamians may also turn to the state-run TV station because of a belief that local forecasters and newscasters may be more trustworthy to deliver information to the local population. However it must be pointed out that the authority and trustworthiness of the messages received or anticipated were not investigated in this study.

Again it would follow that the less information an individual perceived required to deal with a risk the more vigilant that individual would be about the risk. Therefore the greater level of information insufficiency would lead to greater the level of media

consumption during the evacuation decision-making process. The study supported this argument as it was found that the state media outlets had a statistically significant increase in the evacuation decision-making process and had a statistically significant influence from information insufficiency. This again could be related to assumption that the state media outlets—as the de-facto voice of the government—provide the official stance of the government but also the most current information on the cyclone.

The Role of Gender in the Study

Previous research found that women were more likely than men to not only hear disaster warnings (Turner et al. 1979; Turner et al. 1981) but also to actually evacuate (Beady & Bolin, 1986; Turner et al. 1979; Turner et al. 1981). These actions by women could be attributed to a heightened perception of risk (Fothergill, 1996). Men were also more likely to stay at the home to protect the home from looters and the like. Because women not only were more likely to evacuate but also had this “heightened perception of risk” (Fothergill, 1996, p. 39), it would follow that there would be some difference in gender in the results.

However this was not evident in this sample. When it came to knowing about the risk of cyclones and the perception of the quality of the home, there was no statistically significant difference. Gender generally had little influence on the difference in media use in the evacuation decision-making process. However, women did seem to have a statistically more significant experience with false alarms. Again this probably is explained by the literature in that women would be more likely to evacuate and therefore more likely to take some sort of mitigation action—that in some cases could be without

merit. Gender surprisingly had little correlation with hazard perception (likelihood of being impacted by a storm, likelihood of being hurt in a storm) and environmental controls (level of personal ability to avoid the risk of a cyclone and the perception of government to warn or protect against the risk of cyclones). Gender also seemed to have no effect on differences in fear and worry of a storm even though the literature would seem to indicate that an increase of risk perception would translate into a greater level of fear or worry about a risk. Because it was thought that gender would affect fear but didn't, it would follow that information insufficiency would not be correlated with gender either. The correlation between information insufficiency and gender was in fact not found.

Most of the previous research found that gender would be connected to evacuation behavior in that women are more likely to evacuate. A greater likelihood to evacuate should lead to an increase in media use in the evacuation decision-making process because the information-seeking aspect of the use and gratification paradigm would be activated. However this study found that gender had little influence on the difference in media usage. Media use thought is not the only component of the evacuation decision and in some cases may not even be a factor. Residents could get information from peers (Baker 1991, Lindell et al. 2005) or be told to evacuate from local authorities without any mediated messages (Lindell et al., 2005).

Education And Income Tied At The Correlation Hip

Household income and education generally are connected, and the same general connectivity played out in this study. This study found that if household income was correlated with a variable then education was correlated with that variable as well. Positive and statistically significant correlations were found between income and education, and between knowledge of the threat of cyclones. It follows that a greater level of the education leads to greater household income. The greater level of education means a greater knowledge about the threat of cyclones and probably explains the negative but statistically significant correlations found between income and education, and false alarm experience, reported likelihood of being impacted by a storm, reported likelihood of being hurt in a storm, fear and worry of a storm, and information insufficiency.

Because a respondent had a greater level of education and understanding of the risk posed by cyclones, that individual would be less likely to believe that a cyclone could hurt them because they could understand warnings. The individual with a higher level of education may also be less likely to think that a storm would impact them because they understand the risk associated with the weather leading to a reduction of “fear and worry” as well. A greater understanding of the risk of cyclones also reduces information insufficiency because the individual starts off with a larger level of knowledge about cyclones—a by-product of general education.

It is also interesting to note that education and income were not simultaneously correlated with the variable personal control. Household income and the perceived

personal ability to avoid the risk of a cyclone were statistically significant correlated. As income increased, the individual's belief of personal control increased. However there was not statistically significant correlation between level of education and personal control. This result indicates that for Bahamians personal efficacy is determined by income and not necessarily by the level of education. The difference in correlations between income and personal control, and between education and personal control may also explain why personal control had a statistically significant and positive influence of personal control on fear and worry. Because the income of the household (and not education of the individual) may be more of a factor in determining personal efficacy in this study, Bahamians who are more affluent have the ability to avoid a hurricane or at least mitigate against a storm strike. However these residents—even though more affluent—may also have the level of education or knowledge to understand the risk posed by hurricanes leading to a higher level of fear of cyclonic strikes.

