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Workplace implications for hurricane affected Gulf Coast region industrial companies

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WORKPLACE IMPLICATIONS FOR HURRICANE AFFECTED GULF COAST REGION INDUSTRIAL COMPANIES

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ABSTRACT

Organizational perspectives on the effects of disasters on employee behavior in the workplace and the related adjustments organizations make as a result of disaster are examined in this study. The survey instrument utilizes constructs of what organizations have done for their employees in regards to personal and family needs, business earnings and efforts to maintain continued business operations, philanthropy and volunteer activities, hiring and employee retention, safety and security, employee performance and activity, physical, mental or emotional effects, and human resource department adjustments or areas of coping as a result of Hurricane's Katrina and Rita. Rebuilding timeframes for physically damaged organizations, what organizations could have done differently to better support their employees after the hurricanes, and whether organizational responses can be predicted from effects of the hurricanes are also explored. The survey was completed by 103 Gulf Coast ABC organizations.

Factor analyses resulted in nine factors emerging as effects of the hurricanes on employees and nine emerging as organizational responses to those effects. For effects of the hurricanes, positive business effects was the highest reported mean and both negative employee reactions and employee withdrawal had the lowest reported mean. For organizational responses, management flexibility was the highest reported mean and increase in employee relations was the lowest.

Based on multiple regressions, the following varying levels of predictive results emerged. Negative business effects was found to be a predictor of management flexibility, operational changes, employee recruiting and retention, employee turnover, greater Human Resources presence and involvement and increase in employee relation issues. Negative employee

reactions were a predictor of employee turnover and increase in employee relation issues. Employee appreciation was a predictor of management flexibility, benefits and housing assistance, operational changes, safety and security adjustments, and greater Human Resources presence and involvement. Employee productivity effects was a predictor of benefits and housing assistance, philanthropy and volunteer activities, and employee recruiting and retention. Employee withdrawal was a predictor of safety and security adjustments, greater Human Resources presence and involvement and increase in employee relation issues and employee anxiety was a predictor of employee turnover.

CHAPTER 1: INTRODUCTION

Introduction

The American Red Cross responds to more than 70,000 man-made and natural disasters every year. These disasters include hurricanes, floods, earthquakes, tornadoes, hazardous material spills, explosions, and transportation accidents. (http://www.redcross.org/services/disaster). This research examines the effects of disasters on employee behavior in the workplace from the organization's perspective and the related post disaster adjustments, allowances and accommodations organizations make as a result of disaster in order to facilitate the work organization and its employees return to normal functioning and productivity.

Disaster has been defined as "an event, concentrated in time and space, in which a society, or a relatively self-sufficient subdivision of a society, undergoes severe damage and incurs such losses to its members and physical appurtenances that the social structure is disrupted and the fulfillment of all or some of the essential functions of the society is prevented" (Fritz, 1961 pgs 651-694), "a category of environmental events that periodically, and with varying degrees of intensity, subject human systems to a wide range of disruptions and stress" (Bolin, 1989 pgs 61-85), and specifically in regards to businesses, a disaster is,

> A sudden, unplanned calamitous event causing great damage or loss as defined or determined by a risk assessment and 1) any event that creates an inability on an organizations part to provide critical business functions for some predetermined period of time. 2) In the business environment, any event that creates an inability on an organization's part to provide the critical business functions for some predetermined

period of time. 3) The period when company management decides to divert from normal production responses and exercises its disaster recovery plan. Typically signifies the beginning of a move from a primary to an alternate location (http://www.drj.com/ glossary/drj glossary.html - Disaster Recovery Journal).

In August and September 2005 disaster struck the Gulf Coast region of the United States in the form of Hurricanes Katrina and Rita and their aftermaths. Both storms hit the southern Gulf Coast, causing deaths, widespread destruction and a great deal of life and business interruption in this region. The Gulf Coast region of the United States encompasses the coasts of states that border the Gulf of Mexico. The states of Texas, Louisiana, Mississippi, Alabama, and Florida are Gulf Coast states. The Gulf Coast region is especially vulnerable to hurricanes because of its close proximity to the Gulf of Mexico. In addition, the heavy industrial environment of this region make disasters such as Hurricanes Katrina and Rita very problematic to not only the immediate economy of this region but to other areas in the United States that rely on this region for products generated by the oil refineries, petrochemical, chemical, wood and paper, plastics and other industrial producers and suppliers in the region.

In regards to Hurricane Katrina, the United States Census Bureau in September 2005 defined the impacted areas as 31 parishes in Louisiana, 15 counties in Mississippi, and 3 counties in Alabama. Hurricane Rita was labeled by the National Weather Service as the fourth most intense Atlantic hurricane ever recorded and the most intense tropical cyclone ever observed in the Gulf (http://www.nhc.noaa.gov). Rita caused extensive damage along the Louisiana and southeastern Texas coasts and spawned tornadoes as far away as Mississippi. In Cameron parish in Louisiana, communities such as Hackberry, Creole, Holly Beach, and Cameron were

destroyed and communities and cities such as Lake Charles, Grand Chenier, Sulphur, Westlake and Vinton were severely damaged. In Texas, Beaumont, Port Arthur and Orange received major wind damage and towns such as Sabine Pass were destroyed. http://news.yahoo .com/news?tmpl=story&u=/ap/20050926/ap_on_re_us/rita).

The Federal Emergency Management Agency (FEMA) indicates that as many as one million people were displaced by Hurricane Katrina. In Mississippi, Harrison County officials estimate that one quarter to one third of the county's population were made homeless, and that as many as 30,000 jobs dependent on the gambling, tourism and fishing and cargo industries were lost as a result of the hurricane. In these coastal states, many people's homes and livelihoods were completely demolished. An October 27, 2005 Associated Press report indicated that by October 2005 the number of people who lost their jobs because of Hurricanes Katrina and Rita had risen above the half-million mark. It does not help that in 2004 Mississippi ranked the lowest among all 50 states in terms of per capita income ($24,650), Louisiana was ranked No. 42 with per capita income of $27,581, and Alabama placed 40th, with per capita income of $27,795. The nationwide per capita income last year was $32,937. In addition, poverty rates for these three states are higher than the national average (Commerce Department's Bureau of Economic Analysis). Lower socioeconomic status (SES), as manifest in education, income, literacy, or occupational prestige has been associated with greater postdiaster distress (Norris, 2005).

One cannot predict with pinpoint accuracy when, where and how often disasters such as Hurricanes Katrina and Rita will occur. The United States has experienced other disasters such as in 1900 Galveston, Texas was hit by a hurricane that killed approximately 6000 (Noji, 1997), Hurricane Andrew in 1992, the 1993 World Trade Center bombing, the 1997 Oklahoma City

bombing, the September 11 attacks on the Pentagon and World Trade Center, the 1994 Northridge Earthquake and various other natural and man-made disasters. Most recently though attention and focus has been on the Hurricane Katrina and Rita disasters. We have heard many stories of how businesses in the Hurricane affected areas have been impacted and stories about how some businesses have reacted to the hurricanes in regards to helping their affected employees. For example, in the area of industrial construction we know that throughout the Gulf Coast region, although there is a high unemployment rate, labor shortages are being experienced because many of the unemployed do not have the skills necessary to be employed as skilled construction workers (Business Roundtable – Workforce Training and Development Project, 2006). The total reconstruction cost resulting from Hurricane Katrina alone is estimated to be at least $200 Billion (CNN News – November 30, 2005). Almost $190 million in unemployment assistance has been obligated for eligible victims in Alabama, Louisiana, Florida and Mississippi (By the Numbers: First 100 days – FEMA Recovery Update for Hurricane Katrina, 2005).

Effects on Industrial Base

Hurricanes Katrina and Rita had tremendous impact on people, their homes, their possessions, and on their workplaces. Many businesses were completely destroyed or severely impacted by the Hurricanes. At the time of the storms, there were several major industrial organizations operating in all of these states. Organizations such as Shell, Motiva, ExxonMobile, Air Liquide, Chevron USA, Formosa Plastics LA, Nanya Plastics Citgo, Entergy, Occidental Chemical, Georgia Pacific, DuPont, Dow Chemical, Marathon Oil, Northrop Grumman, International Paper, Placid Refinery, BPPhillips, Equilon Enterprises, IMC-Agrico, Rhodia, Valero, Vulcan, Fina, TOTAL, Cosmar, Sassaw and BASF Corporation all have

locations in those areas hit by the storms. On September 23, 2005, just one month after Hurricane Katrina struck the region, Entergy New Orleans filed for bankruptcy protection citing lower revenue and storm restoration costs as the reasons (http://today.reuters.com/investing. financeArticle.aspx?type =bondsNews&storyID=2005-09-26T193401Z_01_N26521972_R TRIDST_0_KATRINA - ENTERGY NEWORLEANS-FINANCING.XML).

The Gulf Coast is clearly a major center of economic activity. The ports of New Orleans and Houston are major cargo ports. Because of oil and gas deposits along the Gulf Coast and the convenience of shipping, the Gulf Coast is essential to the United States' petrochemical industry. The Port of South Louisiana is the largest tonnage port in the United States. The Port, which stretches 54 miles along the Mississippi River, is the largest tonnage port district (comprised of facilities in St. Charles, St. John the Baptist, and St. James Parishes) in the Western Hemisphere and ranks fourth in the world. It handled over 248 million tons of cargo in 2004, brought to its terminals by vessel, barge, rail, and truck. Over 50,000 barges and 4,000 ocean-going vessels call at the port each year, making it the top ranked in the country for export tonnage and total tonnage. With exports of 52 million tons of cargo a year, more than any other port in North America, the Port accounts for 15 percent of total US exports (http://www.portsl.com).

The Port of Texas City / Texas City Terminal Railway Co. is the eighth largest port in the U.S. and the third largest in Texas currently exceeding 78 million net tons. Principal cargoes moving through the District's terminals are bagged rice, flour and other food products, paper products, plywood, petroleum coke and other petroleum products, woodchips, barites, and rutile (http://www.railporttc.com).

The Port of Houston, Texas is the busiest port in the United States in terms of foreign tonnage, second-busiest in the United States in terms of overall tonnage, and sixth-busiest in the world. The Port of Houston is made up of the Houston Ship Channel and Galveston Bay. It is made up of the port authority and the 150-plus private industrial companies along the ship channel. Many oil companies have built refineries on the channel where they are protected from the Gulf of Mexico. The petrochemical complex associated with the Port of Houston is one of the largest in the world. A total of 6,539 vessel calls were recorded at the Port of Houston during the year 2004, and approximately 200 million tons of cargo moved through the Port in 2004 (http://www.portofhouston.com).

The Port of Mobile in Alabama is a major importer and exporter of such products as coal, aluminum, iron, steel, lumber, wood pulp, plywood, paper, and chemicals (http://www.asd d.com/asd/ portfacts.htm). In Mississippi the Gulf Coast ports of Pascagoula, Bienville, Biloxi and Gulfport move products such as steel, refrigerated meat, wood pulp, liner board, lumber, plywood, machinery and equipment, chemicals, bulk grains, natural rubber, twine, food and fruit products, coal, fabricated steel products, plastic resin, ferric sulphate, chemicals, petroleum products, iron ore and scrap, non-ferrous ore and scrap, sulphur, clay and salt (http://www.gomdot.com/ports.htm).

Into September 2005 at least seven Gulf of Mexico refineries were non-operational and, for several of those, damage assessment had not yet even occurred due to limited access to the sites. As of Monday, September 5, 2005 Gulf Oil production was only at 9% of normal production (http://news.yahoo.com/s/usatoday/gaspriceseaseasgulfproductionup). A tenth of all crude oil consumed in the United States and almost half of the gasoline produced in the country

comes from refineries in the states along the Gulf coast. An additional 24% of the natural gas

supply is supplied from the region. The United States' Strategic Petroleum Oil Reserve is stored

along the Gulf. Pipelines which move petroleum products and natural gas from the Gulf Region

to the east coast of the United States had their flows interrupted because power outages shut

down the pumps that kept the materials flowing. (http://en.wikipedia.org/wiki

/Economic_Effects_of _H*urricane_Katrina)*

It is easy to see that the economic engine of the Gulf Coast region of South Alabama,

Southern Mississippi, South Louisiana and East Texas is vitally dependent on major oil, gas,

cargo, power supply, and chemical industrial employers. Damage to the economy could clearly

result because of interruption of oil supply, chemical production and exporting of such products.

Because of this dependence, the quick and successful reconstruction of these industrial

employers following Hurricanes Katrina and Rita was crucial to this region's economy and to the

restoration of employees' livelihoods. For example, Shell Oil Company and its affiliate

companies employ more than 4,000 people in Louisiana. Shell moves about 1 million barrels of

oil each day from the Gulf of Mexico to it's refineries along the Gulf Coast. Shell also operates

a network of product pipelines that move gasoline, diesel, and jet fuel from refineries in the Gulf

Coast area to the northeastern United States. Shell operates an extensive chemical pipeline and

underground storage system which moves ethylene between Louisiana and Texas, and various

other chemicals between various areas in Louisiana and delivered to plants along the Gulf Coast,

including Lake Charles Louisiana, an area hit hard by Hurricane Rita. Shell's affiliated

companies operating in the Gulf Coast region include Shell Chemical LP, CRI International Inc.,

Shell Exploration & Production Company, Shell International Exploration and Production, Shell

US Gas & Power, Shell Gas Transmission, Shell Pipeline Company LP, Shell's lubricant

business that includes the Jiffy Lube and Pennzoil Quaker State brands, Shell Oil Products US,

Motiva Enterprises LLC, Alliance company between Shell Oil Company and Saudi Refining,

Inc, and Shell Trading US Company (http://www.shell.com)

E.L. Quarantelli, Russell R. Dynes, and J. Eugene Haas, the founders of the Disaster

Research Center, focused their original studies on organizational stability following disaster

events in terms of organizational level and also emphasized the interaction of both organizational

and collective behavior perspectives in the study of organized responses to disasters and other

community crises (Webb, 1998). According to Killian (1994), collective behavior is "behavior

in which people jointly create new norms, new structures, or a new social order" and "collective

behavior is not unrelated to previously existing structures and norms, but transcending, opposing

or modifying them and in so doing generating new forms"(p.278). These researchers stressed the

applicability of both organizational and collective behavior perspectives in the studies of

organized responses to disasters (Webb, 1998).

Researchers have outlined what is known as the "Disaster Research Center typology"

(Brouillette & Quarantelli, 1971; Dynes, 1970). This typology included four types of functions

and structures that characterize organizational behavior in disasters: 1) established (routine tasks

and old structure); 2) expanding (routine tasks, new structure); 3) extending (non-routine tasks,

old structure); and 4) emergent (non-routine tasks, new structure). Police departments and fire

departments are examples of established organizations because in an emergency situation the

organizational structure remains the same as it was during non emergency situations and the

tasks that these organizations perform are also consistent with routine tasks. The Red Cross is an

example of an expanding organization. Red Cross routinely deals with disasters but it staffs a limited number of personnel during non-crisis times and then expands its structure to include volunteers during disaster events (Wachtendorf, 2004). Industrial organizations such as those involved in this study can be classified as extending organizations as they become involved in clean up and reconstruction. Extending organizations maintain the same structure they had in place before the disaster but take on non-routine responsibilities.

This original typology was criticized for not adequately accounting for different types of organizational response (Stallings, 1978). Quarantelli (1996) modified this typology to seven types of organizational responses and structures in an effort to consider possible different types of organizational response. This typology outlines seven types of organizational responses and structures that can be used to characterize organizational behavior in disasters: 1) Established organizations with old tasks and old structures; 2)Established organizations with old tasks with minor behavioral emergence; 3)Established organizations with new tasks and behavioral task emergence; 4)Established organizations with old tasks but behavioral structural emergence; 5)Expanding organizations with old tasks but new structures; 6)Growing organizations with new tasks but old structures and 7)Emergent organizations with new tasks and new structures. Based on research this typology has been utilized to characterize organizations directly or indirectly responsible for disaster recovery efforts. Examples include the American Red Cross, police and fire departments and organizations responsible for such activities as clean up, counseling services, and charitable donation collection.

Quarantelli (1996) cites several disaster events in which emergence was apparent in what the original typology would have considered established organizations. In these disasters, new

behavior was observed in many organizations that operated during the disaster. Examples included changing purchasing procedures, shifting schedules, new lines of authority, and responses that did were not included in post disaster plans. One should note though that this typology still does not account for all forms of emergence in disaster and does not differentiate among different types of non-routine structures and tasks (Wachtendorf, 2004). Several conditions may influence emergent action: the perception of a need to act on urgent matters, a supportive social climate for collective action, relevant pre-crisis relationships, and access to resources (Quarantelli, 1996).

As a result of research on improvised decision making in emergency response organizations, Mendonca (2001) outlined steps for ensuring such an organization's continuance or survival in a disaster situation. His steps include 1) monitoring operations during normal conditions; 2) selecting a planned-for procedure when an event occurs that could disrupt operations but is still a part of an emergency plan; and 3) revising a planned-for procedure when needed due to unforeseen conditions and 4) developing and enacting new procedures in response to or in light of unexpected events or circumstances.

In regards to business continuance and survival in a disaster situation, in September 2005, in response to Hurricanes Katrina and Rita employers such as Bellsouth, BP Phillips, and Chevron began setting up tent cities for their employees left homeless by the storms; Dow Chemical ran ads in at least fourteen newspapers requesting that missing workers make contact with the company; and Marathon Oil representatives went door to door looking for missing employees (White, The Washington Post (2005). In Gulfport, the port was severely damaged and organizations such as Dole, Chiquita, Crowley, and Gearbulk were forced to move necessary

operations to unaffected ports. The more disruption in operations that an organization

encounters, the lower the likelihood that the organization will recover from the disaster (Durkin,

1984; Dahlhamer & Tierney, 1996; Kroll et al. 1991).

Hurricane Katrina severely interrupted oil production, exportation, and refining in the

Gulf Region. The Shell Oil MARS platform which typically produces 147,000 oil barrels a day

was severely damaged by Hurricane Katrina (http://www.shell.com). Port Fourchon in

Louisiana which services approximately 16% of the nation's supply of crude oil and natural gas

took a direct hit from the storm (http://www.dotd.louisiana.gov/press/press

release.asp?nRelease=339).

Effects on Employees in the Workplace

Obviously, one of the most prevalent issues of the storm was the restarting of these

refineries and the reopening of damaged ports. However, this process was hindered by such

issues as facility damage and/or absent employees, unable to return due to their own homes being

destroyed or due to other effects of the storms. Employees who experience strain from a

traumatic event may be more likely to be absent from work in the weeks following the event

(Byron & Peterson, 2002). In September 2005, Mickey Driver, a spokesperson for Chevron

stated, "we are trying to find out where they've (our employees) gone, what their current

situation is and what we can do to help them". Lack of employee access to an organization post

disaster may weaken the organization's ability to recover from disaster (Durkin, 1984; Kroll et

al, 1991).

Organizational responses in the aftermath of a disaster event have a unique influence on

psychological strain (Bryon & Peterson, 2002). Therefore, it is important to note the effects that

disaster can have on individual's mental and physical health. Disasters can create the

"helplessness in the face of intolerable danger, anxiety, and instinctual arousal" that is the

essence of psychological distress and trauma (Eth & Pynoos, 1985).   Disaster victims score

higher than norms on self-reported somatic complaints of medical conditions and physiological

indicators of stress are often elevated (Norris, 2005). Depending on the severity and personal

impact of the disaster individuals exposed to traumatic events may exhibit one or more of the

following, emotional numbing, social withdrawal, irritability, fearfulness, depression, sleep

disturbances, substance abuse, nightmares, mood swings, difficulty concentrating, restlessness,

eating too much or too little, needing to talk about the experience (Tucker, Pfeferbaum, Nixon &

Dickson, 2000; Norris, 2005; www.workplacementalhealth.org). Data on disaster research

shows that disasters have implications for mental health for a significant portion of the

communities that experience them (Norris, 2005). In 2002, via a synthesis of the research on the

psychosocial consequences of disaster, Norris, Friedman & Watson showed that an individual's

mental health was most likely to be affected by disasters if the individual was from a developing

country or experienced mass violence. Examples of mass violence given were terrorism and

shooting sprees. Researchers also suggest that effects from man-made intentional disasters, such

as a terrorist attack, may be more pervasive and persistent and may pose greater mental health

consequences than effects from other disasters (Baum & Davidson, 1986; Baum, 1987;

Holloway & Fullterton, 1994; Jacobs & Kulkarni, 1999).

According to the National Partnership for Workplace Mental Health (2006), an American

Psychiatric Association Foundation program, the physical signs of stress that may result from a

disaster situation as high blood pressure, loss of appetite or excess hunger, headaches, heartburn,

diarrhea or constipation, sleep problems, muscle spasms or aches, shortness of breath, tightening in the throat or chest, feeling faint or nauseous, sexual problems, inability to sit still or excess energy, and the increased use of alcohol, drugs or cigarettes. The mental signs of stress include, inability to concentrate or work effectively, difficulty completing work tasks and missing work or being tardy for work. Emotional signs include arguments with co-workers, family conflicts, loss of interest in life or persistent boredom, feeling hopeless or unable to cope, persistent worries about health or security, feeling isolated and believing you have no one to turn to (www.workplacementalhealth.org).

Norris (2005) presented an update of the 2002 review of research on mental and physical health outcomes of disasters (Norris, Byrne, Diaz and Kaniasty, 2002). In their 2002 study, that described results for 160 distinct samples made up of over 60,000 individuals who experienced 102 different disaster events, they indicated that individuals' experience with these disasters ranged from "little more than inconvenience to life-threatening danger, severe injuries, multiple bereavements, and the total destruction of their communities" (Norris, Byrne, Diaz & Kaniasty, 2002). The range of effects reported in this review included identification of posttraumatic stress or Post Traumatic Stress Disorder in 65% of the samples; depression or Major Depressive disorder in 37% of the samples; and anxiety or Generalized Anxiety disorder in 19% of the samples. One should note that problems such as troubled interpersonal relationships, social disruption, family strains and conflicts, excess obligations to provide financial and social support to others, occupational stress, financial stress, and other concerns about general living conditions and the community at large were rarely assessed in the articles reviewed. However, when they were assessed such issues were identified in 10% of the samples. In 25% of the samples, health

problems and concerns such as medical conditions, increased taking of sick leave, elevations in physiological indicators of stress, declines in immune functioning, sleep disruption, increased use of alcohol or drugs and illness relapse were present.