Bahamians and the Risk Information Seeking and Processing Model

Utilizing portions of the risk information seeking and processing model found that Bahamians generally trusted government institutions and this trust could also lead to a preference for the state-run media as well. Also, Bahamians' affective response to the threat of cyclonic strike was positively influenced by the perception of the possibility of a hurricane strike affecting the individual and the individual's belief that any strike would cause personal harm. However, Bahamians' belief in being able to avoid a cyclonic strike did not reduce the fear of a cyclonic strike—which was the opposite that was predicted based on the risk information seeking and processing model. This difference

may have been an abnormality of this particular sample or a deficiency of the overall model. Another explanation could be that Bahamians live in a high-strike zone for cyclones (Hughley, 1998) and they fear the almost certain yearly strike they believe that they have enough personal control to avoid the risk.

Taking into account another segment of the risk information seeking and processing model, affective response increased an individual's belief about not having enough information to deal with the threat of cyclones; or possessing information insufficiency. Both affective response and the level of information insufficiency were predicted to affect media use. However that predicted influence was found only for state media. This bolsters the thought that Bahamians gravitate to state media and probably trust those media outlets over other available options. This affinity for state media, television, and the Internet could be an isolated incident and could also be cause for future research, which will be discussed in the final chapter.

The results though did indicate with statistical significance that an individual's perception of being able to avoid the risk of cyclones increased the level at which an individual feared or worried about the risk of cyclones. This result contradicts what is proposed by the risk information seeking and processing (RISP) model. An individual may actually perceive the risk of cyclones to be more dreadful or out of their control generally (Wilkins, 2001) and as something that an individual has to deal with by the very nature of living in the cyclone prone Caribbean basin. Griffin et al. (1999) give an alternate explanation for the non-confirmation of this part of the risk information seeking and processing (RISP) model. Those researchers believed that from "risk to risk or

situation to situation, there will be differences in how relevant each of the variables in the model will be to individuals' RISP and, eventually, to their behavioral responses to the risk" (p. 50). For Bahamians it would seem that the extent that an individual thought he or she could avoid the risk associated with a cyclone increased the level of worry about the strike of a cyclone and seems to be counter intuitive. However it must be pointed out that in the study by Griffin et al. in 1999, where they were studying a different type of risk, the personal control aspect of the risk information seeking and processing (RISP) model was not confirmed (p. 44) and it may seem that this portion of the model (personal control) may be a non-factor in the overall assessment of risk or fear of risk.

In summary, when a hurricane or tropical approaches the country, Bahamians seem to not only trust the government to alert and protect the population from the threat of the storm but also gravitate to state media in general and the mediums of television and Internet to make an evacuation decision.

Chapter 6: Conclusions

When cyclones approach The Bahamas, residents rely on state media (television and radio), television in general, and the Internet to get information about the weather. This information-seeking process is a part of the evacuation decision-making process that culminates in deciding about evacuating. In this evacuation decision-making process, several factors influence media use (fear, information insufficiency) and other factors (false alarm experience, threat knowledge, and perceived home quality) do not. An increase in the fear of cyclones—which lead to an increase in media use—was influenced by the level of concern about the possibility of a cyclone strike and by the level of concern about that cyclonic strike producing personal harm. A decrease in the fear of cyclones was influenced by the level at which a resident trusted the government. However—counter-intuitively—fear of a cyclone was not influenced by the level at which a resident believed he or she could avoid the risk from a cyclone. Many of these findings supported previous research and some of the findings found contradictory results.

The Bahamas presents an under-studied population in terms of media use and risk communication. As it turns out some aspects of risk communication and media use hold true for this new population. Several segments of the risk information seeking and processing model worked for this population, bolstering support for the model: Bahamians' fear of cyclones was influenced by perceived probability, perceived severity, and institutional trust; and fear of cyclones increased information insufficiency. The

study also supported previous research in communication during approaching hurricanes (Lindell et al., 2005; Prater et al. 2000) that found a reliance on television.

However, some personal attributes that were thought to lead to greater evacuation likelihood which would have lead to greater media use did not materialize. Previous experience with false alarms, home quality perception, and threat knowledge were expected to influence evacuation behavior and have lead to an influence on media use in the evacuation decision-making process. The influence of those three variables on media use was not found. However, because the study did not investigate evacuation behavior and only investigated media usage in a hypothetical approaching cyclone, it can not be determined if the three factors would in fact lead to an evacuation but not influence media use in the decision.

Previous research found little reliance on the Internet during the evacuation decision-making process (Prater et al., 2000; Lindell et al., 2005). However in this study, Internet was ranked high in terms of usage in the evacuation decision-making process. Because media are selected over other alternatives in a purposeful manner that satisfies a desire (Rubin, 2009; Katz et al., 1973), Bahamians in the study believe that Internet websites are able satisfy a need, which in this case is weather information in the evacuation decision-making process. This deviation from previous research could simply be indicative of the increased prominence of the Internet or simply could be more prevalent in this study because the majority of respondents answered the questionnaire via an Internet website.

Disaster researcher Lee Wilkins (2010) points out that journalists—and by extension the media outlets that employ these journalists—have specific goals during disasters such as tropical storms and hurricanes. She writes that “journalists have a duty to save lives and attempt to prevent property damage during such times” (p.311). This duty of journalist means essentially that journalists and their organizations are obligated to get crucial information out to the public in disaster situations to allow the population enough time to make a decision about the approaching disaster. In The Bahamas that disaster is usually a cyclone. Even though many residents shelter in place, many who live in shoddy wooden homes still have to evacuate to state run shelters. The residents evacuating need to know two things: where to go and when the situation dictates that it’s time to go. Those residents who decide to shelter in place and take some sort of mitigation action, such as boarding up the home or sandbagging the home, still need information about when is the best time to start taking action and then when the strike has completely passed. Knowing which medium and media outlet to send an “all-clear signal” is crucial for the government, especially when the eye of a storm passes over a specific island. Residents not knowing that the eye has passed over an island could be misinterpreted as everything being “all-clear”, and residents could let their guard down and even head outside to resume normal activities. The eye of a storm can be as wide as 20-40 miles wide and usually become larger the stronger the system (NOAA, 2011) and can take minutes to even hours to pass over an island.

Some people experiencing the light wind and fair weather of an eye may think the hurricane has passed, when in fact the storm is only half over with dangerous eyewall winds returning, this time from the opposite direction within a few minutes. (NOAA, 2011)

Clearly, the passage of a storm's eye could put people's lives at risk. Bahamian journalists, The Bahamian government, and Bahamian government agencies could be in a better position to know where to direct messages during these emergency situations from the results of this study. Edwards et al. (2010) advocates for media outlets "in this age of media choice, (to) use all forms of media at your disposal, including social media" (p. 5).

As this study found a propensity for Bahamians to turn the Internet to find weather related information during the evacuation decision-making process, this may mean that social media via the Internet may be the next frontier in disseminating news—generally and specifically during emergencies—for Bahamian media outlets. Because Bahamians in this study seem to favor the instantaneousness of the Internet, that medium generally could be another avenue to get weather related information out to the public. Because newspapers cannot print during the actual storm strike, this study suggests that the Internet may be another option for those newspaper outlets to compete and disseminate information in an emergency situation as well. At least one newspaper in New Providence has attempted to use the Internet to disseminate information during breaking news. That outlet seemed to be successful in getting the information out while the electronic media outlets (radio and television) did not break into transmission to report on the breaking news.

When looking at communicating during hurricanes, Edwards et al. (2010) point out that government officials should "be proactive in educating the public" and "keep media in the loop" (p.4). Those communication researchers found that it is prudent for government officials to have not only an emergency plan in place but also a public

relations plan that includes the media outlets (p.4) and keep the media in the loop. The results of this study can assist Bahamian government officials in understanding how to formulate both of those plans in that state media outlets (state television and radio) and the mediums of television and Internet may be the best ways to get the information to the most people in the evacuation decision-making process.