The database utilized by Norris in 2005 included research conducted in 34 separate countries or territories. The United States and her territories made up 52% of this database. The 2005 study was based on 225 sample studies comprising 85,000 individuals who experienced 132 different disaster events. These events included 31 hurricanes, typhoons, and cyclones, 48 earthquakes, 20 floods, 9 wildfires, 7 volcanoes, 4 tornadoes, 5 avalanche/landslide/ice storm disasters, 14 air plane crashes, 11 ground transportation accidents, 11 industrial accidents, 8 ship, ferry, or boat wrecks, 7 nuclear accidents, 7 building fires or collapse, 3 oil or chemical spills, 2 dam collapses, 27 bombings and other terrorist attacks, 8 shooting sprees or sniper attacks and 4 mass suicide/hostage crisis/civil disturbance disasters.

Horowitz (1976) indicates that disaster survivors need to process the disaster event until it can be assimilated, setting in motion the alternating cycles of intrusion and avoidance that are the hallmark of posttraumatic stress. In the review, nonspecific psychological distress, health problems and concerns, psychosocial resource loss and problems in living were also identified as sources and manifestations of stress. Only 11% of the samples showed little or highly transient impairment. Fifty-one percent showed moderate impairment that was indicative of prolonged stress. Twenty-one percent displayed severe impairment and 18% displayed very severe impairments. The severe and very severe impairments were indications of clinically significant distress or criterion-level psychological disorder.

Norris (2005) review showed that the effects of disasters may be quite enduring and that stronger effects or outcomes of disasters are more likely to persist longer. In this review it was found that the first year following a disaster was the time of peak symptoms and effects. It was determined that people do get better but in many studies symptoms lasted for months and years for a significant minority of participants. Norris (2005) concluded that disasters most certainly do have implications for mental health for a significant proportion of persons who experience them and that these effects have an early onset and often last a long time. In addition, this research revealed that sample and presumably population level effects of disasters were greatest when at least two of the following event-level factors were present: (1) The disaster caused extreme and widespread damage to property, (2) the disaster engendered serious and ongoing financial problems for the community, (3) the disaster was caused by human intent, and (4) the impact was associated with a high prevalence of trauma in the form of injuries, threat to life, and loss of life. Examples of such disasters included the Oklahoma City Bombing, the Exxon Valdez oil spill, and Hurricane Andrew. The 9/11 terrorist attacks and Hurricane's Katrina and Rita would also fall into this category of severe disaster.

Norris then summarized the 2002(Norris et al., 2002; Norris, Friedman, & Watson, 2002) and 2005(Norris, 2005) research findings specifically in regards to the psychosocial consequences of major hurricanes, floods, tornadoes and dam collapses. This involved 57 studies. In 74% of the samples posttraumatic stress (PTSD) was identified as an effect on at least some of the people in that sample. Depression or major depression disorder was found in 33% of the samples and anxiety or generalized anxiety disorder was found in 19% of the samples. Verified medical conditions, self reported somatic complaints, increased taking of sick leave,

elevations in physiological indicators of stress, declines in immune functioning, sleep disruption, increased use of substances (primarily if previously a problem drinker) and (if previously disabled) relapse and illness burden were identified in 26% of the studies.

In this data summary, Norris found that the bereavement, injury, life threat, panic, horror, separation from family, extensive loss of property and relocation or displacement were found to predict adverse outcomes among disaster survivors. Hurricanes Katrina and Rita produced or caused many of these stressors. In addition, Norris found that as the number of stressors increased, the likelihood of psychological impairment increased. In the 57 studies reviewed, neighborhood or community level severity of disaster exposure was assessed only occasionally. Those that did assess this level found that community destruction was more strongly related to decreases in positive affect, reflecting a community wide tendency for people to feel less positive about their surroundings, less enthusiastic, less energetic, and less able to enjoy life. As Norris states, "such findings are an excellent reminder that disasters impact whole communities, not just selected individuals" (p.229).

Organizational Responses to Employee Needs

We do not have a full grasp on the employee issues organizations in the hurricane affected areas are experiencing or have experienced with regards to the hurricanes and how those organizations are coping with those issues. One could liken community to the workplace and wonder if the same findings regarding community disruption would hold true for the workplace. Workplaces may serve their most important role in the aftermath of a disaster (Shouten et al., 2004). The role of workplaces following a disaster may be divided into two types: provision of general social support and provision of specific services (Schouten et al., 2004). On August 30,

2005 John Hofmeister, President of Shell Oil Company issued the following statement to Shell employees,

> Hurricane Katrina hit the Louisiana coast as a strong storm packing high winds, rain and storm surge and has taken a serious toll on New Orleans, Gulfport, Miss., Mobile, Al., and surrounding areas. Our first priority, of course, continues to be the safety and well-being of our colleagues and their families. I'm pleased to say there have been no reported storm-related injuries to Shell or Motiva staff at this time. I'm certain that this is due, in part, to the efficient and professional manner in which Shell employees responded in the face of this devastating storm. Now, in Katrina's wake, we must turn our attention to helping Shell employees and their families regain a sense of normalcy in their lives and restoring Shell's operations as quickly and safely as possible (www.shell.com).

Emotional support and the quality of support are key elements to the perceived effectiveness of any assistance to employees (Sanchez et al., 1995). In addition, followers may expect more authoritative and decisive leadership following disasters (Bruning, 1964). Post 9/11 corporate leaders' actions played an important role in how the leader was judged by his/her employees (Lewis 2001).

In disaster situations, organizations may form completely new or modified structures and perform non-routine tasks (Dynes, 1970). Organizations are called upon to adapt in disaster situations (Stallings, 1970). Within organizations improvisation in regards to structure, human and material resources, tasks, and activities may occur (Kreps et al., 1994). Improvisation is the process of utilizing knowledge to produce a novel action in time to meet the requirements of a

given situation (Mendonca, 2001). Both individuals and organizations improvise during disaster situations (Wachtendorf, 2004).

The Workplace Mental Health Partnership suggests that following disasters employers should be sympathetic and sensitive about the event and the grief it caused; understand that trauma impacts individuals differently; speak with employees as soon as possible, especially about safety and health issues; provide information and educational materials about what has happened, what to expect, and how individuals can take control; encourage and support communication among employees and with managers and company leadership; appreciate that employees may experience a short-term reduction in focus and productivity; educate managers and supervisors on signs of emotional distress and how to provide support and help; temporarily reconsider expectations about productivity, travel and time away from the office and workplace; and provide ongoing communication until employees indicate the need has passed.

Harvey and Haines (2005) examined human resource decisions made during a crisis situation. The purpose of the study was to determine if organizational justice concepts of interactional justice, procedural justice, distributive justice, organizational commitment and job satisfaction would generalize in a natural disaster situation in helping to predict the longer term implications that organizational decisions might have on employee attitudes. Results of this study indicated that perceptions of procedural fairness of human resource decisions made during a natural disaster predicted the later work attitudes of job satisfaction and organizational commitment. This supports the possibility that disaster situations can have a broader impact on work attitudes, specifically that event specific decisions can be shown to relate to global work

attitudes about one's employer within a framework of organizational justice (Harvey and Haines, 2005).

Sanchez, Korbin and Viscarra (1995) examined whether relief services provided by corporations to employees following a natural disaster would be associated with reduced levels of employee strains. For the study data from 143 Hurricane Andrew victims was gathered. Results indicated that their hypothesis was partially supported; revealing that tangible support meeting employees' primary needs had the most effects over the course of the disaster aftermath. They hypothesized that "employees needs for support would likely change over the course of a disaster's aftermath. New stressors, such as continued construction and repairs, insurance problems, and deadlines associated with applications for federal aid, were likely to emerge a few days after the disaster"(Sanchez, Korbin and Viscarra pgs 504-521). The researchers in this study choose health-related strains stemming from posttraumatic stress disorder. These strains include anxiety, guilt, sleep disturbances, depression, and impaired concentration (Green, 1991, Nolen-Hoeksema & Morrow, 1991; Phifer et al., 1988; Phifer & Norris, 1989). In addition to these health-related strains they also considered organizational strains of low organizational commitment, low job satisfaction, and work tension.

Results of this study indicated that 30 days after the disaster, tangible primary support from employers was associated with health strains and social support was related to work tension. Forms of support other than meeting basic needs were found to have little effect on longitudinal changes in employee strains. Additionally, tangible support targeting urgent post disaster needs contributed to longitudinal changes in employee-depression levels, job satisfaction, and organizational commitment. The data in the study supported that employer

support has a main rather than a buffering effect. The results suggest that tangible support, especially support aimed at primary post-disaster needs, may help reduce employees' health related strains and may also improve attitudes like organizational commitment in the months following a disaster.

In September 2001 and August 2002 The Society for Human Resource Management (SHRM), the world's largest association devoted to human resource management practitioners, emailed a survey to it's members to determine the Human Resource implications of the terrorist attacks of September 11, 2001. These surveys sought to determine how organizations helped their employees following the attacks and also to determine the organizational perspective on how the workplace might change as a result of the attacks.

In the 2002 survey, in response to the survey question that asked "in the wake of last year's 9/11 tragedy (terrorist attacks), over the past year, what has your organization done or continued to do for or with your employees", 59% of respondents indicated that they allowed an open door policy with management for employees to discuss concerns, 20% provided diversity training to improve awareness about issues of ethnicity and race and 10% indicated they had done nothing substantive over the past year.

In 2001, the top two changes that were predicted by Human Resource professionals were that organizations would put higher security in place (56%) and that employees would be more caring toward one another (66%). In 2002 these still remained the top two changes noted in the workplace but decreased to 52% noting organizations putting higher security in place and 43% noting employees being more caring toward one another.

In addition to these top two changes, it was reported (47% in 2001 and 42% in 2002) that

there had been higher expectations by employees for security. Also, 29% of Human Resource professionals in 2002 reported that there were higher levels of stress in the workplace. The 2002 survey also yielded results that Human Resources had a greater presence since the terrorist attacks, that Human Resources was relied upon more for its expertise and input, and that there was less outsourcing of Human Resources.

The third question of this survey was an open ended question that allowed respondents to comment on how they felt the workplace had changed since the terrorist attacks. Comments ranged from an increase in the number of employee relations problems, to economic concerns to management not responding effectively or quickly enough in the wake of the attacks, to workers comp claims increasing, to staff seeking more of a life/work balance, to employees wanting to stay closer to home, to companies providing all employees a disaster survival backpack, to a significant change in the attitudes of younger workers who never thought that this kind of thing would happen in their lifetime.

With the results of this September 2001 and August 2002 Society for Human Resource Management (SHRM) study in mind one can hypothesize that Hurricane's Katrina and Rita would also have Human Resource implications for affected organizations. In addition determining how organizations helped their employees following the Hurricanes and how, from the organizational perspective, the workplace changed as a result of the Hurricanes will be useful research and information for organizations who may be affected by future disasters.

<center>Problem Statement</center>

There is much research in the field of disaster studies, specifically in the areas of disaster response planning, disaster awareness and preparedness and emergency management. There are

studies that examine the impact or affect of disaster on employee's behavior and attitude from mainly the employee's perspective (Byron &Peterson, 2002; Ryan, West & Carr, 2003; Sanchez, Korbin & Viscarra, 1995; Harvey & Haines, 2005). However, there are relatively few studies that have examined the employee disaster effects in the workplace from the organization's perspective and that have also addressed how organizations respond to those affects. If the Hurricanes of 2005 did nothing else, they educated the public about the huge dependence on agencies such as FEMA and The Red Cross in regards to aid and rebuilding after disaster. But, what about the reliance of individuals on their individual workplaces and the effects disasters and disaster related employee behavior can have on the workplace? Bryon and Peterson (2002) found that acute extra-organizational stressors may have important consequences for organizations. Extra-organizational stressors are factors outside the work that can lead to negative reactions in employees (Matteson & Ivancevich, 1979). Crises may be an indicator of the health and survivability of a work organization (Pauchant &Mitroff, 1992).

The workplace can surely play a significant role in returning lives to some sense of normalcy and employers must recognize the importance of identifying and dealing with the effects of such disasters on their employees and ultimately on their bottom line. Work is a central organizing factor that provides income, insurance and other benefits to employees. Work is a source of identity for most adults by imparting a sense of purpose, interrelatedness, and belonging (Schouten, Callahan & Bryant, 2004). The workplace serves as a vital organizing factor in the lives of most adults and as a source of social support (Hazan & Shaver, 1990). Following many disasters the loss of important attachments is almost unavoidable and social and community resources deteriorate just when disaster victims need them the most (Kaniasty &

Norris, 1993). In this research the effects of disasters on employee behavior in the workplace from the organization's perspective and the related post disaster adjustments, allowances and accommodations organizations make as a result of disaster in order to facilitate the work organization and it's employees return to normal functioning and productivity are examined.

Organizations, through such disasters as the terrorist attacks of September 11th and the 2005 hurricanes in the Gulf Coast region have seen how disasters can destroy or disrupt businesses as well as the lives of those employed by the business. The potential for business and employee life disruption and loss is great when disasters occur. Hurricanes Katrina and Rita caused major disruptions in employee's lives and it is highly likely that these employees transferred the disruption effects to their work environment. Therefore, Hurricanes Rita and Katrina offer a unique opportunity to study the workplace implications for disaster- affected companies.

Clearly there is not a full grasp on the employee issues organizations in the Hurricane Katrina and Rita affected areas are experiencing or have experienced with regards to the Hurricanes and how those organizations are coping with those issues. Organizations cannot ignore the need to respond and adjust in regards to disaster affects on individuals who are employees and how those affects are transferred to the workplace.

Purpose Statement

The purpose of this paper is to identify and describe the effects of Hurricanes Katrina and Rita on employee behavior in the workplace from the organization's perspective and the related adjustments organizations have made as a result of these storm disasters.

Research Questions

1) What were/are organizational level responses in regards to employee's personal and family needs as a result of the hurricanes?

2) What were/are organizational experiences in regards to business, earnings and efforts to maintain continued business operation following the hurricanes?

3) In the aftermath of Hurricane's Katrina and Rita what philanthropic and/or volunteer activities have organizations participated in for or with their employees?

4) From an organizational level perspective, to what extent have Hurricanes Katrina and Rita changed the workplace in regards to hiring and employee retention?

5) From an organizational level perspective, how have Hurricanes Katrina and Rita changed the workplace in regards to safety and security?

6) From an organizational level perspective, how have Hurricanes Katrina and Rita changed the workplace in regards to employee performance and activity in the workplace?

7) From an organizational level viewpoint what physical, mental or emotional effects did or do employees experience as a result of the hurricanes?

8) From an organizational level viewpoint, how have Hurricanes Katrina and Rita changed the workplace in regards to Human Resource department activities?

9) When were or when will organizations damaged by the hurricanes or their aftermath be back at pre-hurricane status?

10) From an organizational level perspective, what could organizations have done differently to better support their employees after the hurricanes?

11) Can organizational responses be predicted from effects of the hurricanes on employees and their businesses?

CHAPTER 2: REVIEW OF LITERATURE

This chapter is a review of literature in the areas of employee reactions and organizational responses to disasters, business vulnerability and disruption in regards to disasters, and business recovery from disasters.

Employee Reactions

In a study of the effects of the terrorist attacks of September 11, 2001 on employee attitudes conducted by Ryan, West and Carr (2003), it was suggested that the simple fact that companies offered support and services in the aftermath of a disaster was more important than the employees actually utilizing the services and support. Following the 9/11/01 attacks, employees conveyed to companies their appreciation for the offer of support and services, the demonstrated awareness of the shared grief, emotional distress, and employees' need for information that would help them cope with the event. Dutton, Frost, Worline, Lilius and Kanov (2002), in their examination of leadership in times of trauma, detail the importance of compassion by leadership in times of crisis and discuss that an organization's compassion may be assessed by looking at the scale, speed, scope, and degree of specialization of the response.

Ryan, West and Carr (2003) used a sample of 70,671 employees of a multinational manufacturer whose annual employee survey was interrupted by the 9/11 events. The specific employee attitudes measured in this study were general job satisfaction, supervisor evaluation, work-related stress, and organization commitment to diversity. General job satisfaction referred to positive or negative affect regarding one's job overall. Supervisor evaluation referred to perceptions of the extent to which one's supervisor was doing his or her job effectively. Work-

related stress related to feelings of strain because of the amount and nature of work. And, organizational commitment to diversity refers to perceptions of the organization's concern regarding managing diversity.

Initial data was gathered September 1 through 10th and the post 9/11 data was gathered October 1st through 17th. Of the total sample, 35,614 respondents were from United States locations of the company. In 2002, the United States General Accounting Office estimated that the 9/11 terrorist attacks generated over $80 billion dollars in economic losses in the New York City area alone (General Accounting Office, 2002). However, the respondents for this 2003 study were not located in New York or Washington and their organization did not feel negative economic impacts as a result of the 9/11 events.

The data gathered for this study found little evidence of widespread effects of 9/11 on employee attitudes about their work. This is consistent with the findings of Macey (2002), who found no difference in pre and post 9/11 attitudes of employees in a set of Fortune 100 companies. This study did not specifically address or consider company responses to the 9/11 events or actions taken by the organizations to aid and assist its employees in coping. Physical recovery assistance was not necessary in this organization as none of the respondents were located in the immediate disaster areas. It is also important to note that at the time of the post 9/11 data collection for this study, there was speculation that a chief executive officer change was to be made. This change did occur shortly after survey completion and although the survey inquired regarding immediate supervision, there may have been some influence or effect from this top leadership change. This study found no widespread discernible change in employee's attitudes about their work following the 9/11 disaster.

Organizational Responses

Sanchez, Korbin and Viscarra (1995) examined the effect of corporate support in the aftermath of a natural disaster on employee strains. Their hypothesis was that relief services provided by corporations to employees following a natural disaster would be associated with reduced levels of employee strains. Data from 143 Hurricane Andrew victims was gathered. Hurricane Andrew struck south Florida in 1992. After the storm the Miami Herald reported that approximately 8,000 businesses and over 120,000 employees were directly affected by the storm. Results indicated that their hypothesis was partially supported; revealing that tangible support meeting employees' primary needs had the most effects over the course of the disaster aftermath. Tangible primary support was support directed at covering primary needs such as housing, meals, and emergency supplies and tangible secondary support was focused on cleaning, laundry, and child care. Social support involved counseling, information assistance, and social gatherings. Tangible primary support had a main effect on depression, job satisfaction, and organizational commitment, social support affected symptoms, and tangible secondary support affected organizational commitment. Interactions of secondary and social support with hurricane-provoked losses had significant effects on work tension.

Within 30 days after the disaster, tangible primary support was associated with health strains (anxiety and symptoms) and social support was related to work tension. Form of support other than meeting basic needs had little effect on longitudinal reduction in employee strains. One interesting finding of this study was that tangible support targeting urgent post-disaster needs contributed to longitudinal changes in employee depression levels, job satisfaction, and organizational commitment.

Sanchez, Korbin & Viscarra (1995) believed that "employees needs for support would likely change over the course of a disaster's aftermath. New stressors, such as continued construction and repairs, insurance problems, and deadlines associated with applications for federal aid, were likely to emerge a few days after the disaster" "(pgs 504-521). The researchers in this study choose health-related strains stemming from posttraumatic stress disorder. These strains included anxiety, guilt, sleep disturbances, depression, and impaired concentration (Green, 1991, Nolen-Hoeksema & Morrow, 1991; Phifer et al., 1988; Phifer & Norris, 1989). In addition to these health-related strains, they also considered organizational strains of low organizational commitment, low job satisfaction, and work tension.

For this study, seniors at a Florida University were grouped into 12 teams with 3 to 5 members each. These students were then used to locate individuals whose property or community was in the Andrew disaster area and who were currently employed. Teams used such methods as personal contacts and co-workers to locate such individuals. A total of 213 individuals who were contacted by the students chose to participate in the study. Data on unemployed people and on those who reported no losses from the hurricane or who provided incomplete surveys was discarded. This resulted in a final sample of 166 individuals. This final sample represented a total of 62 different occupations: secretaries (13 individuals), managers (26), administrative officers (12), salespersons (6), account executives (4), and real estate agents (5) were the most numerous occupations. The samples self estimate of hurricane-related losses ranged from $200 to $500,000, with a median of $16,000.

Questionnaires were administered to the sample in the first 20 to 30 days after Andrew struck. Information on employee strains and demographics were gathered from this first

questionnaire. Next, survey teams interviewed employees of corporations that had provided

relief services to their employees according to lists appearing on the local press (Moore, 1992).

These interviews were intended to identify the various services being offered by the

corporations. The various services being offered were then consolidated into 19 service

categories. Those categories were: tools and construction materials, power generators, laundry

and dry cleaning, day care, animal care, storage space, health care, clean-up assistance, moving

services, communications assistance, company sponsored employee to employee network,

transportation, financial assistance, housing, emergency supplies, meals, counseling, information

and company sponsored social gatherings.

Next, individuals who responded to the first survey were asked to complete a follow-up

questionnaire in the 80 to 90 day period after Andrew struck. Information on stressors, strains

and relief services were gathered on the second questionnaire. Employees were asked to rate the

extent to which their employers provided each of the relief services identified and to rate their

need for each service. Employer support was measured as the match between the services

provided and the individuals' needs for each category of support. Results of this study indicated

that 30 days after the disaster, tangible primary support from employers was associated with

health strains and social support was related to work tension. Forms of support other than

meeting basic needs were found to have little effect on longitudinal changes in employee strains.

Additionally, tangible support targeting urgent post disaster needs contributed to longitudinal

changes in employee-depression levels, job satisfaction, and organizational commitment.

The data in the study showed that employer support has a main rather than a buffering

effect. The results suggest that tangible support, especially support aimed at primary post-

disaster needs, may help reduce employees' health related strains and may also improve attitudes like organizational commitment in the months following a disaster. However, the researchers caution that their statistical power might have been weakened by an insufficient sample size, that small tolerances (.07 to .10) existed in the regression analyses because of correlations among the support scales, and that type I error inflation may have occurred as a result of the large number of regression analyses conducted. This study relied on employees' accounts of the relief services provided by their employers. The reports might not have been fully accurate as unsatisfied employees might be unwilling to recognize employer efforts and satisfied ones might overstate them.