The study shows that Bahamians gravitate more to the two mediums of television and the Internet, trust the government, and by extension have confidence in state media. Having a better focus on where the message is delivered more efficiently could very well protect homes and save lives. The researcher was a practicing journalist in The Bahamas for more than 15 years—ten years at the state-run television and radio station as a reporter and producer—and has covered several storm strikes in the country. The results of the study will surely change the way the researcher directs coverage of storms in terms of focusing on television and integrating the Internet in coverage plans—especially during the approach of a storm.

The researcher would promote the integration of the Internet and social media especially during the entire evacuation decision-making process. Also, the researcher would suggest that state media executives and news managers extend television and Internet coverage during approaching storms because it seems these are some of the top venues that Bahamians use to decide on evacuations.

However it must be pointed out that even though residents on the island of New Providence (the sampling frame for the study) relied more on television, state media managers cannot ignore state radio. On other less populated and less developed islands local television is either not the dominant media available or not available at all. Some

of the islands do not have the cable television infrastructure to receive local television signal or are too far away to receive the signal over the air. On these islands radio, cable channels (from satellite and not local cable providers), local authorities, and perhaps Internet websites are the dominant sources of information in the evacuation decision-making process. This difference though can lead to future research.

Future Research

This study found overwhelming support for state media, television, and the Internet during the evacuation decision-making process. Each of those media outlets have different level of gratification and probably residents have different motivations for using them. Future research could explore these differences and help explain the reason each of those medium attract Bahamians. State run media outlets (TV and radio) were ranked higher for usage in the evacuation decision-making process and had a significant increase of use from normal usage to usage in the evacuation decision-making process. This result seems to show that Bahamas trust and depend on these two outlets when making a decision about weather-related events. Bahamians seemed attracted to television generally but the study did not explore why this attraction existed. Do Bahamians trust television—local and international outlets—more? Or is it simply the instantaneous and visual nature of the medium that attracts Bahamians? This instantaneousness could explain why Internet websites were ranked so high in the study as well, but that is not the only possible explanation for Internet usage. The Internet provides a sense of control for the user in that the user determines when the user retrieves the information. There is generally not a schedule that the individual has to follow.

Future studies could identify which personal needs are matched with the motivation to use different media (Rodgers & Sheldon 2002).

The population of the study could also be repeated to include only residents on less populated and less developed islands. The aim would be to see if media use on those islands deviate from media use on New Providence and if personal factors affect those resident similarly. Many of the homes on these less developed islands are made of wood and not as structurally sound as the homes on New Providence or Grand Bahama Island (where the country's second largest city of Freeport is located). Home quality may have a more significant influence on media use on these islands.

Another area for research in the Bahama Islands involves identifying motivations to use the different media in the evacuation decision-making process. After identifying motivations, researchers could investigate how factors such as false alarm experience, home quality, island of residence, and others influences these motivations allowing a more specific match of "personal needs" (Rodgers & Sheldon, 2002, p. 86) of weather information with specific situations.

This study raises another important question: Why did personal control not reduce the "fear and worry" of cyclones. The risk information seeking and processing model predicts that the more an individual believes in the ability to control or avoid a risk the less that individual would fear that specific risk. This study as well as a previous study (Griffin et al. 2004) found either personal control had a positive influence or no influence at all. Is this deviation from the risk information seeking and processing model simply an anomaly of both of these studies or could it be another factor or factors that intervene and

influence fear without regard for personal control? This deviation could be grounds for future research from a qualitative standpoint to identify if there is another factor overlooked by the risk information seeking and processing model or simply irregularities found in these two studies.

Limitation of the Study

This study can be seen as exploratory in nature as very little, if any, research has been conducted in the Bahamas as it relates to media use in general, media use in the evacuation decision-making process, and factors that influence the decision to attend media in the evacuation decision-making process. Having said that, this study presents some interesting findings but is also complicated by some limitations of the survey. The response rate for both the online and paper questionnaire was 9.4%, which is very low even in the wake of declining response rates for survey research (Krosnick, 1994; Cook et al., 2000). About 46.7% of the sample was at or below the mean income for the island of New Providence and most of the respondents in that group were pretty close to the average response for perceived home quality. However, because of the late start of the questionnaire distribution many residents in the lower socio-economic strata and those residents who lived in older wooden home were probably not fully represented in the sample. Also only nine paper questionnaires—presumably filled in by those members of the community who didn't have Internet access—were completely filled out. These groups of people (poorer and lower home quality) that probably do not have Internet access were probably not fully represented in the sample. Future research could either target these members of the community specifically and individually or make more of an

effort to include those residents in the overall sample. The sample was representative of the population of the island from a gender, geographic, and economic standpoint.

However the sample overwhelming consisted of Internet users, which meant that those who were older, poorer, and less technically savvy were excluded. This could also have excluded those who had a reduced home quality confidence.

Most of the deviation from the expected results though could be traced to the fact that some of the sample took the questionnaire during or right after an actual cyclonic strike or threat of a cyclonic strike. These intervening events could very well be skewing all of the results. Because of the influence of the cyclonic events, residents could have a different perception of many of the variables such as threat knowledge, false alarm experience, fear and worry of cyclones, information insufficiency, and even a different or more accurate perception of the quality of the home. Future research could take this effect into account and conduct the questionnaire out of the hurricanes season, earlier or later in the season, or confine responses to those who have had the specific cyclonic experience.

Another limitation of the study lies in the fact that different media outlets offer varying levels of coverage when a storm is approaching the island. Residents may gravitate to state media not because of a trust of government or confidence in the state outlet but could be borne out of necessity. State media outlets, because of the very nature of those outlets, may be the only outlets providing complete coverage of weather information prior to the strike, during a strike, and in the aftermath of a strike. This difference in the level of information could also be cause for future research as well to

find out if Bahamians prefer state media because of trust, completeness of coverage, or simply because of habit.

Final Thoughts

The results of this study essentially promote an understanding of media use in the evacuation decision-making process in The Bahamas, the factors that influence that media use, and also undergirds the need for of this type of research in The Bahamas and the Caribbean. Disaster researchers have found that the more resident perceived the risk to property (Perry & Lindell, 1986), or the more the resident knew about the risk of a cyclone (Baker, 1991), the more likely it was that the resident would take some sort of action during a cyclonic strike. With the information-seeking segment of the uses and gratification paradigm activated, it would follow that media use during the approach would be increased. However, this study found the variables of threat knowledge and home quality where not influential in media activity in the evacuation decision-making process. This deviation from the expected results opens up the possibility that The Bahamians may over-perceive risk from cyclones and attended to media—in this study state media, television, and the Internet—regardless of outside forces.

Appendix

Hurricanes Media Use

1. Introduction and Informed Consent

Please read the following form carefully before you start answering the following research questions.

Thank you very much for agreeing to participate in our research. This study deals with the use of media in The Bahamas. More specifically, we are interested in learning how you use media day-to-day and during times when hurricanes and tropical storms are approaching, what motivates you to use media, and how it influences you. This survey should not take more than 30 minutes to complete. Your participation in the study is not expected to cause you any risk greater than those encountered in everyday life.

Your participation in this study is voluntary. You do not have to be in the study if you do not want to. You may refuse to be in the study and nothing will happen. If you do not want to continue to be in the study, you may stop at any time without penalty or loss of benefits to which you are otherwise entitled. Your identity and participation will remain confidential. Your name and information will be kept confidential and will not be linked in ANY way to your answers.

Questions, Concerns and Complaints. If you have any questions about the research, please contact Christopher Saunders , who can be reached by email: casw25@mail.missouri.edu or phone: 573-823-7105 or 242-544-1085.

You may contact the Campus Institutional Review Board if you have any questions about your rights, concerns, complaints or comments as a research participant. You can contact Campus IRB at the following address
Campus Institutional Review Board
483 McReynolds Hall
Columbia, MO 65211
Phone: (573) 882-9585
Email: umcresearchcirb@missouri.edu
Website: <http://www.research.missouri.edu/cirb/index.htm>.

By clicking on the "NEXT" button below or by continuing with the questions you are giving us consent to participate in this study.

Thank you for your time and effort.

Hurricanes Media Use

2. About You.

Tell us a little about yourself.