Harvey & Haines (2005) examined employer treatment of employees during a community crisis. This study primarily examined human resource decisions made during a crisis situation. The crisis in this study was a severe ice storm. Three hundred and sixty six working individuals of ice storm affected households were telephone interviewed four months after the end of the ice storm. Potential respondents were contacted at random from a list of residents within the targeted area. The purpose of the study was to determine if organizational justice concepts of interactional justice, procedural justice, distributive justice, organizational commitment and job satisfaction would generalize in a natural disaster situation in helping to predict the longer term implications that organizational decisions might have on employee attitudes. This was explained to the potential respondents. The sample of working individuals was randomly drawn from the French speaking population of Brossard, Quebec, a suburban community of Montreal. This area was targeted because the area was affected by the downing of hydro-electric power for a period of up to 2 weeks and as a suburb of Montreal it was likely that

individuals surveyed came from a wide variety of occupational groups. Respondents had on average 11.8 years of experience in their current job. Results of this study indicated that perceptions of procedural fairness of human resource decisions made during a natural disaster predicted the later work attitudes of job satisfaction and organizational commitment. Under ordinary conditions it would be reasonable to expect an effect that connects a specific/event/decision and the satisfaction associated with the specific event/decision (Harvey & Haines, 2005).   This supports the possibility that disaster situations can have a broader impact on work attitudes. Specifically, that event specific decisions can be shown to relate to global work attitudes about one's employer within a framework of organizational justice (Harvey & Haines, 2005).

In September 2001 The Society for Human Resource Management (SHRM), the world's largest association devoted to human resource management practitioners, emailed a survey to it's members to determine the Human Resource implications of the terrorist attacks of September 11, 2001. The survey was accessible over three days and 5,673 human resource professionals responded. Then, in August 2002 a follow up email survey was sent to the SHRM membership. This survey was accessible over a 10 day period and 7,466 human resource professionals responded. These surveys sought to determine how organizations helped their employees following the attacks and also to determine the organizational perspective on how the workplace might change as a result of the attacks. The second survey was utilized to determine the one year after experiences of human resource professionals and their organizations in regards to continuing rebuilding and relief efforts, how the workplace had changed, and whether or not disaster plans had been created or changed. In regards to the terrorist attacks of 9/11/01 human

resource professionals had a first hand opportunity to see the impact on the workplace and on employee behaviors and attitudes (Cohen, 2002).

For the 2002 survey, an email invitation to participate and a link to the survey was sent to approximately 100,000 human resource professionals who were members of SHRM. The survey was accessible for 10 days and a reminder was sent out on the five day mark. The 2002 survey was patterned after the first survey sent out in September 2001 with six of the eleven questions being repeated with some minor modifications and four new questions and one open-ended question being added. Data from the 2002 survey was compared to the 2001 survey. Survey results from students, consultants and those in academia were filtered out as the survey was designed for human resource professionals working in an organization.

Question one of the survey was "in the wake of last year's 9/11 tragedy (terrorist attacks), over the past year, what has your organization done or continued to do for or with your employees? In the 2002 survey 59% of respondents indicated that they allowed an open door policy with management for employees to discuss concerns, 20% provided diversity training to improve awareness about issues of ethnicity and race and 10% indicated they had done nothing substantive over the past year. These three items were not on the 2001 survey. In regards to comparisons between the shared 2001 and 2002 survey items, Table 1 provides a percentage comparison. Where a percentage is not listed that is an indication that that item was not asked in that year's survey.

Table 1: 9/11 Terrorist Attack Related Organization Efforts September 2001 compared to August 2002 (SHRM, 2002) 2001 n =5,671; 2002 n=7,435

Item	09/01	08/02
Open Door policy with Management to discuss any concerns	-----	59%
Allowing employees to postpone or cancel business travel	67%	56%
Offering Employee Assistance Programs; encourage EAP use	49%	54%
Collecting money and supplies to be sent for aid	50%	52%
Allowing employees to watch TV or listen to the radio	83%	52%
Organizing a blood drive; allowing employees paid time off to donate blood	39%	42%
Purchasing and/or distributing flags or ribbons	33%	39%
Allowing employees time off if needed	62%	35%
Establishing a task force to look at safety and security	14%	34%
Circulating articles and psychological information about issues that arise from violent events	42%	32%
Employee meetings with some form of remembrance	29%	23%
Diversity training to improve awareness about issues of ethnicity and race	-----	20%
Encouraging open discussions of diversity (religion, ethnicity, culture, race, etc.)	22%	19%
Bringing an EAP counselor on site	17%	19%
Organizing volunteer activities	10%	17%
Allowing employees to volunteer time – on paid company time	16%	17%
We have done nothing substantive	-----	10%
Sharing relevant information from the SHRM website	11%	9%
Providing financial advice	8%	8%
Flying the American flag at half mast	51%	-----
Canceling meetings and events	45%	-----
Walking the building by HR and Senior Management	30%	-----
Closed our organization on Tuesday, September 11th	26%	-----
Calling staff meetings with all employees about the events	24%	-----
Closing organization for more than one day	4%	-----

Question two of this survey asked how the workplace had changed as a result of the

9/11/01 terrorist attacks. There were 23 items on the 2001 survey and those same 23 plus 14

additional items on the 2002 survey. In 2001, the top two changes that were predicted by Human

Resource professionals were that organizations would put higher security in place (56%) and that

employees would be more caring toward one another (66%). In 2002 these still remained the top

two changes noted in the workplace but decreased to 52% noting organizations putting higher security in place and 43% noting employees being more caring toward one another.

In addition to these top two changes, it was reported (47% in 2001 and 42% in 2002) that there had been higher expectations by employees for security. Also, 29% of Human Resource professionals in 2002 reported that there were higher levels of stress in the workplace. As the SHRM researchers note, this indicates that even a year later, issues and concerns may still exist. Interestingly, in 2001 32% indicated there would be more training about crisis management but in 2002 only 18% reported that that had occurred. The 2002 survey also yielded results that Human Resources had a greater presence since the terrorist attacks, that Human Resources was relied upon more for its expertise and input, and that there was less outsourcing of Human Resources. The SHRM researchers felt that this implied that the September 11th disaster increased reliance on Human Resources. The researches go on to state that this may be because of an increased interest in security and disaster planning. The survey even polled whether leaders would be or had been more involved in training initiatives around disaster recovery. In 2001, 21% predicted they would be and in 2002, 15% stated that leaders had been more involved. In 2001 10% predicted that there would be more first aid training for employees and in 2002 10% of respondents confirmed this prediction.

In 2001 18% of respondents felt that employees were more tolerant of diversity and in 2002 only 11% reported more tolerance in this area. In 2001, two percent of respondents predicted that employees would be more distant toward one another and in 2002, one percent reported that they were more distant. In 2001 five percent of respondents predicted that workplace violence would decrease as a result of the attacks and five percent reported that it

would increase as a result. In 2002, one percent of respondents reported that workplace violence had increased and one percent reported that it had decreased.

In 2002 items were added to the survey to determine if there had been either positive or negative changes in absenteeism, turnover, and productivity as a result of the September 11th terrorist attacks. Two percent reported lower absenteeism in 2002 and three percent reported greater absenteeism. For turnover, only eight percent of respondents reported that it was lower and five percent reported that it was higher. Three percent of respondents reported that there was turnover for reasons of taking a civic-minded position. Two percent of respondents reported lower productivity in 2002 and two percent reported higher productivity in 2002. In addition, in 2002 five percent of respondents reported an increase in mental health benefits and costs and four percent reported that some employees had switched to less stressful positions within the organization.

The third question of this survey was an open ended question that allowed respondents to comment on how they felt the workplace had changed since the terrorist attacks. Comments included an increase in the number of employee relations problems, economic concerns, management not responding effectively or quickly enough in the wake of the attacks, workers comp claims increasing, staff seeking more of a life/work balance, employees wanting to stay closer to home, companies providing all employees a disaster survival backpack, and a significant change in the attitudes of younger workers who never thought that this kind of thing would happen in their lifetime.

Question four polled respondents on how prepared their organization was to deal with the aftermath of the 9/11/01 attacks. Results showed that immediately following the attacks Human

Resource professionals felt that their organizations were ill prepared to deal with the aftermath of the attacks. In 2002 the respondents felt the same way.

Question five of the survey polled respondents on how prepared their company was to get back to "business as usual" after the attacks. The 2001 poll indicated that respondents felt that organizations were strong and that they would bounce back quickly and move forward. The 2002 results indicated that businesses were not nearly as prepared and ready to move forward as they thought in 2001. The SHRM researchers felt that the initial reaction in 2001 was a reflection of the determination to pull together as a country and show unity and strength. While these characteristics may have indeed been the mood of the country at the time of the attacks and immediately following, the sad reality is that the economy had been hit hard and many organizations and workers had been affected. "Getting back to business as usual may simply not have been possible for some organizations" (Cohen and Welbourne, 2002).

The next few questions of the survey inquired about disaster plans and communication of disaster plans. In 2001, 54% of Human Resource professionals reported that their organizations had a disaster plan in place while 33% did not and 13% did not know. In 2002, 53% of organizations reported that their organizations had disaster plans in place, 40% did not and 7% reported that they did not know. Sixty-one percent of those who reported in 2001 that they did have disaster plans in place reported in 2002 that the plan had been updated since the terrorist attacks. For respondents who did not have a plan in 2001, 33% reported in 2002 that they had created one as a result of the attacks. Responses regarding whether disaster plans had been communicated to employees ranged from 8% that communicated to a very great extent, 24%

communicated to a great extent, 33% to a moderate extent, 25% to a small extent and 9% to no extent at all.

The final question of the survey asked respondents how their organization planned to commemorate or recognize the 9/11/01 attacks a year following the attacks. The respondents were given a list of 211 possible activities to choose from and also given the option to answer an open-ended question that allowed them to share any novel ideas or comments about how their organizations would commemorate the events. The most common answer by respondents was observing a moment of silence (32%) and second was flying the American flag at half-mast (24%). Other commemorative events included sending tokens of appreciation to rescue workers, donating food to Food Banks, introducing a new disaster preparedness plan to employees, displaying a wall of remembrance of the events and people lost and focusing on emotional well being with articles distributed to employees to help them deal with life stressors such as tragedy, death, grief, anger and physical well being.

Role of the Workplace

Schouten, Callahan, and Bryant (2004) addressed the role of workplaces in disasters, with an emphasis on the psychological impact of such events. These researchers noted that the psychological impact of violence and disasters varies with their source and their degree of intent. For example, Leblanc & Kelloway (2002) demonstrated the differential effects of coworker-initiated versus public-initiated acts of violence. The former had negative effects on emotional well-being, psychosomatic well-being, and affective commitment to the organization; the latter were associated primarily with fear of future violence. Ryan, West & Carr (2003) found no significant change in employee attitudes regarding job satisfaction, supervisor evaluation, stress,

and organizational commitment after the 9/11/01 attacks. Although terrorism has become more prevalent, workplace disasters more commonly take the form of mass accidents and natural disasters such as floods, earthquakes and hurricanes. According to Schouten, Callahan & Bryant (2004), both man-made and natural disasters have two things in common: workplace communities are significantly disrupted, and the impact is costly in both human and economic terms. There is initial loss of life, physical injuries, disruption of business and a large percentage of affected individuals experience a range of emotional responses. This article indicates that in the months and years following a disaster, the emotional distress tends to decrease, with a small proportion of victims developing psychiatric illness(Bland, O'Leary, Farinaro, Jossa, & Trevisan, 1996), delayed onset medical illness(Centers for Disease Control, 2002; Clauw, Engel & Aronowitz, 2003) , decreased productivity, or employee anxiety that results in resignation, which may lead, in turn, to the closing of facilities or other significant alterations in normal business operations (Schat & Kelloway, 2000). In addition, "because of acute anxiety or the development of PTSD symptoms, employees who have suffered the trauma of a workplace disaster may find themselves unable to return to the site of the disaster. Disruption of business operations can lead to temporary or permanent unemployment" (Schouten, Callahan, & Bryant, 2004).

These researchers hypothesized that workplaces can take various steps to mitigate the effects of disasters, both potential and real. The suggested steps include "pre-event planning and training, responding competently during the event itself, and providing social support and post-event services" (Stith, Panzer, & Goldfrank, 2003). This article suggests that workplace involvement in disaster planning is important for reasons such as mitigation of the physical,

psychological, and business impact of disasters; legal obligations to engage in such planning; and the positive effect of such activities on employees' relationships to the workplace. Organizations that engage in these activities and experience a disaster would be expected to see benefits in terms of job satisfaction, retention of employees, increased productivity, and decreased health consequences, as well as a reduction in possible legal liability (Crabb & Black, 1984; Sanchez, Korbin, & Viscarra, 1995;Ursano; McCarroll, 2004).

This article points out that disaster-management planning and rehearsal are believed to reduce morbidity and mortality in the event of a disaster and that this planning and rehearsal are central to the policies and requirements of the Occupational Safety and Health Administration (OSHA), Federal Emergency Management Administration (FEMA), the Department of Homeland Security (DHS), and the National Fire Prevention Association (NFPA). In addition, Weisaeth (1989) studied victims of a factory explosion and found that an individual's level of preparedness was the strongest predictor of an optimal outcome as defined by performance on seven variables of behavioral response to the event: cognitive function; "inadequate behavior" that increased risk to self or others; help received; leadership; cooperative activity; "absolute rescue effort" that helped reduce risk to self or others; and "relative rescue effort" (a measure of effort that takes into account reasonable behavior under the person's specific circumstances). In this study, 71% of those who had disaster training responded optimally whereas no one without such training and experience did so. Also, other factors that correlated with optimal behavior were age above 40, male gender, maritime occupational background, above-average intellectual ability, and a life history without mental health problems. Schouten et al. (2004) suggested that in addition to likely increasing optimal behavior and thus decreasing the risk of physical injury

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and property damage in a disaster, proper planning and rehearsal reduces stress by providing participants with a sense of control and suggested that the effect extends throughout the event. Schat and Kelloway (2000) found that perceived control was associated with improved emotional well-being, either directly or indirectly through the reduction of fear. They also found that receiving training on how to deal with aggressive or threatening events at work was associated with perceptions of increased control.

Faupel and Syles (1993) conducted a study on victims of Hurricane Hugo. They found that individuals who had attended disaster education workshops and had been involved in preparing for the event showed higher levels of physical and psychological stress after the hurricane than did unprepared individuals. One proposed explanation given was that those who prepared had a greater sense of control which led to greater distress when their preparation was inadequate to prevent injury and destruction of property.

Schouten et al. (2004) suggested that individuals and organizations that lack disaster management plans become passive victims when disaster strikes. Without the plan in place they must attempt to balance critical interests such as insuring safety to workers; limiting damage to the workplace and infrastructure; early implementation of post-event support services; and business resumption while in crisis mode. Businesses without a plan in place will also be more dependent on local authorities, public communication systems, and public resources and medical services that will possibly be scarce during large-scale disasters.

In regards to workplace response to an ongoing disaster, Schouten et al. (2004) state that providing accurate information to employees and their families can reduce anxiety and other emotional responses to the situation. Glass & Schoch-Spana (2002) indicate that the availability

of accurate information and the demonstration of an ongoing leadership structure extends the benefits of stress and anxiety reduction as described with pre-event planning.

Faced with a disaster, individuals tend to turn to social units with which they are familiar and which represent safety and security for social support. The presence or absence of such support is associated with respectively better or worse outcomes from traumatic events (Norris, Friedman, Watson, Bryne, Diaz & Kaniasty, 2002; Irving, Telfer & Blake, 1997; Andrews, Brewin & Rose, 2003; Kaniasty & Norris, 1993). For this reason workplaces may serve their most important role in the aftermath of a disaster (Schouten, Callahan & Bryant, 2004). Peer support from coworkers is an important part of social support and should be considered when developing post-disaster communication plans. Schouten et al. (2004) indicated that workplaces are an essential part of the social network for most people, and employers may be better positioned than other institutions to help restore that network. In the aftermath of a disaster, employers are often in a position to provide specific services immediately after the event, follow up screening for chronic stress-induced responses, and subsequent support services.

Workplace Violence

Schat and Kelloway (2003) studied the effects of nonspecific direct interventions and informational interventions on the response to episodes of violence in the workplace. They studied the differential effects of two types of organizational support, instrumental and informational, on the individual and organizational outcomes of such episodes. Instrumental organizational support was defined as providing direct help to the employee in need and informational organizational support was defined as providing information to be used by the employee in order to cope with the violence situation and aftermath. Instrumental support is

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direct and informational support is indirect. For the study, instrumental support was rated by

employees on a seven point scale rating the degree of support from coworkers, supervisors and

managers. Informational support was rated on a dichotomous (yes/no) basis in response to a

question as to whether respondents had received information on how to deal with aggressive or

threatening events at work. The researchers then analyzed whether the two types of

organizational support buffered the effects of three dimensions of violence (physical violence,

psychological aggression, and vicarious violence) on six outcome variables: fear of future

violence at work, emotional well-being, somatic health, job-related affect, and neglect of job

duties. Results showed that neither instrumental nor informational support had a significant

impact on the relationship between workplace violence and job neglect or fear of future violence.

For all three types of violence, instrumental support had a strong buffering effect on emotional

well-being, affect and somatic health. Informational support had a similar impact on all three

types of violence only in relation to emotional well-being. Lower levels of support were

associated with lower scores on all dimensions. Neither type of support had a significant impact

on the relationship between workplace violence and job neglect or fear of future violence.

Employee and Organizational Reactions to September 11, 2001

Byron and Peterson (2002) analyzed the impact of a large-scale traumatic event on

individual and organizational outcomes by exploring employee and company reactions to

September 11, 2001. This study tested a theoretical model of traumatic stress and considered the

relationship between strain from an acute-extra organizational stressor, the terrorist attack on

September 11, 2001, and absenteeism. Results of this study found that strain from an acute

extra-organizational stressor may have important consequences for organizations and that

organizational responses in the aftermath of a disaster or traumatic event has a unique influence on psychological strain. For example, employees who experience strain from a disaster or traumatic event may be more likely to be absent in the weeks after the event. Employees in companies that took such actions as sending company wide emails or organizing fundraising events tended to be less dissatisfied with their jobs. The researchers suggest that future research should examine the responses of organizations to other traumatic events, such as natural disasters, to determine if their findings could be replicated for different kinds of traumatic events.

In addition, the researchers suggest that when employees are exposed to a traumatic event, companies should consider concentrating their outreach efforts on those employees who were most exposed and that companies with greater proportions of highly exposed employees may want to do more than companies with less exposed employees. The researchers suggest that future research to identify other within-disaster factors might prove useful in identifying those most vulnerable in the aftermath of disaster.

Matteson and Ivancevich (1979) define extra organizational stressors as environmental factors outside work that can lead to negative and potentially damaging reactions in individuals. Beehr, Jex, Stacy and Murray (2000) indicate that organizational stressors are concerned with aspects of employees' jobs or organization that can lead to adverse physical or psychological reactions or strains and that extra organizational and organizational stressors can be either chronic or acute. Chronic stressors include such stressors as balancing work and family life, socioeconomic status, and commuting to work. These types of stressors are ongoing and long lasting. Acute stressors are stressors such as natural disasters, terrorist attacks, and organizational restructuring and are shorter term. Beehr et al., (2000) indicated that acute

stressors, although shorter in duration, can be more psychologically devastating and have long-term effects. Large scale traumatic events such as natural disasters, terrorist attacks and industrial accidents can have a profound effect on group and individual functioning (Hendrix, Ovalle & Troxler, 1985; Kivimaki et al.1997; Marmot, 1994).

Events are more intense when they cause substantial terror and threat of loss of life or property (Bolin, 1986). Individuals exposed to traumatic events exhibit a range of negative psychological reactions, including emotional numbing, social withdrawal, irritability, fearfulness, depression, sleep disturbances, substance abuse, and marital problems (Tucker, Pfeferbaum, Nixon & Dickson, 2000; Ursano, Fullerton, & Norwood, 2002). They are also likely to experience protracted medical problems (Tucker et al., 2000). In a review of the effects of stressful life events, Bhagat (1983) cites research linking stressful life events to sudden cardiac death, menstrual discomfort, diabetes, and many other minor and serious health problems. These psychological and health effects likely spillover into work, causing increased absenteeism. For these reasons, Byron and Peterson (2002) predicted that strain from an extra-organizational stressor would be positively related to absenteeism. This hypothesis was supported in their study. They also hypothesized that in the aftermath of a traumatic event, employees who are more optimistic will report less psychological strain, including both event-related strain and job dissatisfaction. Personality traits such as Type A personality (Jenkins, 1976), optimism (Aspinwall & Taylor, 1992) and locus of control (Chan, 1977) may influence the experience of strain. Byron and Peterson (2002) also hypothesized that in the aftermath of a traumatic event, employees who have more co-worker support available to them will report less psychological strain, including both event-related strain and job dissatisfaction. Results

indicated that employees who were more optimistic, and those who reported more supportive co-workers also reported less job dissatisfaction. In a study of survivors of the Oklahoma City bombing, those who had more supportive co-workers were less likely to have post-traumatic stress disorder symptoms (Tucker et., 2000). Adults who were exposed to a severe flood were less likely to experience symptoms of severe stress when they had more social support (Kanisasty & Norris, 1993). Research on traumatic events, such as natural disasters, suggest that social support has a direct and negative effect on adverse outcomes following trauma (Stephens & Long, 2000).

In regards to within disaster factors and psychological strain, research suggests that degree of exposure is related to level of strain (Norris e al., 1999; Phifer & Norris, 1989). Exposure is a situational factor concerned with the extent to which the individual is exposed to or more personally affected by the stressor (Byron & Peterson, 2002). In a study of residents of Oklahoma City, researchers found that those who had more exposure to the bombing of the Alfred P. Murrah Federal Building experienced more symptoms of post-traumatic stress disorder (Tucker et al., 2000). A study of survivors of a Mount St. Helens eruption found that area residents who had greater exposure experienced more psychological strain (Murphy, 1985).

Byron and Peterson (2002) hypothesized that in the aftermath of a traumatic event, employees who had higher levels of exposure to the event would report more psychological strain, including both event-related strain and job dissatisfaction. They differentiated between targeted social support and global social support. Targeted social support was distinguished from global social support in three ways: specificity, source and time of occurrence. Targeted social support referred to specific behaviors within a specific context (specific disaster) whereas

global social support refers to social support in terms of broadly defined supportive behaviors. In the study, these two types of social support also differed by source: the source of targeted social support is the organization, whereas, the source of global support is coworkers. Lastly, global social support differs in terms of duration, existing prior to the disaster event, and persisting after it, whereas targeted social support occurred only immediately after the disaster event.

For this study, in the context of September 11, 2001, targeted social support was seen in the positive and supportive organizational responses to the disaster. Some organizations organized blood drives or organized and made charitable donations (Tahmincioglu & Gabor, 2001;Verdon, 2001). Some offered social support to employees by providing forums and meetings for them to talk about the attack and how it had affected them. It was reported that, in contrast, some companies were criticized for their activities and policies in the wake of the event. For example, the Orange County Emergency Management department sent a memo to employees a week after the attack stating that wearing ribbons and displaying flags violated their uniform policy (Shapard, 2001).

When studying Hurricane Andrew survivors, Norris et al., (1999) found that post-disaster factors such as the administration of social support and other resources were found to decrease the amount of psychological strain. Also, when studying Hurricane Andrew survivors, Sanchez et al., (1995) found that employees who were given relief services by their employers experienced less strain. Based on this research, Byron and Peterson hypothesized that in the aftermath of a traumatic event, employees who work in companies that provided more targeted social support in response to September 11, 2001, will report less psychological strain, including

both event-related strain and job dissatisfaction. This hypothesis was supported in that employees who worked for companies that provided social support after September 11, 2001 were less likely to be dissatisfied with their companies.

For their study Byron and Peterson used 108 university students who were enrolled in a master's of public administration or masters of business administration program and who were also employed outside the university on a full time basis. The students were from three separate universities located in the Midwestern and Southeastern United States. Only those students who were employed outside of the university on a full time basis were asked to participate in the study because they would be asked questions pertaining to their respective work environments. Sixty-three to 65% of the participants were male and the average years of work experience ranged from 3.6 to 5.0 years. Surveys were administered to the participants during class time approximately ten weeks after the terrorist attacks of September 11, 2001. Participants completed the survey anonymously.

The survey for this study consisted of seventeen items that were adapted from a clinical needs assessment instrument designed for research on the bombing of the Alfred P. Murrah Federal Building in Oklahoma City (Tucker et al., 2000). These items measured the respondents' level of exposure to the event such as relationship to victims, proximity to events, and fear of future or present danger. There was also an item that asked respondents to indicate how much terrorist attack related television they had watched since the attack. The higher the scale scores on the items measuring the level of exposure to the event, the more exposure to the event. An internal consistency coefficient was not reported as the exposure level was considered to be an aggregate rather than a latent construct (Law, Wong & Mobley, 1998).

Optimism was measured with the twelve item revised life orientation scale developed by Scheier and Carver (1994). Global coworker social support was measured in two ways. First, emotional support by coworkers was measured using five items from the Affective Support Scale developed by Ducharme and Martin (2000). Second, instrumental support from coworkers was measured using five items from the Instrumental Support Scale developed by Ducharme and Martin (2000).

Byron and Peterson (2002) measured targeted organizational social support by asking participants about the occurrence of seventeen actions that organizations could take in response to the disaster event on September 11, 2001. These seventeen items were generated using two methods: (1) within two weeks of the event, one of the authors asked students not in the current sample to indicate what their companies did in response to September 11 and (2) the authors conducted a review of the popular press for articles on what companies should do in response to the disaster event of September 11, 2001 (Smith & Rutigliano, 2001; Rezek, 2001). Kuder-Richardson 20 coefficient, a reliability estimate for scales with dichotomous items was .78. The seventeen items and their frequencies are listed in Table 2.

This study used two measures of psychological strain, event related strain and job dissatisfaction. Event related strain was designed to measure strain caused by a specific stressor and job dissatisfaction is a measure of non-event specific psychological strain in the workplace (Ganster, Fusilier, & Mayes, 1986). Event related strain utilized the Impact of Event Scale-Revised (IES-R) developed by Weiss and Marmar (1997) to examine participants' level of symptomatic response to the disaster event of September 11, 2001. Three items from the Michigan Organizational Assessment Questionnaire created by Cammann, Fichman, Jenkins,

and Klesh in 1979 were used to measure the participants' overall job dissatisfaction. Two

questions generated earlier by Bavendam (1985), "how many times have you missed regularly

scheduled work", and "how many times have you missed a single day only of work", were used

to measure voluntary absenteeism.

Table 2. Frequency of Organizational Responses to September 11, 2001 Terrorist Attacks (Byron & Peterson, 2002)

Allowed employees to talk about tragedy	84%
Allowed employees to bring flags or other patriotic symbols to work	83%
Sent a company-wide email expressing concern for victims	64%
Confirmed safety of employees (those traveling or working in NYC or DC)	61%
Provided opportunities for volunteering time or donating money	57%
Supported 'Colors Day' permitting employees to wear red, white or blue to work	56%
Set up a TV for employees to watch news	53%
Allowed employees to leave without penalty	44%
Organized fundraiser for the Red Cross or other relief organization	44%
Had blood drive on site	42%
Donated money on company's behalf	39%
Urged employees to contact employee assistance programs (EAP)	36%
Allowed employees paid time off to volunteer or give blood	33%
Closed office early on the day of the terrorist attacks	25%
Held brown bag lunch or other workshop on issue related to terrorist attack	17%
Asked employees to contact suppliers and clients and offer support	16%
Put advertisements in newspaper decrying terrorist attacks	7%

Byron and Peterson (2002) used hierarchical regression analysis to test their hypotheses,

by regressing absenteeism on the two measures of psychological strain, event related strain and

job dissatisfaction. The regression coefficient for event-related strain was positive and

significant (B = .22, p<0.05). Therefore, the hypothesis which predicted that more event-related

strain would be positively related to absenteeism was supported. When job dissatisfaction was

added in the next step, the beta coefficient for event related strain did not change. The

researchers report that because event-related strain was positively related to absenteeism, even

after statistically controlling for job dissatisfaction, the hypothesis that employees who report higher levels of event related strain will be more likely to be absent from work in the weeks after the event was supported.

Next, the researchers used two hierarchical regression models to test their other hypotheses. In the first model, psychological strain, event-related strain, was regressed on the disaster factors, and, in the second model, the other strain, job dissatisfaction, was regressed on the disaster factors. In step one, pre-disaster factors, optimism and global co-worker social support were entered. In step two, the within-disaster factor, exposure to the disaster event, was entered. And in step three, the post-disaster factor, targeted organizational social support, was entered.

The hypotheses tested with these regression models predicted that pre, within, and post disaster factors would be related to psychological strain for employees in the aftermath of September 11, 2001. To test each hypothesis, the beta weight when the factor was entered in the regression model was examined. Results indicated that neither pre-disaster factor, optimism nor global co-worker social support were significantly related to event-related strain. The researchers suggest that perhaps the event was so traumatic that optimism and social support could not have a perceptible effect on the strain or that optimism and social support play a role in the duration of stress-related symptoms, rather than in the experience of stress-related symptoms immediately after the traumatic event.

Exposure to the event, the within-disaster factor, was significantly and positively related to event-related strain. Employees who were more exposed to the event reported more symptoms of stress related to the event. The researchers also predicted that targeted

organizational social support would be negatively related to event-related strain. Results

indicated that this type of support was positively related to event related strain. Employees

whose organizations provided more September 11, 2001 related social support reported more,

not fewer, symptoms of stress. However, the researchers note that when the two forms of social

support were added to the model, the relationship between exposure and strain was reduced to

non-significance. The hypotheses that predicted that the pre-disaster factors, optimism and

global co-worker social support would be related to psychological strain were supported.

Employees who were more optimistic, and those who reported more supportive co-workers also

reported less job dissatisfaction. The hypothesis that predicted that exposure to the event would

be positively related to strain, was not supported and results indicated that targeted

organizational social support was negatively related to job dissatisfaction. Employees who

worked for companies that provided social support after September 11, 2001, were less likely to

be dissatisfied with their companies.

Limitations of this study include that the study relied on self-report data only and that the

number of absent days was capped at four so that employees who had been absent for four or

more days were all grouped together. A larger and more diverse sample would increase the

generalizability of findings.

Business Vulnerability and Disruption

Chang and Baiamonte(2001) utilized the 2001 Nisqually earthquake to study the disaster

vulnerability of businesses. Two business districts in Seattle were studied for extent of losses,

patterns of disparities, and underlying loss factors. Data for this study was gathered through

interviews with owners and managers of one hundred and seven affected businesses. The two

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main questions posed in this study were (1) how were businesses impacted in the disaster and (2) what do these impacts tell us about the vulnerability of businesses to disasters. The authors of this article used three areas of vulnerability or potential for loss. Those areas are biophysical vulnerability, social vulnerability and place vulnerability. Biophysical vulnerability is the potential for exposure to biophysical hazards and emphasizes proximity to the hazard source as a determinant of vulnerability (Palm and Hodgson, 1992). Social vulnerability is the capacity of individuals or societies to cope and respond to hazards. This type of vulnerability emphasizes the underlying social, political, and economic forces that give rise to differential potential for loss (Blaikie et al, 1994; Hewitt, 1997). This type of vulnerability is concerned with how disasters differently affect socio-economic groups. Differential exposure to disasters often derives from people's daily activities and social roles. Groups that are less powerful may not have access to safe land and housing and thus suffer greater loss when a disaster strikes. This group is also more likely to have difficulty in recovering, as they may not have access to insurance, loans, relief aids, or government. Some types of businesses, like social groups, have been found to be more prone to loss and problems in recovery. In the 1984 Coalinga earthquake, businesses that were already financially marginal before the disaster tended to have the greatest difficulty recovering (Durkin, 1984). In the 1989 Loma Prieta earthquake, more severe losses tended to be suffered among smaller businesses and by those in the trade and, to a lesser extent, services sector (Kroll et al., 1991).

Researchers at the Disaster Research Center at the University of Delaware have conducted a series of large surveys of businesses following major disasters, including the 1993 Midwest floods, Hurricane Andrew in 1992, and the Loma Prieta and Northridge earthquakes

(Tierney, 1997; Webb et al., 2000). These studies found that direct physical damage was only one of many factors influencing business loss and recovery. Disruption to infrastructure services, such as utilities and transportation, could also have a major impact on losses and other operational problems such as difficulties with supplies and shipments, or drops in customer traffic and demand could also have an impact.

Place vulnerability seeks to integrate both biophysical and social vulnerability in the context of a specific geographic or social space (Cutter et al., 2000). Businesses located in higher earthquake intensity shaking zones and those in poor financial condition or those operating in economic sectors that were in decline before the disaster had difficulties in recovering (Chang, 2001).

The researchers in the Disaster Research Center study focused on the vulnerability of businesses rather than populations and tried to show a full picture of the business losses that were suffered, the sources and mechanisms of those losses, and the means by which businesses tried to recover from the disaster. Businesses participating in the study were asked about ten different categories of impact that they may have suffered, including various types of physical damage, loss of lifelines such as electricity or water, injuries to employees, temporary business closure, and short and long term revenue loss beyond the duration of business closure. Of the 107 businesses in the sample, only four indicated that they did not suffer any of these types of impact. On the other end of the spectrum, four of the businesses mentioned experiencing seven of the ten types of impact. On average, respondents reported about three of the loss categories. Over three quarters of the businesses indicated that they had closed for some period of time following the earthquake. About a fifth of those that closed did so for more than a week and

some were still closed six to ten months after the event. Reasons for closure included, building damage, loss of equipment, loss of customers, loss of electricity and water, inability to receive supplies, inability to deliver product and employees being unable to return to work due to their own losses.

Overall the researchers found that economic consequences of natural disasters are generally much higher than commonly acknowledged and that business losses can be explained largely by vulnerability factors, rather than by either physical damage or preparedness behavior. A quantitative measure of business "loss" was defined based on responses to several survey questions. Loss was defined in this study to be significant if any of the following conditions held: the business suffered long-term revenue loss; the business suffered short-term revenue loss; the business closed temporarily and during this period suffered losses of more than $300 per employee. The number of employees was taken to be the number of full-time employees plus half the number of part-time employees at the business. With this procedure, 34 or 32% of the 107 businesses were assigned to the insignificant loss category and 73 or 68% to the significant loss category.

Vulnerability factors included physical damage, industry sector, size, occupancy tenure, and disaster preparedness. The results of this study indicated that business loss was correlated with physical damage as measured by a composite damage index but that the correlation was weak. The researchers determined that other factors were clearly involved in the total business loss. In regards to preparedness, the survey inquired about whether or not businesses had engaged in a series of mitigation and preparedness actions before the Nisqually earthquake. These actions ranged from purchasing earthquake or business interruption insurance to investing

in seismic retrofits to developing a disaster plan. Of the 107 businesses, 70 or 65% had engaged in none of these mitigation or preparedness actions. The group that had engaged in some disaster preparedness showed a somewhat lesser tendency to suffer significant business loss (62% to 71%). In regards to industry sector, size, and occupancy tenure there appeared a strong correlation between industry sector and loss, and between small and medium to large business loss. The difference between renters and owners was not as strong but renters did appear to be more vulnerable to loss. In this study, small businesses in the retail sector that rent their floor space were more vulnerable to suffering losses in disasters than businesses with fewer of these loss factors. Both the difference of proportions test and the chi-square test indicated that the industry sector and business size factors are statistically significant at the 1% level. Both tests indicate that occupancy tenure is not significant at the 10% level; however, both tests are problematic in this instance because of the very small number of owners (N=13). The sector, size and occupancy tenure variables are highly correlated with one another. This study showed that business specific characteristics or vulnerability factors and to a lesser extent the physical building damage are important in explaining the propensity for suffering business losses in a disaster.

This study also included conducted interviews in regards "neighborhood effects". These interviews determined that "neighborhood effects" such as ongoing repairs, loss of street parking due to neighborhood building or transportation repairs, loss of foot traffic and customers, damage to business district's image by negative portrayals in the media were important contributors to loss. Retail businesses were determined to be particularly sensitive to neighborhood problems. Neighborhood effects have been observed in previous disasters that

inflicted concentrated damage on older business districts, such as the Loma Prieta earthquake and the Whittier and Coalinga earthquakes. In Northridge, the "ghost town" phenomena, while limited to residential areas, also reflected the neighborhood effects of concentrated damage. This suggests that disaster planning is important not only for individual businesses, but also at the level of the community (Change and Falit-Baiamonte, 2003). "It is commonly assumed that the extent of physical damage drives the extent of business losses, and so loss reduction efforts should focus on structural retrofits and other damage containment investments. Anticipating future disaster losses requires acknowledging characteristics that make some segments of the community particularly vulnerable to loss (Chang and Falit-Baiamonte, 2003).

<center>Business Recovery</center>

Webb, Tierney and Dahlhamer (1999) examined empirical patterns for businesses and disasters. These researchers discussed disaster related sources of business disruption and financial loss and factors that affect the ability of businesses to recover following major disaster events. They utilized data on hazard awareness, preparedness, disaster impacts, and short and long term recovery among 5,000 private sector firms in Memphis/Shelby County, Tennessee, Des Moines, Iowa, Los Angeles, California, Santa Cruz County, California, and South Dade County, Florida. Other than the Memphis/Shelby area, the other areas were chosen because those areas had experienced the 1989 Loma Preita earthquake; Hurricane Andrew in 1992; Midwest Floods of 1993; and the Northridge earthquake in 1994. The Loma Prieta surveys focused on the entire population of currently existing businesses that had also been operating in the areas at the time of the disaster events. The other three survey areas used stratified random sampling techniques to obtain representative samples of businesses. All of the survey data was

obtained by the Disaster Research Center (DRC) via five large scale mail surveys conducted between 1993 and 1999.

In regards to sources of business disruption and financial loss, research reveals that direct damage to the business facilities is only one among several factors that contribute to the financial losses businesses experience in the aftermath of disasters (Webb, Tierney & Dahlhamer, 1999). For example, disruption to utilities and transportation mechanisms can interrupt business. When asked in the surveys, why they experienced business interruptions and financial losses, businesses were most likely to cite disruptions to water, electric power, and sewer and waste water services (Tierney, 1997). The utility and transportation disruptions hinder exporting and importing of goods and supplies.

In addition, there were other reported disaster related issues that can cause business interruption. These issues included reduced employee productivity caused by transportation problems and by the employees' own disaster related difficulties at home, declines in customer traffic and reduced demand for certain kinds of goods and services in the aftermath of a disaster.

Based on the series of surveys these researchers determined that the majority of organizations affected by disaster do recover and that larger firms have a better likelihood of recover than smaller ones. However, in a study of businesses affected by the Northridge earthquake, it was determined that the more employee related problems an organization experiences, the more likely it is that the organization will not recover (Dahlhamer, 1998).

Webb, Tierney and Dahlhamer (2002) examined long term business recovery from major natural disasters. These researchers collected data on long term disaster consequences and identified predictors of long term disaster recovery via two large scale mail surveys. The first

survey was sent to randomly selected businesses located in Santa Cruz County, California eight years after the Loma Prieta earthquake and the second to randomly selected businesses in South Dade County, Florida, six years after Hurricane Andrew. To be considered for inclusion in the study, a business had to have been in operation at the time of the disaster event and still in existence at the time of survey administration. Data from Dunn & Bradstreet was used to establish the sampling frame for both study areas. According to the Dunn and Bradstreet data there were 3,075 businesses in Santa Cruz County and 4,286 in South Dade County. In the course of administering the surveys, 299 Santa Cruz County and 288 South Dade County firms were removed from the survey populations because either the business was not actually in existence at the time of the disaster, the business closed prior to data collection or the business had relocated. In addition, 430 Santa Cruz County and 243 South Dade County businesses were recorded as refusals due to the business not wishing to participate or due to personnel turnover that made survey completion impossible.

The initial mailing to South Dade County businesses resulted in a 20 percent response rate. Because this was 14 percent lower than the results obtained from the Santa Cruz County mailing, a second survey mailing was sent to the South Dade County businesses that had not returned a completed survey and had not refused to participate. In all, 1,078 completed surveys from South Dade County were received and 933 completed surveys were received from Santa Cruz County. This reflected a 27 percent and a 33.6 percent response rate respectively. The results of this study indicated that, in terms of number of employees, clients, business profits or overall financial condition the majority of businesses in Santa Cruz County reported doing as well or better at the time the two surveys were conducted as they had prior to the disaster. In

South Dade County the proportion of businesses that reported being worse off exceeded those that were better off. This may have been due to the fact that the data indicated that South Dade County businesses suffered greater losses and disruption than those in Santa Cruz County, measured in terms of dollar losses due to damage, the proportion of businesses that were forced to suspend operations due to the disaster, duration of business interruption, lifeline loss, and other indicators of disaster severity. In both counties the strongest predictor of long term recovery was owner perception of the broader business climate. In addition, in both counties, businesses that were forced to close for longer periods of time following the hurricane or earthquake were less likely to recover in the long-term. Businesses in South Dade county that experienced more operational problems after the hurricane were significantly less likely to recover in the long term.

Limitations of this study are that the study did not include firms that were no longer operating, due either to their disaster experience or to normal closure. Therefore, the data from this survey is based only on information obtained from businesses that survived long enough to be included in the sample rather than on all businesses that were located in the counties at the time of the disasters. In addition, the models used in this study did not directly incorporate data on broader economic trends that may have affected businesses in the two counties. The long term fates of individual businesses affected by disasters are clearly linked to economic trends and decisions affecting communities. In Santa Cruz County, the city of Santa Cruz took active steps to help businesses get re-established after the Loma Prieta earthquake and to keep customers doing business in the areas affected by the earthquake. One study that focused on Santa Cruz ten years after the earthquake argues that the disaster provided the city an opportunity for "renewal

on a scale that seemed inconceivable, and that enforced decision-making that would have taken years or even decades to accomplish" (Arnold, 1998). This may be a reason that the businesses in Santa Cruz county reported more favorable recovery outcomes than the South Dade county businesses.

This study also stated that it was important to note that businesses in crowded, highly competitive, and relatively undercapitalized economic niches appear to have the most serious problems in the aftermath of disasters and that businesses that depend primarily on local rather than regional, national, global markets may not recover as well as those that are more diversified. Results from this study indicated that gender of the business owner and whether the business was an individual firm or part of a larger chain, turned out to have little effect on business well-being but that difficulties that businesses do experience at the time a disaster strikes, such as disaster-induced business interruption and problems with operating the businesses in the changed post-disaster environment, may have lasting effects on business long term survival.

Most disaster studies examine the psychological effects of a particular disaster event on an individual or individuals, but other than 9/11/01 terrorist attack surveys of affected businesses such as this SHRM 2001 and 2002 survey, there is very limited research on the workplace implications of disasters. Post hurricane aftermath has sent business and employment conditions in Mississippi, Alabama, Louisiana and Texas into a tailspin. In the aftermath of the Hurricanes Katrina and Rita David Huether, chief economist of the National Association of Manufacturers told members of the Energy and Commerce Subcommittee on Commerce, Trade and Consumer Protection that manufacturers' "greatest need in the aftermath of Hurricane Katrina is the ability to reconnect with their employees".

After the terrorist attacks of September 11, 2001 many businesses faced dramatic and uncharted challenges. One of the greatest challenges for those businesses directly affected was to account for all of their employees. This same challenge was faced by those employers directly affected by the 2005 Hurricanes. After 9/11 employers set up employee hotlines that employees could call to inform the company of their status. These hotlines were also used to deliver information and support, including counseling services to employees. Merrill Lynch, who at the time employed 9000 individuals in Lower Manhattan, most of them in the World Financial Center, which is located across the street from the World Trade Center, initiated a 24 hour hotline for employees that was staffed by Human Resource Representatives. In the first few days after the terrorist attacks, this hotline received 6000 calls.

The workplace reactions and responses to Hurricanes Katrina and Rita have been similar to those following the 9/11 terrorist attacks. John Hofmeister, President of Shell Oil Company issued the following statement to Shell employees on September 14, 2005, "I am extremely pleased to announce that we have been able to make contact with each one of our nearly 4,600 Shell and Motiva employees who live and work in the areas ravaged by Hurricane Katrina more than two weeks ago. All are safe. While this is certainly reason to celebrate, we know a long road to recovery is ahead. Our attentions now turn in earnest to helping our colleagues and their families rebuild their lives. Many are just now grasping the enormity of what has happened. Shell and Motiva will continue to be there for them.   Our work has not ended. We've made significant progress in restoring our operations, yet there is still much to do to bring our business back to pre-hurricane status safely and as quickly as possible. This storm has tested all of us, and Shell and Motiva employees are resourceful, creative, caring and dedicated. Let's continue to

work together to address both the short-term and long-term challenges ahead. I'm proud to be

working with each and every one of you" (www.shell.com).