***1. What is your gender?**

- Male
- Female
- Prefer Not to answer

***2. How old are you?**

YEARS

***3. What constituency do you live in?**

- | | | |
|---|------------------------------------|---------------------------------------|
| <input type="radio"/> Bain and Grants Town | <input type="radio"/> Garden Hills | <input type="radio"/> Pinewood |
| <input type="radio"/> Blue Hills | <input type="radio"/> Golden Gates | <input type="radio"/> Sea Breeze |
| <input type="radio"/> Carmichael | <input type="radio"/> Golden Isles | <input type="radio"/> South Beach |
| <input type="radio"/> Clifton | <input type="radio"/> Kennedy | <input type="radio"/> St. Annes |
| <input type="radio"/> Elizabeth | <input type="radio"/> Killarney | <input type="radio"/> St. Cecelia |
| <input type="radio"/> Englerston | <input type="radio"/> Marathon | <input type="radio"/> St. Thomas More |
| <input type="radio"/> Farm Road & Centerville | <input type="radio"/> Montagu | <input type="radio"/> Yamacraw |
| <input type="radio"/> Fort Charlotte | <input type="radio"/> Mount Moriah | |
| <input type="radio"/> Fox Hill | <input type="radio"/> Pineridge | |

***4. Do you own or rent your home?**

- OWN
- RENT

***5. How long have you lived at your current residence?**

In years...

Hurricanes Media Use

*6. What is your current level of education?

- Some primary school
- Some high school
- High school graduate
- Some college
- Bachelors degree (not including law)
- Some graduate school
- Master's degree or professional admission including Bahamas/English/Commonwealth Bar, CPA
- Phd, MD

7. What is the current household income at your residence?

- \$0 - \$14,999
- \$15,000 - \$29,000
- \$30,000 - \$44,999
- \$45,000 - \$59,999
- \$60,000 - \$74,999
- \$75,000 - \$89,000
- \$90,000 - \$104,999
- \$105,000 above

Hurricanes Media Use

3. Day-to-Day Media

We want to learn about your normal media usage for weather information.

*** 1. During the course of a regular day how likely are you to turn to these sources for weather information? Select the button that best reflects your likelihood of using that media outlet.**

	Unlikely						Likely
ZNS – TV 13	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ZNS – Radio Bahamas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Tribune Newspaper	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Nassau Guardian	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Bahama Journal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Punch	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Love 97 Radio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
100 Jamz Radio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MORE 94.9 Radio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Joy FM Radio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NBC South Florida TV	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
WSVN South Florida TV	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CBS South Florida TV	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ABC South Florida TV	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CNN – Cable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MSNBC – Cable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fox – Cable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Weather Chanel – Cable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BBC Television – Cable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internet Websites	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Hurricanes Media Use

4. You and Your Home.

We want to find out about how you perceive your home.

*** 1. Rate each statement according to whether it applies to you or not by indicating your agreement or disagreement using the scale.**

	STRONGLY DISAGREE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	STRONGLY AGREE
My home would be damaged during a thunderstorm.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My home would be damaged during a tropical depression.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My home would be damaged during a tropical storm such as Bonnie in 2010.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My home would be damaged during a small hurricane such as Noel in 2007.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My home would be damaged during a medium strength hurricane such as Francis and Jeanne in 2004.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My home would be damaged during a major hurricane such as Hurricane Andrew in 1993 or Flyod in 1999	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Hurricanes Media Use

5. You, a storm and media.

We want to find out how you use media when deciding what to do during a storm.

*** 1. Imagine a hypothetical tropical storm or hurricane is approaching the island of New Providence. Rate the following items in terms of how likely you would be to turn to them to get information about deciding what to do during the storm.**

	Unlikely						Likely
ZNS – TV 13	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ZNS – Radio Bahamas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Tribune Newspaper	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Nassau Guardian	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Bahama Journal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Punch	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Love 97 Radio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
100 Jamz Radio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MORE 94.9 Radio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Joy FM Radio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NBC South Florida TV	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
WSVN South Florida TV	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CBS South Florida TV	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ABC South Florida TV	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CNN – Cable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MSNBC – Cable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fox – Cable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Weather Chanel – Cable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BBC Television – Cable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internet Websites	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Hurricanes Media Use

6. How do you feel about storms.

We want to know how you feel about tropical storms and hurricanes in general.