CHAPTER 3: METHODOLOGY

This chapter explains the development of the survey instrument, the data collection method as well as to describe the survey subjects and the analysis procedures that will be utilized.

Development of the Instrument

The study is an exploratory, descriptive study. For the survey instrument in this study the individual survey questions are based on the known effects that disasters have on those exposed to the disaster. It is logical to assume that those individuals exposed to Hurricanes Katrina and Rita would experience similar disaster effects and one would expect then that there would be some transfer of those effects to the workplace by employees. For the survey instrument in this study questions from the Cohen and Welbourne SHRM HR Implications of the 9/11 Attack on America survey were utilized as well as questions based on the physical, mental and emotional disaster effects identified by Tucker, Pfeferbaum, Nixon & Dickson (2000), The Partnership for Workplace Mental Health, an American Psychiatric Association Foundation program, Byron & Peterson (2002), Norris (2005) and Norris, Byrne, Diaz and Kaniasty (2002). Questions or topics from the SHRM study that were specific to the 9/11 event, i.e., Closing our organization on Tuesday, September 11th, Purchasing and/or distributing flags or ribbons, Employees do not consider travel as glamorous, Training about religious differences were not included in my survey instrument.

Research question one is explored in the first question of the survey. This question asks, "in the aftermath of Hurricanes Katrina and Rita to what extent has your organization done or continues to do any of the following for its employees in regards to their personal and family

needs", the fifteen items in this question were derived from personal Human Resource hurricane related experience and from media and organizational reports.

Research question two is explored in question two of the survey that asks, "in the aftermath of Hurricane's Katrina and Rita to what extent has your organization done or continues to do any of the following in regards to business, earnings and efforts to maintain continued business operation". The options addressed here, decrease in business, increase in business, canceling all non-revenue earning events, state of economy is of vital concern, negative economic impacts on the organization, positive economic impacts on the organization, relocating part or all of the organization, are items derived from the researcher's personal Human Resource Hurricane related experience and from media and organizational reports.

The third research question is explored in question three of the survey. This question asks, "in the aftermath of Hurricane's Katrina and Rita to what extent has your organization done or continues to do any of the following for or with its employees in regards to philanthropy and volunteer activities". The items addressing organizing volunteer activities, allowing employees to volunteer on paid company time, and collecting money and supplies to be sent for aid are replicated from the 9/11 SHRM survey. The last item in this question, contributing supplies and/or money to affected employees is based on media and organizational reports as well as the researcher's personal Human Resource Hurricane related experience.

Question four of the survey is utilized to explore the fourth research question for the current study. Question four of the survey which focuses on the extent that Hurricanes Katrina and Rita changed the workplace in regards to hiring and employee retention, includes eight items. These items include such responses as increased wages in an effort to retain and/or attract

employees, less stringent screening of employees for hiring in order to fill positions more quickly, having to recruit and bring in workers from other parts of the country or world, more employees are seeking transfers to other parts of the country and most employees left the affected areas and will not return. These items are based on media and organizational reports as well as personal Human Resource Hurricane related experience. Three items, higher rate of employee turnover, employees have requested transfers to less stressful positions, and employees are seeking more of a work/life balance are replicated from the SHRM 9/11 survey.

Survey question five explores the fifth research question of this current study. All five items in survey question five which asks, "in your opinion, how have Hurricanes Katrina and Rita changed your workplace in regards to safety and security", were replicated from the SHRM 9/11 survey. These items were, reevaluated safety and security policies and procedures, increased crisis management training, higher safety and security procedures have been put in place, disaster plans have been put into place for our workforce and disaster plans have been edited as a result of the hurricanes.

The sixth research question of this study is explored in question six of the survey. This survey question asks, "How have Hurricanes Katrina and Rita changed your workplace in regards to employee performance and activity in the workplace" and includes fourteen items. The seventh research question is explored in question seven of the survey and includes twenty eight items. This question asks, "To what extent have you noticed or had employees confide in you about any of the following after the hurricanes". Both survey question sixth and seven include items that are replicated from the 9/11 SHRM survey and also questions based on the physical, mental and emotional disaster effects identified by Tucker, Pfeferbaum, Nixon &

Dickson (2000), The Partnership for Workplace Mental Health, an American Psychiatric

Association Foundation program, Byron & Peterson (2002), Norris (2005) and Norris, Byrne,

Diaz and Kaniasty (2002). Tables 3 and 4 display the source or sources for each item included in

questions six and seven.

Table 3: Item Sources for Survey Question Six that asks, "How have Hurricanes Katrina and Rita
changed your workplace in regards to employee performance and activity in the workplace".

Question Six Items	Source(s)
Higher stress level in the workplace	9/11 SHRM survey, The Partnership for Workplace Mental Health, Norris (2005) and Norris, Byrne, Diaz and Kaniasty (2002).
Increased taking of sick leave	Norris (2005), and Norris, Byrne, Diaz and Kaniasty (2002).
Overall increase in absenteeism	Byron & Peterson (2002), 9/11 SHRM survey, and The Partnership for Workplace Mental Health.
Employees are more caring toward one another	9/11 SHRM survey
Employees are less caring toward one another	9/11 SHRM survey
Increase in positive drug and alcohol tests	Tucker, Pfeferbaum, Nixon & Dickson (2000), The Partnership for Workplace Mental Health, Norris (2005) and Norris, Byrne, Diaz and Kaniasty (2002).
Employees are more tolerant of diversity	9/11 SHRM survey
Employees are less tolerant of diversity	9/11 SHRM survey
Lower productivity	9/11 SHRM survey
Workplace violence has increased	9/11 SHRM survey
More employee relations complaints	Researcher's Personal HR experience
Employees have expressed anger that the management team wasn't more sensitive and responsive in the aftermath of the hurricanes	Researcher's Personal HR experience
Employees have expressed appreciation for the management team being sensitive and responsive in the aftermath of the hurricanes	Researcher's Personal HR experience
Greater use of Employee Assistance Programs	9/11 SHRM Survey

Table 4: Item Sources for Survey Instrument Question Seven that asks, "To what extent have you noticed or had employees confide in you about any of the following after the hurricanes".

Question Seven Items	Source(s)
Difficulty concentrating	The Partnership for Workplace Mental Health
Eating too much	The Partnership for Workplace Mental Health
Eating too little/Loss of Appetite	The Partnership for Workplace Mental Health
Needing to talk about their hurricane experiences	The Partnership for Workplace Mental Health
Mood Swings	The Partnership for Workplace Mental Health
Headaches	The Partnership for Workplace Mental Health
Difficulty sleeping	Tucker, Pfeferbaum, Nixon & Dickson (2000), The Partnership for Workplace Mental Health, Norris (2005) and Norris, Byrne, Diaz and Kaniasty (2002).
Restlessness	The Partnership for Workplace Mental Health
Social numbing or lack of feeling	Tucker, Pfeferbaum, Nixon & Dickson (2000), The Partnership for Workplace Mental Health
Irritability	Tucker, Pfeferbaum, Nixon & Dickson (2000)
Fearfulness	Tucker, Pfeferbaum, Nixon & Dickson (2000)
Depression	Tucker, Pfeferbaum, Nixon & Dickson (2000), Norris (2005) and Norris, Byrne, Diaz and Kaniasty (2002).
Social withdrawal	Tucker, Pfeferbaum, Nixon & Dickson (2000), Norris (2005) and Norris, Byrne, Diaz and Kaniasty (2002).
Shortness of breath	The Partnership for Workplace Mental Health
Heartburn	The Partnership for Workplace Mental Health
Inability to sit still	The Partnership for Workplace Mental Health
Excess Energy	The Partnership for Workplace Mental Health
Increased use of alcohol	Tucker, Pfeferbaum, Nixon & Dickson (2000), The Partnership for Workplace Mental Health, Norris (2005) and Norris, Byrne, Diaz and Kaniasty (2002).
Increased use of drugs	Tucker, Pfeferbaum, Nixon & Dickson (2000), The Partnership for Workplace Mental Health, Norris (2005) and Norris, Byrne, Diaz and Kaniasty (2002).
Increased use of Cigarettes	The Partnership for Workplace Mental Health
Inability to concentrate or work effectively	The Partnership for Workplace Mental Health
Difficulty completing tasks	The Partnership for Workplace Mental Health
Arguments with co-workers	The Partnership for Workplace Mental Health, Norris (2005) and Norris, Byrne, Diaz and Kaniasty (2002).
Family conflicts	The Partnership for Workplace Mental Health, Norris (2005) and Norris, Byrne, Diaz and Kaniasty (2002).
Loss of interest in life or persistent boredom	The Partnership for Workplace Mental Health
Hopelessness	The Partnership for Workplace Mental Health
Persistent worries about health or security	The Partnership for Workplace Mental Health
Feeling isolated	The Partnership for Workplace Mental Health

Research question eight is explored in the eighth question on the survey. This question that asks, "In your opinion, to what extent have Hurricanes Katrina and Rita changed your workplace in regards to Human Resource Department activities?", includes issues replicated from the 9/11 SHRM survey, derived from the researcher's personal human resources experience, or derived from Norris(2005) and Norris, Byrne, Diaz and Kaniasty (2002). Those from the 9/11 SHRM survey are: implementation of employee assistance programs, human resources has had a greater presence, human resources has been called on for more input and expertise in people management, increased employee mental health benefits and costs, increase in requests for Employee Assistance Program referrals, and better company communication methods have been established. Those derived from personal human resource work experience are: processed hurricane related 401(k) or retirement savings plan hardship withdrawals, workers compensation claims have increased, and Equal Employment Opportunity charges/complaints have increased or decreased. The item related to increases in requests for Employee Assistance Program referrals is also derived from Norris (2005) and Norris, Byrne, Diaz and Kaniasty (2002).

Survey questions nine and ten address research questions nine and ten respectively. Question nine, which asks, "was your organization damaged by the hurricanes or their aftermath to the extent that partial or complete rebuilding was necessary, and if yes, when was or when do you anticipate your organization to be back at pre-hurricane status" and question ten, which asks, "what, in your opinion could your organization have done differently to better support it's employees after the hurricanes", are unique survey questions related to organizational and individual hurricane effects.

Survey questions eleven, twelve and thirteen were demographic questions. Survey question eleven asked, "What is your position?". Survey question twelve asked, "Please identify the number of employees in your organization for which you have HR responsibility.". And, survey question thirteen asked, "What type of industry is your organization involved in?".

Data Collection and Subjects

Associated Builders and Contractors (ABC) is a national trade association representing 23,000 merit shop contractors, subcontractors, material suppliers and related firms in 79 chapters across the United States. ABC's membership represents all specialties within the U.S. Construction industry and is comprised primarily of firms that perform work in the industrial and commercial sectors of the industry. In addition, ABC is listed among *Fortune* Magazine's top 50 most influential national organizations (http://www.abc.org). Because the Gulf Coast economy is so reliant on industrial employers and many of them were the hardest hit by Hurricanes Katrina and Rita, industrial organizations that are members of the Associated Builders & Contractors (ABC) chapters of Mississippi, Mid Gulf Coast, Pelican, New Orleans/Bayou, Texas Gulf Coast, Greater Houston, Southeast Texas and Texas Mid Coast were surveyed. The ABC reported business volume of the member organizations ranges from under $500,000 to a range of $20,000,000 to $50,000,000. The target population for this study is industrial organizations affected by disaster.

The survey was mailed to the 753 organizations in these ABC chapters. The surveys allowed anonymity of respondents as many companies do not wish to disclose information that is confidential to their employees or that may be directly linked with their company by their competitors. The surveys were mailed to the attention of the Human Resources Manager,

Director or top Human Resources professional in the organization because it was believed that this person should know the most about the human resources of the organization and therefore would be best able to respond to the survey questions.

There was a two week requested reply date on the survey and at the end of those two weeks a follow up response reminder letter was sent out to the organizations. A total of 105 organizations responded to the survey (13.9%). Of this 105, two surveys were returned by the organizations with no responses to any of the questions. Of the total 753 surveys mailed out, ten surveys were returned as undeliverable and with no forwarding delivery available. This could be due to the closure or total relocation of those organizations. The usable response rate was 13.67%.

<center>Analysis Procedures</center>

The data obtained from respondents for survey questions one through eight and each item within each of those questions was analyzed and organized with descriptive statistics of mean, standard deviation, response category frequency and percentages in categories. Questions eleven, twelve and thirteen are individual and organizational demographic identifiers, i.e. job position, number of employees in organization, and type of industry. The job position, number of employees in organization and type of industry were measured using categorical nominal data. Data from question eleven, what is your position, will be described with the mode for central tendency and relative frequencies and percentages in categories. Data from question twelve, which asks for the number of employees in the responding organization, will be described by relative frequencies and percentages in categories. Data from question thirteen, which asks for

the type of industry in which the organization operates, will be described with the relative

frequencies and percentages in categories.

Survey question nine, (also research question nine) that asks when were or when will

organizations damaged by the hurricanes or their aftermath be back at pre-hurricane status was

measured as categorical nominal data. Data results from this question will be described with

relative frequencies and percentages in categories.

For this specific study, the survey instrument was designed using the constructs of what

organizations have done for or in regards to their employees in regards to personal and family

needs, business earnings and efforts to maintain continued business operations, philanthropy and

volunteer activities, hiring and employee retention, safety and security, employee performance

and activity, physical, mental or emotional effects, and Human Resource department adjustments

or areas of coping as a result of Hurricane's Katrina and Rita. Research questions one through

eight were designed to measure these constructs.

This first step in data analysis was to obtain the listed descriptive statistics. Next, to

examine the factor structure of the items within each survey question an exploratory factor

analysis was conducted with all the items in each question utilizing a principal axis analysis with

direct oblimin rotation. The pattern matrix was examined before interpreting the factor analysis.

The measure of sampling adequacy (MSA) was examined for each of the individual items in

each scale. Factor analysis is appropriate if the MSA's are above .50 (Hair et al., 1998).

To determine if there was more than one scale for each construct, the latent root criterion

(eigenvalues) and the scree plot criterion were examined. Hair et al. (1998) recommends an

eigenvalue greater than one as a cutoff for factor extraction. Because this is an exploratory study

all items with cross loadings at or over .40 were eliminated. In addition, any item that did not factor load above .40 was eliminated. The next step in the data analysis was to calculate scale scores based on the factor analysis.

Next, scale scores were created from the factors identified. From those scale scores reliability analyses were conducted in order to determine the internal consistency of each scale using Cronbach's *alpha*. The lower limit of a Cronbach's *alpha* is .70, unless it is exploratory research, which may accept a .60 (Hair et al., 1998).

Next, a correlation matrix was produced for these variables. Lastly, to explore research question number eleven a series of stepwise multiple regressions were used to determine if organizational responses could be predicted from effects of the hurricanes on employees and organizations. Stepwise regression was appropriate for this study because it is exploratory and the sample size precluded use of canonical correlation. The scales identified in questions two, six and seven were used as independent variables. Scales identified from the questions one, three, four, five, and eight comprised the dependent variables in each regression model.

Question ten of the survey was an open ended question that asked, "from an organizational level perspective, what could organizations have done differently to better support their employees after the hurricanes". Responses from this question will be listed and grouped where feasible.

CHAPTER 4: RESULTS

Introduction

The purpose of this chapter is to identify and describe the effects of Hurricanes Katrina and Rita on employee behavior in the workplace from the organization's perspective and the related adjustments organizations have made as a result of these storm disasters. A total of 105 organizations responded to the survey (13.9%). Of this 105; two surveys were returned by the organizations with no responses to any of the questions so the usable response rate was 13.67%

For the survey instrument in this study the individual survey questions are based on the known effects that disasters have on those exposed to the disaster. As stated previously, it is logical to assume that those individuals exposed to Hurricanes Katrina and Rita would experience similar disaster effects and we would expect then that there would be some transfer of those effects to the workplace by employees. This chapter will discuss the techniques used to analyze the data and present the results as they relate to the research questions.

Data Descriptives

Data obtained from survey instrument question eleven that asked, "What is your position?", revealed that of the 103 respondents, 21 or 20.4% were Personnel Managers or Directors, 23 or 22.3% were Human Resources Managers or Directors, 13 or 12.6% were Human Resources Vice Presidents and 45 or 43.7% listed Other titles. One survey left the position question blank. The Other titles included, Owner and CEO, President (n=7), Chief Administrative Officer, Vice President (n=6), Office Manager (n=3), HR Administrator, General Superintendent, General Manager (n=2), Executive Vice President, Office Administrator, Project Manager, Chief Financial Officer (n=2), Operations Manager (n=2), Vice President Operations

Manager, Branch Manager, Division Vice President, Construction Estimating Project Manager,

Owner (n=6), Payroll Manager, Vice President of Operations Support, Owner/President,

Administrative Executive, Purchasing Agent, and one survey respondent selected other title but

did not specify their exact title. Table 5 details the position titles of survey respondents.

Table 5. Position Title of Hurricanes Katrina and Rita Workplace Implications Survey
Respondents

Title	n	%
Personnel Manager/Director	21	20.4
Human Resources Manager/Director	23	22.3
Human Resources Vice President	13	12.6
Other (Included: Owner and CEO, President (n=7), Chief Administrative Officer, Vice President (n=6), Office Manager (n=3), HR Administrator, General Superintendent, General Manager (n=2), Executive Vice President, Office Administrator, Project Manager, Chief Financial Officer (n=2), Operations Manager (n=2), Vice President Operations Manager, Branch Manager, Division Vice President, Construction Estimating Project Manager, Owner (n=6), Payroll Manager, Vice President of Operations Support, Owner/President, Administrative Executive, Purchasing Agent, and one survey respondent selected other title but did not specify their exact title)	45	43.7
Total	102	99.0

Note: N = 102, one missing case.

In response to survey instrument question twelve that asked, "Please identify the number

of employees in your organization for which you have HR responsibility.", 59 or 57.3% reported

that they had Human Resources responsibility for 0 to 99 employees, 18 or 17.5% had

responsibility for 100 to 500 employees, eight or 7.8% had responsibility for 501 to 1000

employees, six or 5.8% had responsibility for 1001 to 1500 responsibilities, seven or 6.8% had

responsibility for 1501 to 5000 employees and five or 4.8% had responsibility for over 5000

employees. Table 6 details the number of employees in the responding organization for which

the respondent individual has human resources responsibility.

Table 6.Number of Employees in the Responding Organization for which the Hurricanes Katrina and Rita Workplace Implications Survey Respondents had Human Resources responsibility.

Number of Employees	N	%
0-99	59	57.3
100-500	18	17.5
501-1000	8	7.8
1001-1500	6	5.8
1501-5000	7	6.8
Over 5000	5	4.8
Total	103	100.0

Note: N = 103

Responses to survey instrument thirteen that asked, "What type of industry is your organization involved in?", revealed that four or 3.9% were oil companies, 19 or 18.4% were industrial contracting companies, four or 3.9% were shipping companies, three or 2.9% were chemical companies, three or 2.9% were gas companies, five or 4.9% were manufacturing companies, 50 or 48.5% were construction companies and 15 or 14.6% reported they were in other industries than those already mentioned. The other industry types reported were distribution (n=2), construction cleanup, financial (n=2), staffing, wholesale, bonds and insurance for contractors, wholesale and retail building materials, retail, service, law firm, circuit breaker service center, promotional products and awards, and electrical contracting. Table 7 details the industry type of responding organizations.

Table 7.Industry Type of Organizations that Responded to the Hurricanes Katrina and Rita Workplace Implications Survey

Industry Type	N	%
Oil	4	3.9%
Industrial Contracting	19	18.4%
Shipping	4	3.9%
Chemicals	3	2.9%
Gas	3	2.9%
Manufacturing	5	4.9%
Construction	50	48.5%
Other (Included: distribution (n=2), construction cleanup, financial (n=2), staffing, wholesale, bonds and insurance for contractors, wholesale and retail building materials, retail, service, law firm, circuit breaker service center, promotional products and awards, and electrical contracting)	15	14.6%
Total	103	100.0

Note: N = 103.

In response to survey instrument question nine, 41 or 39.8% responding organizations indicated that their organization was damaged by the hurricanes or their aftermath to the extent that partial or complete rebuilding was necessary. Sixty two or 60.2% indicated that their organization was not damaged by the hurricanes or their aftermath to the extent that partial or complete rebuilding was necessary. For those 41 organizations that did have to partially or completely rebuild, 14 or 39% of those organizations were back to pre-hurricane status within three months of the hurricanes, four or 9.8% within six months of the hurricanes, five or 12.2% within nine months after the hurricanes, four or 9.8% within twelve months after the hurricanes, two or 4.9% within fifteen months after the hurricanes and five or 12.2% within eighteen months after the hurricanes, four or 9.8% reported other time frames of recovery and three and 7.3% reported that their rebuilding time frame was unknown at the time of the survey completion. The other rebuilding time frames reported were "two months", "never, the State of LA is making sure that we never are able to achieve our previous status", "< than 1.5 mos", and "two weeks".

Table 8 details the organization rebuilding time frame for responding organizations.

Table 8. Time Frame for Partial or Complete Organization Rebuilding as a Result of Hurricane Damage for Hurricanes Katrina and Rita Workplace Implications Survey Respondents

Rebuilding Time Frame	N	%
3 Months after the hurricanes	16	34%
6 Months after the hurricanes	4	9.8%
9 Months after the hurricanes	5	12.2%
12 Months after the hurricanes	4	9.8%
15 Months after the hurricanes	2	4.9%
18 Months after the hurricanes	5	12.2%
Other	4	9.8%
Unknown	3	7.3%
Total	41	

Note: n = 41 for respondents who reported that their organization was damaged by the hurricanes or their aftermath to the extent that partial or complete rebuilding was necessary. Percentages are based on the n = 41.

In regards to descriptives for the remaining survey instrument questions, table nine details the mean and standard deviation for each item within each survey question one, two, three, four, five, six, seven and eight. Appendix C details the mean, standard deviation, response category frequency and percentages in categories for each item within question one, two, three, four, five, six, seven, and eight.

Table 9. Descriptive Statistics for all items in questions one, two, three, four, five, six, seven, and eight of the Workplace Implications for Hurricane Affected Gulf Coast Region Industrial Companies Survey Instrument

Survey Question One, "As a result of hurricane's Katrina and Rita, to what extent has your organization done or continues to do any of the following for its employees in regards to their personal and family needs"?		
Item	Mean	Standard Deviation
1. Bringing an Employee Assistance Program counselor on site	1.49	.979
2. Open door policy with management for discussion of any concerns	3.40	1.338
3. Assisting employees in finding temporary or permanent housing	2.23	1.349
4. Establishing temporary housing for employees	1.77	1.342
5. Allowing employees to watch TV or listen to the radio at work	2.78	1.228
6. Setting up employee hotlines for employees to call in and notify employer of their whereabouts	2.80	1.605
7. Assisted in evacuating employees and their families from the affected areas	1.83	1.172
8. Granting paid leave to employees who were displaced	1.83	1.237
9. Offered increased benefit coverage to employees	1.44	.946
10. Providing financial advice	2.17	1.256
11. Allowing flextime schedules	2.80	1.286
12. Holding staff meetings with all employees about the hurricanes effects on the organization and it's employees	2.64	1.454
13. Closing organization for more than a day	3.06	1.507
14. Canceling meetings and events	2.88	1.517
15. Scheduling motivational events for employees	1.80	1.166
Survey Question Two, "As a result of hurricane's Katrina and Rita to what extent has your organization experienced or continues to experience each of the following in regards to business, earnings, and efforts to maintain continued business operations"?.		
Item	Mean	Standard Deviation
1. Decrease in business volume	1.85	1.150
2. Increase in business volume	2.80	1.458
3. All non-revenue earning events (i.e. Company picnics, golf tournament, parties) have been canceled	1.90	1.209
4. Decrease in earnings	1.84	1.243
5. Increase in earnings	2.58	1.425
6. Relocating part or all of your organization	1.57	1.053
Survey Question Three that asks, "As a result of hurricane's Katrina and Rita to what extent has your organization experienced or continues to experience each of the following in for or with its employees in regards to philanthropy and volunteer activities"?.		
Item	Mean	Standard Deviation
1. Organizing volunteer activities	1.58	.995
2. Allowing employees to volunteer on paid company time	1.56	1.073
3. Collecting money and supplies to be sent for aid	1.88	1.157
4. Contributing supplies and/or money to affected employees	2.36	1.282

Table 9 Continued

Survey Question Four, "In your opinion, to what extent have Hurricanes Katrina and Rita caused your organization to adjust or cope in regards to hiring and employee retention in the following areas"?.		
Item	Mean	Standard Deviation
1. Increased wages in an effort to retain and/or attract employees	3.17	1.442
2. Less stringent screening of employees for hiring in order to fill positions more quickly	2.16	1.203
3. Having to recruit and bring in workers from other parts of the country or world	2.17	1.351
4. Higher rate of employee turnover	2.25	1.144
5. More employees are seeking transfers to other parts of the country	1.59	.890
6. Employees left the affected areas and will not return	2.06	1.145
7. Employees have requested transfers to less stressful positions	1.35	.696
8. Employees are seeking more of a work/life balance	1.71	.966
Survey Question Five, "To what extent have hurricanes Katrina and Rita caused your organization to adjust or cope in regards to the following safety and security items"?.		
Item	Mean	Standard Deviation
1. Reevaluated safety and security policies and procedures	2.74	1.168
2. Increased crisis management training	2.23	1.238
3. More stringent safety and security procedures have been put in place	2.37	1.204
4. Disaster plans have been put into place for our workforce	2.77	1.293
5. Disaster plans have been edited as a result of the Hurricanes	2.58	1.338
Survey Question Six, "To what extent have hurricanes Katrina and Rita caused your organization to adjust or cope in regards to employee performance and activity in the workplace in the following ways"?.		
Item	Mean	Standard Deviation
1. Higher stress level in the workplace	2.30	1.119
2. Increased taking of sick leave	1.71	.882
3. Increase in absenteeism	1.87	1.045
4. Employees are more caring toward one another	2.30	1.083
5. Employees are less caring toward one another	1.38	.768
6. Increase in positive drug and alcohol tests	1.48	.739
7. Employees are more tolerant of diversity	2.10	1.067
8. Employees are less tolerant of diversity	1.33	.632
9. Lower productivity	1.61	.910
10. Workplace violence has increased	1.22	.523
11. More employee relations complaints	1.51	.906
12. Employees have expressed anger that the management team wasn't more sensitive and responsive in the aftermath of the hurricanes	1.50	.778
13. Employees have expressed appreciation for the management team being sensitive and responsive in the aftermath of the hurricanes	2.50	1.267
14. Greater use of employee assistance programs	1.60	.963

Table 9. Continued

Survey Question Seven, "To what extents have you noticed any of the following or have had employees confide in you about any of the following physical, mental or emotional effects after the hurricanes"?.		
Item	Mean	Standard Deviation
1. Difficulty concentrating	1.64	.884
2. Eating too much	1.55	.936
3. Eating too little/Loss of appetite	1.35	.606
4. Needing to talk about their hurricane experiences	2.50	1.488
5. Mood swings	1.71	.935
6. Headaches	1.65	.936
7. Difficulty sleeping	1.77	1.068
8. Restlessness	1.52	.815
9. Social numbing or lack of feeling	1.46	.764
10. Irritability	1.67	.922
11. Fearfulness	1.94	1.136
12. Depression	1.90	1.071
13. Social withdrawal	1.44	.750
14. Shortness of breath	1.32	.630
15. Heartburn	1.41	.706
16. Inability to sit still	1.37	.741
17. Excess energy	1.36	.669
18. Increased use of alcohol	1.47	.669
19. Increased use of drugs	1.40	.632
20. Increased use of cigarettes	1.68	.910
21. Inability to concentrate or work effectively	1.50	.726
22. Difficulty completing tasks	1.45	.696
23. Arguments with co-workers	1.47	.777
24. Family conflicts	1.46	.683
25. Loss of interest in life or persistent boredom	1.31	.627
26. Hopelessness	1.40	.647
27. Persistent worries about health or security	1.68	.962
28. Feeling isolated	1.36	.639
Survey Question Eight, "To what extent have hurricanes Katrina and Rita caused your Human Resources department to adjust or cope in the following ways"?.		
Item	Mean	Standard Deviation
1. Implementation of employee assistance programs	1.71	.935
2. Human Resources has had a greater presence	2.12	1.205
3. Human Resources has been called on for more input and expertise in people management	2.07	1.239
4. Better company communication methods have been established	2.43	1.201
5. Increase in requests for employee assistance program referrals	1.57	.896
6. Workers' Compensation claims have increased	1.31	.728
7. Equal Employment Opportunity Charges/complaints have increased	1.21	.621
8. Equal Employment Opportunity Charges/complaints have decreased	1.20	.616
9. Increased employee mental health benefits and costs	1.23	.546
10. Processed hurricane related 401(k) or retirement savings plan hardship withdrawals	1.43	.787

Overall the means for the question items are relatively low. This indicates that

responding organizations did not make many employee related adjustments as a result of the

hurricanes and employees within the responding organizations did not report or exhibit many

hurricane related issues or effects. The survey response scale for questions one, two, three, four, five, six, seven and eight was Not at all (1), Slight (2), Moderate (3), Considerable (4) and Great Extent (5).

Organizational Level Responses in Regards to Employee's Personal and Family Needs as a Result of the Hurricanes

In question one of the survey which addresses research question one that asked "What were/are organizational level responses in regards to employee's personal and family needs as a result of the hurricanes?", the item with the lowest reported occurrence (M = 1.44) was offered increased benefit coverage to employees and the item with the highest reported occurrence (M = 3.40) was an open door policy with management for discussion of any concerns. Responses for the fifteen items in this question indicated that on average organizations engaged in these types of activities on a range of slightly more than not at all to slightly more than moderate (M = 1.44 to 3.40). Bringing an Employee Assistance Program counselor on site, establishing temporary housing for employees, assisted in evacuating employees and their families from the affected areas, granting paid leave to employees who were displaced, offered increased benefit coverage to employees, and scheduling motivational events for employees were all items that on average organizations reported as having engaged in with (M = 1.44 to 1.83) a frequency of slightly more than not at all to a slight frequency. Personal and family needs responses that organizations engaged in on average from a slight to moderate frequency (M = 2.17 to 2.88) were: assisting employees in finding temporary or permanent housing, allowing employees to watch TV or listen to the radio at work, setting up employee hotlines for employees to call in and notify employer of their whereabouts, providing financial advice, allowing flextime schedules, holding

staff meetings with all employees about the hurricanes effects on the organization and it's

employees, and canceling meetings and events. And, open door policy with management for

discussion of any concerns and closing organization for more than a day were responses

organizations engaged in on average of a slightly more than moderate frequency (M = 3.06 to

3.40). Overall it appears that for most responding organizations their responses to their

employee's personal and family needs as a result of the hurricanes occurred on a slight to

moderate basis. The "other" option for survey instrument question one returned "other"

comments of:

- o The nature of our work is emergency power restoration. The items marked one or three were because employees were not affected.

- o Our only main problem during the hurricane was that the office was without power for several days and the gas shortage.

- o Hourly employees were paid for ½ of shutdown time immediately after the storm,

- o Encouraged managers/directors to encourage employees to talk about how the hurricane affected them.

- o These are things we were doing before Rita and Katrina in 2005. We continue to do these things.

- o We evacuated at the time of the storm.

Organizational Level Experiences in Regards to Business, Earnings, and Efforts to Maintain
Continued Business Operation Following the Hurricanes

For survey question two, which relates to research question two that asked "What

were/are organizational experiences in regards to business, earnings and efforts to maintain

continued business operation following the hurricanes?", the item with the lowest reported

occurrence (M = 1.57) was relocating part or all of your organization and the highest reported occurrence (M = 2.80) item was increase in business volume. This conforms with responses to survey instrument question nine that asked, "Was your organization damaged by the hurricanes or their aftermath to the extent that partial or complete rebuilding was necessary and if yes, when was or when do you anticipate your organization to be back at pre-hurricane status?". Responses to this survey question indicated that 39.8% of responding organizations were damaged by the hurricanes or their aftermath to the extent that partial or complete rebuilding was necessary and that for those that were damaged, fourteen were back to pre-hurricane status within three months of the hurricanes, four within six months of the hurricanes, five within nine months after the hurricanes, four within twelve months after the hurricanes, two within fifteen months after the hurricanes and five within eighteen months after the hurricanes. Four reported other time frames of recovery and three reported that their rebuilding time frame was unknown at the time of the survey completion.

Decrease in business volume, all non-revenue earning events (i.e. Company picnics, golf tournament, parties) have been canceled, decrease in earnings and relocating part or all of your organization were on average reported by organizations as being experienced on a frequency between not at all to slight (M = 1.57 to 1.90). Both increase in business volume and increase in earnings were reported as experienced on average from slight to moderate frequency (M = 2.58 to 2.80). Overall the business, earnings and efforts to maintain business operations experiences for most responding organizations fell within the slight to moderate frequency for responding organizations. Survey instrument question two "other" comments were:

o   Labor costs increased for all technical staff.

o   Property insurance costs (premiums and deductibles) increased.

o   Opened a branch office on Mississippi Gulf Coast.

o   In our line of work the storm damage generated additional work. Additionally,
      due to our geographic range, we were able to transfer resources from non-
      impacted areas.

o   Business closed down, employees evacuated, came back when officials notified it
      was "all clear".

o   As a result of the hurricane we opened a temporary office in Biloxi and found
      housing for employees who worked for us on the coast.

o   Our company has done quite a bit of work on the coast. We have wired 10 sites
      for FEMA related temporary housing.

Philanthropic and/or Volunteer Activities Organizations Participated in for or with their Employees in the Aftermath of Hurricane's Katrina and Rita

In regards to survey question three which relates to research question three that asked, "In

the aftermath of Hurricane's Katrina and Rita what philanthropic and/or volunteer activities have

organizations participated in for or with their employees?", the item with the highest reported

occurrence (M = 2.36) was contributing supplies and/or money to affected employees and the

item with the lowest reported occurrence (M = 1.56) was allowing employees to volunteer on

paid company time. Three items within this question, organizing volunteer activities, allowing

employees to volunteer on paid company time, and collecting money and supplies to be sent for

aid were on average reported as organizational experiences from slightly more than not at all to

slight frequency (M = 1.56 to 1.88). Only the contributing supplies and/or money to affected

employees item was reported to have been engaged in by organizations with slight to moderate

frequency (M = 2.36). Survey instrument question three "other" comments were:

o　　　　Vice President worked weeks at MASA, provided much office startup supplies and organized process for aid distribution.

o　　　　Employees directly impacted were allowed to participate in civic and FEMA relief service.

<u>Organizational Level Perspectives on the Extent to which Hurricane's Katrina and Rita Changed the Workplace in Regards to Hiring and Employee Retention</u>

For survey question four, which relates to research question four that asked, "From an organizational level perspective, to what extent have Hurricane's Katrina and Rita changed the workplace in regards to hiring and employee retention?", the item with the highest reported occurrence (M = 3.17) was increased wages in an effort to retain and/or attract employees and the item with the lowest reported occurrence (M = 1.35) was employees requesting transfers to less stressful positions. Having more employees seek transfers to other parts of the country, employees requesting transfers to less stressful positions and employees seeking more of a work/life balance were, on average, reported by organizations as less than slight occurrences (M = 1.35 to 1.71). In fact, only one responding organization reported that to a great extent more employees are seeking transfers to other parts of the country, employees have requested transfers to less stressful positions and employees are seeking more of a work/life balance as a result of the Hurricanes. Less stringent screening of employees for hiring in order to fill positions more quickly, having to recruit and bring in workers from other parts of the country or world, higher rate of employee turnover, and employees leaving the affected areas and not returning were, on average, reported by organizations as slight frequency occurrences (M = 2.06 to 2.25). Increased wages in an effort to retain and/or attract employees was the only item within this question reported by organizations on average as a moderate occurrence (M = 3.17). It seems then that

responding organizations on average reported only slight hiring and employee retention adjustments as a result of the Hurricanes. Survey instrument question four "other" comments were:

- o Our work in this area required us to 'enhance' our safety procedures.

- o We developed a comprehensive emergency/disaster guideline.

<u>Organizational Level Perspectives on how Hurricanes Katrina and Rita Changed the Workplace in Regards to Safety and Security</u>

For survey question five, which relates to research question five that asked, "From an organizational level perspective, how have Hurricanes Katrina and Rita changed the workplace in regards to safety and security?", the item with the highest reported occurrence (M = 2.77) was disaster plans have been put in place for our workforce with reevaluation of safety and security policies and procedures as being the second highest reported occurrence item (M = 2.74). This item's average occurrence was only slightly below that of the reported occurrence of disaster plans being put into place. The item with the lowest reported occurrence (M = 2.23) was increased crisis management training. Of survey questions one through eight, this question had the most consistent item means with all five individual items being reported as slight to moderate organizational adjustments (M = 2.23 to 2.77). Those items were: reevaluated safety and security policies and procedures, increased crisis management training, more stringent safety and security procedures have been put in place, disaster plans have been put into place for our workforce, and disaster plans have been edited as a result of the Hurricanes. There were no "other" comments for question five.

Organizational Level Perspectives on How Hurricanes Katrina and Rita Changed the Workplace in Regards to Employee Performance and Activity in the Workplace

For survey question six, which relates to research question six that asked, "From an organizational level perspective, how have Hurricanes Katrina and Rita changed the workplace in regards to employee performance and activity in the workplace?", the item with the highest reported occurrence (M = 2.50) was employees have expressed appreciation for the management team being sensitive and responsive in the aftermath of the hurricanes and the item with the lowest reported occurrence (M = 1.22) was workplace violence has increased. The items in this question that were reported as occurring, on average, slightly more than not at all to slightly (M = 1.22 to 1.87) were: increased taking of sick leave, increase in absenteeism employees are less caring toward one another, increase in positive drug and alcohol tests, employees are less tolerant of diversity, lower productivity, workplace violence has increased, more employee relations complaints, employees have expressed anger that the management team wasn't more sensitive and responsive in the aftermath of the Hurricanes, and greater use of employee assistance programs. Items that were reported as occurring, on average, as somewhat more than slight (M = 2.10 to 2.50) were: higher stress level in the workplace, employees are more caring toward one another, employees are more tolerant of diversity and employees have expressed appreciation for the management team being sensitive and responsive in the aftermath of the Hurricanes. Higher stress level in the workplace and employees are more caring toward one another had the exact same mean frequency (M = 2.30) and employees having expressed appreciation for the management team being sensitive and responsive in the aftermath of the hurricanes had an only slightly higher mean frequency (M = 2.50). No item in this question was reported with an on

average frequency greater than moderately higher than slight. There were no "other" comments for question six.

Organizational Level Viewpoint on What Physical, Mental or Emotional Effects that Employees Experienced as a Result of the Hurricanes

For survey question seven which relates to research question seven that asked, "From an organizational level viewpoint what physical, mental or emotional effects did or do employees experience as a result of the Hurricanes?", the item with the highest reported occurrence (M = 2.50) was employees needing to talk about their hurricane experiences and the item with the lowest reported occurrence (M = 1.31) was employee loss of interest in life or persistent boredom. For all twenty eight items in this question, none were reported as occurring on average more than moderately higher than slight, only one was actually reported as occurring moderately higher than slight (M = 2.50) and the other twenty seven were reported as occurring, on average between not at all to slight (M = 1.31 to 1.94). Employees needing to talk about their hurricane experiences was the item reported to have occurred, on average, moderately higher than slight. Difficulty concentrating, eating too much, eating too little/loss of appetite, mood swings, headaches, difficulty sleeping, restlessness, social numbing or lack of feeling, irritability, fearfulness, depression, social withdrawal, shortness of breath, heartburn, inability to sit still, excess energy, increased use of alcohol, increased use of drugs, increased use of cigarettes, inability to concentrate or work effectively, difficulty completing tasks, arguments with co-workers, family conflicts, loss of interest in life or persistent boredom, hopelessness, persistent worries about health or security and feeling isolated were all reported with mean frequencies of between not at all to slight. There were no "other" comments for question seven.

<u>Organizational Level Viewpoint on How Hurricanes Katrina and Rita Changed the Workplace in</u>
<u>Regards to Human Resource Department Activities</u>

For survey question eight, which relates research question eight that asked, "From an organizational level viewpoint, how have Hurricanes Katrina and Rita changed the workplace in regards to Human Resource department activities?", the item with the highest reported occurrence ($M = 2.43$) was better company communication methods have been established and the item with the lowest reported occurrence ($M = 1.20$) was a Equal Employment Opportunity charges/complaints have decreased. Within this question only Human Resources has had a greater presence, Human Resources has been called on for more input and expertise in people management, and better company communication methods have been established were reported as occurring on average between slight to moderate ($M = 2.07$ to 2.43). Implementation of employee assistance programs, increase in requests for employee assistance program referrals, workers' compensation claims have increased, Equal Employment Opportunity charges/complaints have increased, Equal Employment Opportunity charges/complaints have decreased, increased employee mental health benefits and costs, and processed hurricane related 401(k) or retirement savings plan hardship withdrawals were all reported with mean occurrences between not at all and slight ($M = 1.20$ to 1.71). Survey instrument question eight "other" comments were:

- o   Our company is a better company due to our employees working as a team to accomplish the work in this area.

Factor Analysis

In order to examine the factor structure of the items within survey questions one through eight an exploratory factor analysis was conducted utilizing a principal axis analysis with direct oblimin rotation. Due to the fact that these survey questions each focused on a different topic or domain of items each question was factored separately. To determine if there was more than one scale for each construct, the latent root criterion (eigenvalues) and the scree plot criterion were examined. Hair et al. (1998) recommends an eigenvalue greater than one for factors to extract. All cross loadings over .30 were eliminated and where there were more than two factors, all items that had more than one crossload greater than .20 were also eliminated. In addition, any item that did not load above .40 was eliminated. Once factors were identified, the factors were named according to the predominant themes represented by the items in that factor. Scale scores were then calculated along with means and standard deviations for each scale.

In regards to factor analysis for survey instrument question one there were fifteen items in this personal and family needs scale question. Examination of the pattern matrix revealed that there were four factors within this survey question. The MSA's for these items ranged from .78 to .93 and the respondent to item ratio for this question was 6.87:1. The Kaiser-Meyer Olkin Measure of Sampling Adequacy was .865 and Bartlett's Test of Sphericity revealed an approximate chi square of 709.03, 105 degrees of freedom and a significance level >.001. These are all acceptable results. Loading of all the items into three factors explained a cumulative 59.73% of the variance. Table 10 displays all of the factor loadings for the fifteen items.

Table 10. Pattern Matrix Factor Loadings for the Fifteen Personal and Family Needs Items in Survey Instrument Question One

Scale/Items	Factor 1 Loadings	Factor 2 Loadings	Factor 3 Loadings	Factor 4 Loadings
5.Allowing employees to watch TV or listen to the radio at work	.715			
11.Allowing flextime work schedules	.626	-.247		
6.Setting up employee hotlines for employees to call in and notify employer of their whereabouts	.498			.251
2.Open door policy with management for discussion of any concerns	.394	-.235		
4.Establishing temporary housing for employees		-.913		
3.Assisting employees in finding temporary or permanent housing		-.719		
10.Providing financial advice	.259	-.415		.413
9.Offered increased benefit coverage to employees		-.405		
7.Assisted in evacuating employees and their families from the affected areas	.271	-.324	-.242	
14.Canceling meetings and events			-.832	
13.Closing organization for more than a day			-.806	
15.Scheduling motivational events for employees			-.644	
12.Holding staff meetings with all employees about the hurricanes effects on the organization and it's employees	.251		-.570	.202
1.Bringing an employee assistance program counselor on site			-.212	.629
8.Granting paid leave to employees who were displaced	.441	-.360		-.449

Note: Three factor solution cumulative percent of variance explained is 59.73%. The scale used for these items was 1=Not at all, 2=Slight, 3=Moderate, 4=Considerable, 5=Great Extent. N=103.

Based on the pattern matrix loadings, items eight and ten were eliminated because they had crossloads at or over .40, item seven was eliminated because it loaded below .40 and item twelve was eliminated because it loaded above .20 on three separate factors. Item eight was granting paid leave to employees who were displaced, item ten was providing financial advice, item seven was assisted in evacuating employees and their families from the affected areas and item twelve was holding staff meetings with all employees about the hurricanes effects on the organization and it's employees. Thus, item one, bringing an employee assistance program counselor on site loaded alone so that factor was not interpretable, leaving three interpretable factors.