*** 1. Please rate your agreement with the following statements about tropical storms and hurricanes.**

	STRONGLY DISAGREE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	STRONGLY AGREE
I am aware of the threat of hurricane and tropical storm strikes in my area.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am fearful of the threat of hurricanes and tropical storms in my area.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When a hurricane or tropical storm has been detected I get scared.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During a storm/hurricane, I'm scared of having no electricity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During a storm/hurricane, I'm scared of getting hurt.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During a storm/hurricane, I'm scared of my home being damaged or destroyed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am scared of hurricanes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am scared that I may get killed if a hurricane or tropical storm strikes my island.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*** 2. We would like to know how you feel about hurricanes and tropical storms in general.**

Using the scale of NONE OF THIS FEELING to LOT OF THIS FEELING rate your agreement with the following statement:

When I think about the possible risk posed to me from a tropical storm or hurricane, I feel worried.

	None of this feeling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	I have a lot of this feeling
1-7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Hurricanes Media Use

7. Storms and your surroundings

We would like to find out some aspects of storms and how you perceive the risk.

*** 1. How likely are you to be hurt in the future from a hurricane or tropical storm. Please use a the following scale of NO CHANCE WHATSOEVER OF BEING HURT to CERTAIN TO BE HURT.**

	NO CHANCE						CERTAIN CHANCE
Hurt in a future storm.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*** 2. If a storm were to hit New Providence, how serious do you think you would be affected physically?**

Please use a scale NOT SERIOUS AT ALL to AS SERIOUS AS POSSIBLE to rate how you think you would be hurt in a storm.

	Not Serious at all						As serious as it possibly could be
Physically hurt in a storm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Hurricanes Media Use

8. How you storms affect you?

We want to find out how you see your ability to deal with storm strikes.

*** 1. Please rate your agreement with the following statements.**

	STRONGLY DISAGREE							STRONGLY AGREE
In my life, it would be easy for me to avoid becoming hurt in a hurricane or tropical storm strike.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Government officials care about the health and safety of people like me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Government is doing a competent job of protecting people from risks related to hurricanes and tropical storms.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I trust government to protect me from risks related to hurricanes and tropical storms.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I trust that government agencies will alert me to the risks of an approaching hurricane or tropical storm.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Hurricanes Media Use

9. Been there done that.

We want to find out how you have reacted to storms in the past that have hit New Providence.

***1. Thinking about the last storm that you can personally remember experiencing, rate your agreement with the following statements.**

	STRONGLY DISAGREE							STRONGLY AGREE
I boarded up my home unnecessarily in that there was little damage in my area.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I left my home unnecessarily as there was no damage in my area.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I sandbagged my home unnecessarily as there was no flooding in my area.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I did nothing because I didn't think the threat was real.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I did nothing because I didn't think the threat was relevant to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

***2. Thinking ahead to an imagined approaching storm, read the following questions and rate your agreement with the following statements on the scale of 1 to 7 where 1 is strongly disagree and 7 is strongly agree.**

	STRONGLY DISAGREE							STRONGLY AGREE
I would likely board up my home given the same warning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would likely leave the island given the same warning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would likely do nothing given the same warning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would sandbag my home given the same warning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Hurricanes Media Use

10. What do you know about storm?

We want to find out how much you know about the risk posed by hurricanes and tropical storms.

***1. Using a number between 0 and 100 with 0 meaning YOU KNOW NOTHING and 100 meaning YOU KNOW EVERYTHING THERE IS TO KNOW about this topic how would rate your knowledge about the following:**

Tropical Storms and Hurricanes

Please write a number
between 0 and 100

***2. Now we would like you to estimate how much knowledge you would NEED to deal adequately with the possible risk from a hurricane or tropical storm in your own life.**

Please use a number between 0 and 100. Where 0 means NO KNOWLEDGE and 100 meaning ALL THE KNOWLEDGE THAT COULD BE KNOWN ABOUT THE SUBJECT.

Of course, you might feel you need the same, more, or possibly even less, information about this topic.

Please write a number
between 0-100



Hurricanes

& the media research

A master's student is conducting research on media use during hurricanes and tropical storms in The Bahamas, specifically in New Providence.

Go to the survey at the bottom and follow the directions to help advance the knowledge of the interaction of the media and Bahamians during tropical storms and hurricanes.

Your participation in the study is not expected to cause you any risk greater than those encountered in everyday life.

Your participation in this study is voluntary. You do not have to be in the study if you do not want to. You may refuse to be in the study and nothing will happen.

<https://www.surveymonkey.com/s/WTZ8GST>

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