Next, scale scores were created from the factors identified. From those scale scores reliability analyses were conducted in order to determine the internal consistency of each scale using Cronbach's *alpha*. On the reliability analysis the Cronbach's *alpha* for factor one which included items two, five, six and eleven was determined to be .76. This is an acceptable internal consistency rating. This scale explained 42.13% of the variance, had a mean of 2.94 and a standard deviation of 1.046. This factor this factor was labeled as management flexibility.

The Cronbach's *alpha* for factor two which included items four, three and nine was determined to be .74. This is an acceptable internal consistency rating. This scale explained 9.95% of the variance, had a mean of 1.81 and a standard deviation of .998. This factor was labeled benefits and housing assistance.

The Cronbach's *alpha* for factor three which included items twelve, thirteen, fourteen and fifteen was determined to be .81. This is an acceptable internal consistency rating. This scale explained 7.64% of the variance, had a mean of 2.59 and a standard deviation of 1.178. This factor was labeled as operational changes.

Question two of the survey instrument, the business, earnings and efforts to maintain continued business operation scale, contained six items. Examination of the pattern matrix revealed that there were two factors within this survey question. The MSA's for these items ranged from .57 to .85 and the respondent to item ratio for this question was 17.17:1. The Kaiser-Meyer Olkin Measure of Sampling Adequacy was .676 and Bartlett's Test of Sphericity revealed an approximate chi square of 344.57, 15 degrees of freedom and a significance level > .001. These are acceptable results. Loading of all the items into two factors explained a cumulative 76.85% of the variance. Table 11 displays all of the factor loadings of the six items.

Table 11. Pattern Matrix Factor loadings for the Six Business, Earnings and Efforts to Maintain Continued Business Operations Items in Question Two of the Survey Instrument

Scale/Item	Factor 1 Loadings	Factor 2 Loadings
1.Decrease in business volume	.744	-.282
4.Decrease in earnings	.731	-.272
3.All non-revenue earning events (i.e. Company picnics, golf tournament, parties) have been canceled	.687	
6.Relocating part or all of your organization	.626	
5.Increase in earnings		.975
2.Increase in business volume		.817

Note: Two factor solution cumulative percent of variance explained = 76.85%. The scale used for these items was 1=Not at all, 2=Slight, 3=Moderate, 4=Considerable, 5=Great Extent. N=103.

Items one, decrease in business volume and item four, decrease in earnings were included in factor one because their crossloads with factor two were less than .30 and because both items loaded high on factor one. The Cronbach's *alpha* for factor one which included items one, three, four and six was determined to be .82. This is an acceptable internal consistency rating. This factor explained 54.15% of the variance, had a mean of 1.79 and a standard deviation of .938. This factor was labeled negative business effects.

The Cronbach's *alpha* for factor two which included items two and five was determined to be .90. This is an acceptable internal consistency rating. This factor explained 22.71% of the variance, had a mean of 2.69 and a standard deviation of 1.376. This factor was labeled positive business effects.

Question three of the survey instrument, the philanthropy and volunteer activities scale included four items. All items in this question loaded into one factor. The MSA's for these items ranged from .74 to .77 and the respondent to item ratio for this question was 25.75:1. The Kaiser-Meyer Olkin Measure of Sampling Adequacy was .755 and Bartlett's Test of Sphericity

revealed an approximate chi square of 130.161, six degrees of freedom and a significance level >

.001. These are acceptable results. Loading of all the items into one factor explained 63.13% of

the variance. Table 12 shows all of the factor loadings for the four items.

Table 12. Pattern Matrix Factor Loadings for the Four Philanthropy and Volunteer
Activities Items in Survey Instrument Question Three

Scale/Item	Factor Loadings
1.Organizing volunteer activities	.748
2.Allowing employees to volunteer on paid company time	.740
3.Collecting money and supplies to be send for aid	.734
4.Contributing supplies and/or money to affected employees	.630

Note: Percent of Variance Explained = 63.13%. The scale used for these items was
1=Not at all, 2=Slight, 3=Moderate, 4=Considerable, 5=Great Extent. N=103.

The Cronbach's *alpha* for this factor was determined to be .80. This is an acceptable internal

consistency rating. This factor had a mean of 1.85 and a standard deviation of .894. This factor

was labeled philanthropy and volunteer activities.

Question four of the survey instrument, the hiring and employee retention scale included

eight items. Examination of the pattern matrix revealed that there were two factors within this

survey question. The MSA's for these items ranged from .74 to .90 and the respondent to item

ratio for this question was 12.88:1. The Kaiser-Meyer Olkin Measure of Sampling Adequacy

was .815 and Bartlett's Test of Sphericity revealed an approximate chi square of 292.84, 28

degrees of freedom and a significance level > .001. These are acceptable results. Loading of all

the items into two factors explained a cumulative 61.65% of the variance. Table 13 displays the

factor loadings for the eight items.

Table 13. Pattern Matrix Factor Loadings for the Eight Hiring and Retention Survey Items in Survey Instrument Question Four

Scale/Item	Factor 1 Loadings	Factor 2 Loadings
1.Increased wages in an effort to retain and/or attract employees	1.055	-.225
4.Higher rate of employee turnover	.728	
8.Employees are seeking more of a work/life balance	.464	
2.Less stringent screening of employees for hiring in order to fill positions more quickly	.458	
3.Having to recruit and bring in workers from other parts of the country or world	.417	
5.More employees are seeking transfers to other parts of the country		.888
6.Employees left the affected areas and will not return		.656
7.Employees have requested transfers to less stressful positions		.650

Note: Two factor solution cumulative percent of variance explained = 61.65%. The scale used for these items was 1=Not at all, 2=Slight, 3=Moderate, 4=Considerable, 5=Great Extent. N=103.

The Cronbach's *alpha* for factor one which included items one, two, three, four and eight was determined to be .79. This is an acceptable internal consistency rating. This factor explained 46.34% of the variance, had a mean of 2.27 and a standard deviation of .887. This factor was labeled employee recruiting and retention.

The Cronbach's *alpha* for factor two which included items five, six and seven was determined to be .78. This is an acceptable internal consistency rating. This factor explained 15.31% of the variance, had a mean of 1.71 and a standard deviation of .714. This factor was labeled employee turnover.

Question five of the survey instrument, the safety and security scale contained five items. All items in this question loaded into one factor. The MSA's for these items ranged from .80 to

.89 and the respondent to item ratio for this question was 20.6:1. The Kaiser-Meyer Olkin

Measure of Sampling Adequacy was .830 and Bartlett's Test of Sphericity revealed an

approximate chi square of 406.64, 10 degrees of freedom and a significance level >.001. These

are acceptable results. Loading of all the items into one factor explained 76.55% of the variance.

Table 14 displays all of the factor loadings for the five items.

Table 14. Factor loadings for the Five Safety and Security Survey Items in Survey Question Five

Scale/Item	Factor Loadings
1.Reevaluated safety and security policies and procedures	.905
2.Increased crisis management training	.865
3.More stringent safety and security procedures have been put in place	.845
4.Disaster plans have been put into place for our workforce	.805
5.Disaster plans have been edited as a result of the Hurricanes	.784

Note: Percent of Variance Explained = 76.55%. The scale used for these items was 1=Not at all, 2=Slight, 3=Moderate, 4=Considerable, 5=Great Extent. N=103.

The Cronbach's *alpha* for this factor was determined to be .93. This is an acceptable

internal consistency rating. This factor had a mean of 2.54 and a standard deviation of 1.095.

This factor was labeled safety and security adjustments.

Question six, the employee performance and activity in the workplace scale contained

fourteen items. Examination of the pattern matrix revealed that there were three factors within

these items. The MSA's for these items ranged from .72 to .93 and the respondent to item ratio

for this question was 7.36:1. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was .791

and Bartlett's Test of Sphericity revealed an approximate chi square of 692.54, 91 degrees of

freedom and a significance level > .001. These are acceptable results. Loading of all the items

into three factors explained a cumulative 61.90% of the variance. Item fourteen, greater use of

employee assistance programs did not load adequately on any of the three factors and was

therefore eliminated. Table 15 shows all of the factor loadings for the fourteen items.

Table 15. Pattern Matrix Factor loadings for the Fourteen Employee Performance and Activity in
the Workplace Survey Items in Survey Question Six

Scale/Item	Factor 1 Loadings	Factor 2 Loadings	Factor 3 Loadings
6.Increase in positive drug and alcohol tests	.934		
5.Employees are less caring toward one another	.601		
11.More employee relations complaints	.566		
10.Workplace violence has increased	.559		
12.Employees have expressed anger that the management team wasn't more sensitive and responsive in the aftermath of the hurricanes	.453		
4.Employees are more caring toward one another		.892	
13.Employees have expressed appreciation for the management team being sensitive and responsive in the aftermath of the hurricanes		.718	
7.Employees are more tolerant of diversity	.272	.669	
14.Greater use of employee assistance programs		.342	-.228
2.Increased taking of sick leave			-.901
3.Increase in absenteeism			-.850
1.Higher stress level in the workplace			-.688
9.Lower productivity	.267		-.593
8.Employees are less tolerant of diversity	.252		-.400

Note: Three factor solution cumulative percent of variance explained = 61.90%. The scale used
for these items was 1=Not at all, 2=Slight, 3=Moderate, 4=Considerable, 5=Great Extent.
N=103.

The Cronbach's *alpha* for factor one which included items five, six, ten, eleven, and

twelve was determined to be .78. This is an acceptable internal consistency rating. This factor

explained 38.27% of the variance, had a mean of 1.42 and a standard deviation of .551. This

factor was labeled negative employee reactions.

The Cronbach's *alpha* for factor two which included items four, seven and thirteen was

determined to be .80. This is an acceptable internal consistency rating. This factor explained

13.90% of the variance, had a mean of 2.30 and a standard deviation of .967. This factor was labeled employee appreciation.

The Cronbach's *alpha* for factor three which included items one, two, three, eight and nine was determined to be .87. This is an acceptable internal consistency rating. This factor explained 9.74% of the variance, had a mean of 1.77 and a standard deviation of .754. This factor was labeled employee productivity affects.

In survey question seven, the physical, mental and emotional effects scale there were twenty eight items. Examination of the pattern matrix revealed that there were five factors within these items however, the fifth factor was not interpretable due to low loadings. The respondent to item ratio for this question was 3.68:1 which is less than desired. As Hair (2006) cautions, with lower ratios factors should be interpreted cautiously. However, in this case the MSA's for these items ranged from .79 to .98 and The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was .895 and Bartlett's Test of Sphericity revealed an approximate chi square of 3356.00, 378 degrees of freedom and a significance level of > .001. Given these results the decision was made to proceed with the factor analysis.

Loading of all the items into four factors explained a cumulative 78.58% of the variance. Items one, five, nine, fifteen, twenty, twenty one and twenty two either did not load on any factor above .40 or loaded greater than .20 on more than two factors. Item one was difficulty concentrating, item five was mood swings, item nine was social numbing or lack of feeling, item fifteen was heartburn, item twenty was increased use of cigarettes, item 21 was inability to concentrate or work effectively and item 22 was difficulty completing tasks. Items eight, twelve, fourteen, twenty four, twenty six and twenty eight crossloaded over .30 and were therefore

eliminated. Item eight was restlessness, item twelve was depression, item fourteen was shortness of breath, item twenty four was family conflicts, item twenty six was hopelessness and item twenty eight was feeling isolated. Table 16 shows all of the factor loadings of the twenty eight items.

Table 16. Pattern Matrix Factor loadings for the Twenty Eight Physical, Mental and Emotional Effects Scale Items in Survey Question Seven

Scale/Item	Factor 1 Loadings	Factor 2 Loadings	Factor 3 Loadings	Factor 4 Loadings	Factor 5 Loadings
17.Excess energy	.827				
16.Inability to sit still	.817				
25.Loss of interest in life or persistent boredom	.740	.208			
14.Shortness of breath	.657				-.373
13.Social withdrawal	.640		.216		
9.Social numbing or lack of feeling	.593			.217	.348
3.Eating too little/Loss of appetite	.575				
28.Feeling isolated	.571			.307	
8.Restlessness	.557		.356		
15.Heartburn	.435			.243	-.346
20.Increased use of cigarettes	.412	.217		.204	
23.Arguments with co-workers		.855			
19.Increased use of drugs		.796			-.236
24.Family conflicts		.635			.317
18.Increased use of alcohol		.561		.225	
7.Difficulty sleeping			.827		
10.Irritability			.801		
6.Headaches			.760		-.214
2.Eating too much			.750		
5.Mood swings	.268		.588		.240
1.Difficulty concentrating			.510	.216	.258
22.Difficulty completing tasks	.230	.215	.348		.304
27.Persistent worries about health or security				.835	
11.Fearfulness				.824	
4.Needing to talk about their hurricane experiences			.218	.737	
12.Depression			.358	.641	
26.Hopelessness	.413			.416	
21.Inability to concentrate or work effectively	.291		.263	.218	.378

Note: Four factor solution cumulative percent of variance explained = 78.58%. The scale used for these items was 1=Not at all, 2=Slight, 3=Moderate, 4=Considerable, 5=Great Extent. N=103.

The Cronbach's *alpha* for factor one which included items three, thirteen, sixteen, seventeen and twenty five was determined to be .92. This is an acceptable internal consistency rating. This factor explained 59.02% of the variance, had a mean of 1.42 and a standard deviation of .589. This factor was labeled employee withdrawal.

The Cronbach's *alpha* for factor two which included items eighteen, nineteen, and twenty

three was determined to be .83. This is an acceptable internal consistency rating. This factor explained 7.26% of the variance, had a mean of 1.45 and a standard deviation of .581. This factor was labeled employee self destructive behavior.

The Cronbach's *alpha* for factor three which included items two, six, seven and ten was determined to be .93. This is an acceptable internal consistency rating. This factor explained 4.58% of the variance, had a mean of 1.67 and a standard deviation of .828. This factor was labeled employee anxiety.

The Cronbach's *alpha* for factor four which included items four, eleven, and twenty seven was determined to be .88. This is an acceptable internal consistency rating. This factor explained 3.65% of the variance, had a mean of 2.01 and a standard deviation of 1.052. This factor was labeled employee worry and fear.

Question eight, the human resources adjusting or coping scale contained ten items. Examination of the pattern matrix revealed that there were two factors within these items. The MSA's for these items ranged from .83 to .94 and the respondent to item ratio for this question was 10.3:1. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was .868 and Bartlett's Test of Sphericity revealed an approximate chi square of 840.64, 45 degrees of freedom and a significance level > .001. These are acceptable results. Loading of all the items into two factors explained a cumulative 72.86% of the variance. Item five, increase in requests for employee assistance program referrals crossloaded above .30 and was therefore eliminated. Table 17 shows the factor loadings for the ten items.

Table 17. Pattern Matrix Factor loadings for the Ten Human Resource Adjusting and Coping Scale Items in Survey Instrument Question Eight

Scale/Item	Factor 1 Loadings	Factor 2 Loadings
2.Human Resources has had a greater presence	1.020	
3.Human Resources has been called on for more input and expertise in people management	.926	
4.Better company communication methods have been established	.794	
1.Implementation of employee assistance programs	.780	
5.Increase in requests for employee assistance program referrals	.563	.362
10.Processed hurricane related 401(k) or retirement savings plan hardship withdrawals		.868
8.Equal Employment Opportunity Charges/complaints have decreased		.733
7.Equal Employment Opportunity Charges/complaints have increased		.665
6.Worker's compensation claims have increased		.646
9.Increased employee mental health benefits and costs		.623

Note: Two factor solution cumulative percent of variance explained = 72.86%. The scale used for these items was 1=Not at all, 2=Slight, 3=Moderate, 4=Considerable, 5=Great Extent. N=103.

The Cronbach's *alpha* for factor one which included items one, two, three, and four was determined to be .93. This is an acceptable internal consistency rating. This factor explained 61.99% of the variance, had a mean of 1.98 and a standard deviation of .987. This factor was labeled greater human resources presence and involvement.

The Cronbach's *alpha* for factor two which included items six, seven, eight, nine and ten was determined to be .85. This is an acceptable internal consistency rating. This factor explained 10.87% of the variance, had a mean of 1.28 and a standard deviation of .527. This factor was labeled increase in employee relation issues.

In summarizing the factor analyses, there were a total of eighteen scales derived from the analyses. Although there were some issues with crossloadings the analyses were still overall relatively clean. In regards to theme, there were nine factors that can be classified as effects of the hurricanes and nine that can be classified as organizational outcomes or responses as a result

of the hurricanes. Table 18 details the means and standard deviations as well as the central theme

for the eighteen scales.

Table 18. Means, Standard Deviations and Central Themes for the Eighteen Scales derived via
Factor Analysis

Central Theme: Effects of the Hurricanes		
Scale	Mean	Standard Deviation
Negative Business Effects	1.79	.938
Positive Business Effects	2.69	1.376
Negative Employee Reactions	1.42	.551
Employee Appreciation	2.30	.967
Employee Productivity Effects	1.77	.754
Employee Withdrawal	1.42	.589
Employee Self Destructive Behavior	1.45	.581
Employee Anxiety	1.67	.828
Employee Worry & Fear	2.01	1.052
Central Theme: Organizational Responses or Outcomes as a Result of the Hurricanes		
Scale	Mean	Standard Deviation
Management Flexibility	2.94	1.046
Benefits & Housing Assistance	1.81	.998
Operational Changes	2.59	1.178
Philanthropy and Volunteer Activities	1.85	.894
Employee Recruiting & Retention	2.27	.887
Employee Turnover	1.71	.714
Safety & Security Adjustments	2.54	1.095
Greater Human Resources presence and involvement	1.98	.987
Increase in Employee Relations Issues	1.28	.527

As Table 18 details, the means for the eighteen scales were all relatively low which

indicates that respondents rated their organizational experiences both in regards to the effects of

the hurricanes and organizational responses and outcomes as a result of the hurricane effects, as

somewhere between moderate to slightly more than not at all. The scale with the highest mean

within the effects of the hurricane theme was positive business effects (2.69). Of the effects of

the hurricane scales both negative employee reactions and employee withdrawal had the lowest

mean (1.42). The scale with the highest mean of those scales within the organizational responses

or outcomes as a result of the hurricanes theme was management flexibility (2.94) and the lowest mean of the scales in this theme was increase in employee relation issues (1.28). In addition to Table 18, the correlation matrix for the eighteen scales derived from the factor analyses is attached as Appendix D.

<center>Regression Analysis</center>

Multiple regression analysis was utilized to analyze the relationships between independent and dependent variables. Multiple regression is focused on the nature of the relationship between one dependent and a set of independent variables (Gardner, 2001). Stepwise regression was used due to the exploratory nature of the study. The probability for a variable to be entered into the regression model was set at less than .05 and probability to exclude a variable that had already been added was set at less than .10.

In examining the eighteen scales derived from factor analysis two primary themes emerged, effects of the hurricanes on employees and organizations and organizational reactions or responses to those effects. Based on this, the factors were split into independent and dependent variables with the employee effects being the independent variables and the organizational responses to those effects being the dependent variables. The purpose of the regression analyses was to test whether the organizational responses could be predicted by the employee effects. Therefore, the independent variables in this study were negative business effects, positive business effects, negative employee reactions, employee appreciation, employee productivity effects, employee withdrawal, employee self destructive behavior, employee anxiety and employee worry and fear. The dependent variables were management flexibility, benefits and housing assistance, operational changes, philanthropy and volunteer activities, employee

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recruiting and retention, employee turnover, safety and security adjustments, greater human resources presence and involvement and increase in employee relation issues. To account for all dependent variables nine separate stepwise multiple regressions were run.

Each variable was first examined for univariate normality. Most of the variables were found to be positively skewed. However, no commonly used data transformation technique substantially changed the distribution. While this was not a desirable situation, the decision was made to assess the regression assumptions before making a final decision on proceeding with the regression analysis.

The four regression assumptions, linearity of the relationship between criterion and predictor variables, normality of the error term distribution, constant variance of the error terms or homoscedasticity, linearity and the independence of residuals (Hair, Anderson, Tatham, and Black, 1998 as cited in Bates, Holton and Burnett, 1999) were examined for violations. For the test of normality a visual check of the normal probability plots of standardized residuals was conducted on all regressions performed. To test linearity, equality of variances and independence of residuals plots of the standardized residuals against the standardized predicted values were examined. To examine the linearity of each independent variable, partial regression plots were examined. Finally a check for multicollinearity was conducted using the variance inflation factor (VIF). All of these tests are recommended by Hair et al. (2006). No significant violations of assumptions were found. Therefore, the decision was made to proceed with the analysis.

Finally, to identify outliers studentized residuals were examined. Cases outside 2.5 standard deviations were examined as possible outliers. While some outliers were found, none

were extreme outliers. More importantly, examination of the data for these cases revealed no reason to exclude any of them from the analysis.

Table 19 displays the beta values of significant predictor variables in the nine regression models. It also displays the R^2 values indicating the amount of the variance in the dependent variable that can be attributed to the variance in the combined independent variables in each regression model. The reported Beta values indicate whether that independent variable is a significant predictor of the dependent variable and also the relative importance of each variable in the model.

As Table 19 indicates, the Beta values of the predictor variables are all positive and 60% of these values are greater than .30. Of the twenty Beta values all but one are significant at the $>.01$ level. The one exception is significant at the $> .05$ level. The independent variables that emerged as predictors were negative business effects, negative employee reactions, employee appreciation, employee productivity effects, employee withdrawal and employee anxiety. Employee appreciation and negative business effects were the most common predictors overall.

The R^2 values ranged from .081 to .564 and 67% of the R^2 terms were greater than .40. The lowest, .081 indicates that approximately 8% of the variance in philanthropy and volunteer activities can be attributed to the variance in employee productivity effects. The highest, .564 indicates that approximately 56% of the variance in greater Human Resources presence and involvement can be attributed to the variance in the combined independent variables of negative business effects, employee appreciation and employee withdrawal.

Table 19. Beta Values of Significant Predictor Variables in the Nine Regression Models

Variable	Management Flexibility R^2= .498	Benefits & Housing Assistance R^2=.285	Operational Changes R^2=.408	Philanthropy and Volunteer Activities R^2=.081	Employee Recruiting & Retention R^2=.560	Employee Turnover R^2=.544	Safety & Security Adjustments R^2=.309	Greater Human Resources presence and involvement R^2=.564	Increase in Employee Relation Issues R^2=.421
Negative Business Effects	.152*		.378**		.337**	.056**		.308**	.182**
Positive Business Effects									
Negative Employee Reactions						.382**			.367**
Employee Appreciation	.643**	.263**	.421**				.388**	.406**	
Employee Productivity Effects		.385**		.285**	.581**				
Employee Withdrawal							.234**	.244**	.283**
Employee Self Destructive Behavior									
Employee Anxiety						.374**			
Employee Worry & Fear									

*Sig.>.05
**Sig.>.01

Management Flexibility

Results indicated that 50% (R^2 =.498) of the management flexibility variance could be explained by negative business effects and employee appreciation. The findings here were that management will exhibit more flexibility in regards to offering an open door policy with management for discussion of any concerns, allowing employees to watch television or listen to the radio at work, setting up employee hotlines for employees to call in to and notify employers of their whereabouts, and allowing flextime work schedules, as employee appreciation increases. Employee appreciation (employees being more caring towards one another, employees being more tolerant of diversity and employees expressing appreciation for the management team being sensitive and responsive in the aftermath of the hurricanes) was a strong predictor (β=.643) of management flexibility. Negative business effects (decrease in business volume, cancellation of all non-revenue earning events, decrease in earnings and relocation of part or all of the organization) also had the effect of increasing management flexibility but to a much lesser degree (β=.152) than employee appreciation.

Benefits & Housing Assistance

In regards to benefits and housing assistance or assisting employees in finding temporary or permanent housing, establishing temporary housing for employees, and offering increased benefit coverage to employees, employee appreciation and employee productivity effects emerged as slight to moderate predictors for this organizational response. Results indicated that 29% (R^2 = .285) of the benefits and housing assistance variance could be explained by employee appreciation and employee productivity effects. Employee appreciation had the smaller effect (β=.263)on benefits and housing assistance. Employee productivity effects (higher stress levels

in the workplace, increased taking of sick leave, increase in absenteeism, employees being less tolerant of diversity, and lower employee productivity), had a slightly higher (β=.385) positive effect on benefits and housing assistance.

Operational Changes

In addressing operational changes (closing the organization for more than a day, canceling meetings and events and scheduling motivational events for employees), analysis revealed that negative business effects and employee appreciation caused very similar increases in operational changes. Results indicated that 41% (R^2 =.408) of the operational change variance could be explained by negative business effects and employee appreciation. Employee appreciation (β=.421) and negative business effects (β=.378) were positive predictors of operational changes.

Philanthropy and Volunteer Activities

Philanthropy and volunteer activities was the weakest predictive model in the study. Results indicated that 8% (R^2 =.081) of the philanthropy and volunteer activities variance could be explained by employee productivity effects. Employee productivity effects, although not a strong predictor (β=.285), was the only predictor that emerged for philanthropy and volunteer activities. Philanthropy and volunteer activities (organizing volunteer activities, allowing employees to volunteer on paid company time, collecting money and supplies to be sent for aid, and contributing supplies and/or money to affected employees), was only slightly predicted.

Employee Recruiting and Retention Efforts

Employee recruiting and retention efforts (increasing wages in an effort to retain and/or attract employees, less stringent screening of employees for hiring in order to fill positions more quickly, having to recruit and bring in workers from other parts of the country or world, higher rates of employee turnover, and having employees seek more of a work/life balance) were found to be predicted by negative business effects and to a greater extent by employee productivity effects. Results indicated that 56% ($R^2 =.560$) of the employee recruiting and retention efforts variance could be explained by negative business effects and employee productivity effects. Negative business effects was a moderate predictor ($\beta=.337$) of employee recruiting and retention responses while employee productivity effects was a much stronger predictor of employee recruiting and retention efforts ($\beta=.581$).

Employee Turnover

Employee turnover (employees seeking transfers to other parts of the country, employees leaving the hurricane affected areas and refusing to return, and employees requesting transfers to less stressful positions) was found to be predicted by negative business effects, negative employee reactions and employee anxiety. Results indicated that 54% ($R^2 =.544$) of the employee turnover variance could be explained by negative business effects, negative employee reactions and employee anxiety. However, negative business effects was not a strong predictor ($\beta=.056$) while employee anxiety ($\beta=.374$) and negative employee reactions ($\beta=.382$) were moderate predictors of employee turnover. Negative employee reactions include, employees being less caring towards one another, increase in positive drug and alcohol tests, increase in workplace violence, increase in employee relation complaints, and employees expressing anger

that the management team was not more sensitive and responsive in the aftermath of the

hurricanes. Employee anxiety issues include, eating too much, headaches, difficulty sleeping

and irritability.

Safety and Security Adjustments

Safety and security adjustments (reevaluation of safety and security policies and

procedures, increasing crisis management training, implementing more stringent safety and

security procedures, putting disaster plans into place as a result of the hurricanes and editing

disaster plans as a result of the Hurricanes) were moderately predicted by employee appreciation

and employee withdrawal. Results indicated that 31% (R^2 =.309) of the safety and security

adjustment variance could be explained by employee appreciation and employee withdrawal.

Employee withdrawal items include, employees eating too little/loss of appetite, social

withdrawal, inability to sit still, excess energy, and loss of interest in life or persistent boredom.

Employee withdrawal was a weaker predictor of safety and security adjustments (β=.234) while

employee appreciation was a stronger predictor (β=.388) of organizational safety and security

adjustments.

Greater Human Resources Presence and Involvement

Greater Human Resources presence and involvement (implementation of employee

assistance programs, greater Human Resources presence overall, Human Resources being called

on for more input and expertise in people management, and establishment of better company

communication methods) was the strongest predictive model in this study. Results indicated that

56% (R^2 =.564) of greater Human Resources presence and involvement variance was explained

by employee appreciation, negative business effects, and employee withdrawal. As with several

of the other dependent variables, employee appreciation is a predictor for greater Human

Resources presence and involvement and was the strongest predictor (β=.406). Negative

business effects (β=.308) and employee withdrawal items (employees eating too little/loss of

appetite, social withdrawal, inability to sit still, excess energy, and loss of interest in life or

persistent boredom) (β=.244) were weaker predictors of greater Human Resources presence and

involvement.

<u>Increase in Employee Relation Issues</u>

An increase in employee relation issues (an increase in worker's compensation claims, an

increase or decrease in equal employment opportunity complaints and charges, increase in

mental health benefits and costs, and the processing of hurricane related 401(k) or retirement

savings plan hardship withdrawals) was found to be predicted by negative business effects,

negative employee reactions and employee withdrawal. Results indicated that 42% (R^2 =.421) of

the increase in employee relation issues variance was explained by these variables. Negative

business effects was the weakest predictor (β=.182) while negative employee reactions (β=.367)

and employee withdrawal (β=.283) were stronger predictors. Negative employee reactions

include, employees being less caring towards one another, increase in positive drug and alcohol

tests, increase in workplace violence, increase in employee relation complaints, and employees

expressing anger that the management team was not more sensitive and responsive in the

aftermath of the hurricanes.

In summarizing the nine models, there were six models with R^2 values above 40%

(management flexibility, operational changes, employee recruiting and retention, employee

turnover, greater Human Resources presence and involvement, and increase in employee relation

issues), two with R^2 values at or slightly below 30% (benefits and housing assistance and safety and security adjustments), and one with an R^2 value of only 8% predictive ability (philanthropy and volunteer activities). Across the models negative business effects was the most frequently occurring predictor. This effect was found to be a predictor to some degree of management flexibility (β=.152), operational changes (β=.378), employee recruiting and retention (β=.337), employee turnover (β=.056), greater Human Resources presence and involvement (β=.308) and increase in employee relation issues (β=.182). Employee appreciation was the second most frequently occurring predictor. This effect was found to be a predictor of management flexibility (β=.643), benefits and housing assistance (β=.263), operational changes (β=.421), safety and security adjustments (β=.388), and greater Human Resources presence and involvement (β=.406).

Negative employee reactions displayed similar predictive ability in regards to both employee turnover (β=.382) and increase in employee relation issues (β=.367). Employee productivity effects was a predictor of employee recruiting and retention (β=.581), benefits and housing assistance (β=.385), and to a lesser degree, philanthropy and volunteer activities (β=.285). Employee withdrawal displayed very similar predictor abilities in regards to safety and security adjustments (β=.234), greater Human Resources presence and involvement (β=.244) and increase in employee relation issues (β=.283). Lastly, employee anxiety only emerged as a predictor effect in one model and that was employee turnover (β=.374).

Question Ten General Comment Responses

Question ten of the survey was an open ended question that asked, "what, in your opinion could your organization have done differently to better support its employees after the

hurricanes?". The responses have been grouped according to common themes and both themes

and exact comments are listed in Table 20. The common themes that emerged were

communication and planning, evacuation, scheduling and pay accommodations, housing and

fuel, and miscellaneous.

Table 20. Responses to Survey Question Ten that asks, "What in your opinion could your organization have
done differently to better support its employees after the hurricanes?"

Theme	Comment
Communication & Planning	
	"Better use of website for information/operation updates"
	"Have a disaster plan set up with employees as to their forwarding address in case of disaster. Have committee set up to try to keep in touch with employees."
	"We were scattered everywhere but were able to make contact with all employees. We now have a central phone number that is answered live 24 hours a day."
	"Better communication – indicate to employees how to contact management, etc;"
	"Have a better hot-line communications set up between employees and management".
	"Better communication"
	"More communication regarding company efforts to help".
	"Lack of coordinated communications; business continuity (client, vendor, employee info)"
	"Have a contact list"
	"We need a better way to contact our employees when there is a disaster".
	"Better communication. Plan for elderly parents and pets".
	"Have plans in effect now pre-Katrina/Rita"
	"Proactive planning"
Evacuation	
	"Insisted that all evacuate in a timelier manner".
	"We did not need to evacuate the business. Lot more trouble than necessary"
	"Allow for evacuation when evacuation was mandatory for each county"
	"Let them go sooner to evacuate"
	"Let employees leave town earlier"
	"We did a good job relocating employees and placing them on other projects"
Scheduling & Pay Accommodations	
	"More time off"
	"Most of our hourly employees were ready to return to work ASAP. Had we known the mental state of these employees we would have given them several additional days off"
	"Have work for them to do"
	"Paid hourly employees for tiem (set criteria limit) while office was closed"
	"Not much more, our employees continued to get paid during our downtime of about 3 weeks"
Housing & Fuel	
	"Housing"
	"Try to find affordable housing"
	"Stored fuel so that employees could get to from work/home"
	"Had gas tanks in place"
Miscellaneous	
	"Nothing"
	"They did a wonderful, above average job"
	"Did the best we could"
	"We handled each request individually and provided any needed assistance"

CHAPTER 5: SUMMARY, CONCLUSIONS AND DISCUSSION

This chapter will present a review of the research purpose as well as a brief overview of the study. Next, it will review the findings and discuss conclusions. Lastly, some possible future research directions will be presented.

Summary of the Study

This section will present a review of the problem statement, research questions, procedures, and findings.

Purpose Statement

The goal of this research was to identify and describe the effects of Hurricanes Katrina and Rita on employee behavior in the workplace from an organizational perspective and to identify the related adjustments organizations made as a result of these storm disasters.

Procedures and Methodology

The research was conducted by mailing a survey questionnaire to members of Associated Builders and Contractors (ABC), a national trade association whose membership represents all specialties within the United States Construction industry and is comprised primarily of firms that perform work in the industrial and commercial sectors of the industry. The survey was mailed to the members of the Gulf Coast chapters of ABC because these members were the hardest hit by Hurricanes Katrina and Rita and because the Gulf Coast economy is so reliant on industrial employers. The Gulf Coast chapters are Mississippi, Mid Gulf Coast, Pelican, New Orleans/Bayou, Texas Gulf Coast, Greater Houston, Southeast Texas and Texas Mid Coast. At the time of survey mailing there were 753 organizations in these chapters.

For the survey instrument in this study the individual survey questions were based on the known effects that disasters have on those exposed to the disaster. It was assumed that those

individuals exposed to Hurricanes Katrina and Rita would experience similar disaster effects and that there would be some transfer of those effects to the workplace by employees.

Once the data was collected, descriptives for each individual item within the survey questions were calculated and analyzed. Next, factor analyses were conducted that reduced the data to eighteen factors. Two primary themes emerged within these factors, effects of the hurricanes on employees and organizations and organizational reactions or responses to those effects. Based on these themes the factors were split into independent and dependent variables with the employee effects being the independent variables and the organizational responses to those effects being the dependent variables. The independent variables in this study were negative business effects, positive business effects, negative employee reactions, employee appreciation, employee productivity effects, employee withdrawal, employee self destructive behavior, employee anxiety and employee worry and fear. The dependent variables were management flexibility, benefits and housing assistance, operational changes, philanthropy and volunteer activities, employee recruiting and retention, employee turnover, safety and security adjustments, greater human resources presence and involvement and increase in employee relation issues.

To account for all dependent variables nine separate stepwise multiple regressions were then run. In summarizing the nine models, negative business effects was found to be a predictor to some degree of management flexibility, operational changes, employee recruiting and retention, employee turnover, greater Human Resources presence and involvement and increase in employee relation issues. Negative employee reactions were a predictor to some degree of employee turnover and increase in employee relation issues. Employee appreciation was a predictor to some degree of management flexibility, benefits and housing assistance, operational

changes, safety and security adjustments, and greater Human Resources presence and involvement. Employee productivity effects was a predictor to some degree of benefits and housing assistance, philanthropy and volunteer activities, and employee recruiting and retention. Employee withdrawal was a predictor to some degree of safety and security adjustments, greater Human Resources presence and involvement and increase in employee relation issues and employee anxiety was a predictor to a moderate degree of employee turnover.

Findings

The findings of this research contribute to our understanding of employee issues organizations in the Hurricanes Katrina and Rita affected areas have experienced with regards to the Hurricanes and how those organizations coped with those issues. In this section, the findings will be discussed. Overall, the survey question item responses indicated that responding organizations did not make many employee related adjustments as a result of the hurricanes and employees within the responding organizations did not report or exhibit many hurricane related issues or effects.

In question one of the survey that relates to what organizations did in regards to employee's personal and family needs, the item with the lowest mean (M=1.44) was offered increased benefit coverage to employees and the item with the highest mean in this question (M=3.40) was open door policy with management for discussion of any concerns. Therefore, of the fifteen items in this survey question the most frequent organizational response in regards to employee's personal and family needs as a result of hurricanes Katrina and Rita was to offer an open door policy with management for discussion of any concerns and the least frequent response was to offer increased benefit coverage to employees. On average, organizations

responded to employee's personal and family needs on a range of slightly more than not at all to slightly more than moderate.

For survey question two which relates to organization's experience in regards to business, earnings and efforts to maintain continued business operations, the item with the lowest mean (M=1.57) was relocating part or all of your organization and the highest mean item (M=2.80) was increase in business volume. Therefore, of the six items within this survey question, the most frequent organizational experience in regards to business, earnings and efforts to maintain continued business operations was increase in business volume and the least frequent experience was relocating part or all of the organization. Most organizations reported that business earnings and efforts to maintain business operations experiences occurred on a slight to moderate frequency.

For survey question three which relates to organizational driven employee experiences in regards to philanthropy and volunteer activities the item with the highest mean (M=2.36) was contributing supplies and/or money to affected employees and the lowest mean item (M=1.56) was allowing employees to volunteer on paid company time. Therefore, of the four items within this survey question, the most frequent organizational experience in regards to philanthropy and volunteer activities was to contribute supplies and/or money to affected employees and the least frequent was to allow employees to volunteer on paid company time. Overall, respondents indicated that they engaged in philanthropic and/or volunteer activities on a slightly more than not at all to somewhat higher than slight basis.

For survey question four which relates to organization experiences in regards to hiring and employee retention, the highest mean (M=3.17) item was increased wages in an effort to retain and/or attract employees and the lowest mean item (M=1.35) was employees requesting

transfers to less stressful positions. Therefore, of the eight items within this survey question the most frequent organizational experience or response was to increase wages in an effort to retain and/or attract employees and the least frequent was employees requesting transfers to less stressful positions. On average, responding organizations reported only slight hiring and employee retention adjustments as a result of the Hurricanes.

For survey question five which relates to organizational experiences in regards to safety and security the highest mean item (M=2.77) was disaster plans have been put in place for our workforce and the lowest mean item (M=2.23) was increased crisis management training. Therefore, of the five items within this survey question the most frequent organizational experience in regards to safety and security was to put disaster plans in place for the workforce and the least frequent was to increase crisis management training. On average, responding organizations reported that safety and security adjustments occurred on a slight to moderate basis.

For survey question six which relates to organizational adjusting or coping in regards to employee performance and activity in the workplace the item with the highest mean (M=2.50) was employees have expressed appreciation for the management team being sensitive and responsive in the aftermath of the hurricanes and the item with the lowest mean (M=1.22) was workplace violence has increased. Therefore, of the fourteen items within this survey question the most frequent organization experience in regards to employee performance and activity was having employees express appreciation for the management team being sensitive and responsive in the aftermath of the hurricanes and the least frequent was experiencing an increase in workplace violence. All items in this question were reported as occurring on a slightly higher than not at all to moderately higher than slight.

For survey question seven which relates to employee physical, mental, and emotional effects from the hurricanes the item with the highest mean (M=2.50) was employees needing to talk about their hurricane experiences and the item with the lowest mean (M=1.31) was employee loss of interest in life or persistent boredom. Therefore, of the twenty eight items in this survey question the most frequent employee effect was needing to talk about their hurricane experiences and the least frequent was a loss of interest in life or persistent boredom. On average no item in this question was reported as occurring on more than a moderately higher than slight frequency. Most were reported as occurring only on average between not at all to slight.

For survey question eight which relates to Human Resources department adjustments in response to the hurricanes the item with the highest mean (M=2.43) was better company communication methods have been established and the item with the lowest mean (M=1.20) was a Equal Employment Opportunity charges/complaints have decreased. Therefore, of the ten items in this survey question the most frequent Human Resources adjustment in regards to the hurricanes was establishing better company communication methods and the least frequent was experiencing a decrease in Equal Employment Opportunity charges/complaints. On average organizational responses in this area were reported to have occurred on a slightly more than not at all to moderate frequency.

Organizational Rebuilding

Survey question nine which relates to research question nine, asked, "When were or when will organizations damaged by the hurricanes or their aftermath be back at pre-hurricane status?". Responses revealed that 41 or 39.8% responding organizations were damaged by the hurricanes or their aftermath to the extent that partial or complete rebuilding was necessary.

Sixty two or 60.2% indicated that their organization was not damaged by the hurricanes or their aftermath to the extent that partial or complete rebuilding was necessary.

Organizational Level Perspective on What Organizations Could Have Done Differently to Better Support Their Employees After the Hurricanes

Survey question ten addressed research question ten that asked, "From an organizational level perspective, what could organizations have done differently to better support their employees after the hurricanes?" produced comments that could be grouped into one of the following, communication and planning, evacuation, scheduling and pay accommodations, housing and fuel, and miscellaneous.

Survey Questions One Through Eight Factor Analysis and Regression Findings

The factor analyses of the survey questions one through eight extracted a total of eighteen scales. These eighteen factors naturally fall within one of two categories. Those were effects of the hurricanes and organizational outcomes or responses as a result of the hurricanes. This division resulted in nine scales for effects of the Hurricanes and nine that were organizational responses or outcomes as a result of the Hurricanes. Based on the means of the eighteen factors or scales extracted from the data, respondents rated their organizational experiences both in regards to the effects of the hurricanes and organizational responses and outcomes as a result of the hurricane effects as somewhere between moderate to slightly more than not at all. Within the effects of the hurricane scale theme, positive business effects was the highest reported mean and both negative employee reactions and employee withdrawal had the lowest reported mean. Within the organizational responses or outcomes as a result of the hurricanes theme management flexibility was the highest reported mean and increase in employee relations was the lowest reported mean.

For research question eleven that asked, "Can organizational responses be predicted from effects of the hurricanes on employees and their businesses?", stepwise regression analyses were performed on each of the nine dependent variables. The nine factors in the organizational responses or outcomes as a result of the hurricanes were the dependent variables and the nine factors within the effects of the hurricanes were the independent variables in the regression analyses.

In summarizing the nine models, the R^2 values that explained the percentage of variance in the dependent variables attributable to the set of independent variables were mostly strong and explained over 40% of the dependent variable variance. Two R^2 values were slight to moderate, explaining only 29 and 31% of the variance and one was weak, explaining only 8% of the dependent variable variance. Overall, negative business effects was found to be a predictor to some degree of management flexibility, operational changes, employee recruiting and retention, employee turnover, greater Human Resources presence and involvement and increase in employee relation issues. Negative employee reactions were a predictor to some degree of employee turnover and increase in employee relation issues. Employee appreciation was a predictor to some degree of management flexibility, benefits and housing assistance, operational changes, safety and security adjustments, and greater Human Resources presence and involvement. Employee productivity effects was a predictor to some degree of benefits and housing assistance, philanthropy and volunteer activities, and employee recruiting and retention. Employee withdrawal was a predictor to some degree of safety and security adjustments, greater Human Resources presence and involvement and increase in employee relation issues and employee anxiety was a moderate predictor of employee turnover. In regards to each organizational response the following findings summaries are provided.

Results reveal that in model one approximately 50% of the variance in management flexibility is attributable to the variance in negative business effects and employee appreciation. In this model employee appreciation (β=.643) is a better predictor of management flexibility than negative business effects (β=.152). This indicates that management will exhibit more flexibility as employee appreciation increases.

In model two, approximately 29% of the variance in benefits and housing assistance is attributable to the variance in employee appreciation and employee productivity effects. This is a moderate contribution of variance from these two effects. In this model employee productivity effects (β=.385) is a slightly better predictor of organizational offered benefits and housing assistance than employee appreciation (β=.263). It makes sense that the more productive and appreciative employees are the more likely organizations would offer benefit and housing assistance to those employees.

In model three, approximately 41% of the variance in operational changes is attributable to the variance in negative business effects and employee appreciation. Employee appreciation was a slightly better (β=.421) predictor of operational changes than negative business effects (β=.378). It is logical to assume that operational changes would be made as a result of negative business effects and employee appreciation following the hurricanes.

In model four only 8% of the variance in philanthropy and volunteer activities is attributable to employee productivity effects (β=.285). It makes sense that organization would allow or participate in more philanthropy and volunteer activities based on the productivity of their employees however, this is not a very good model based on the small percentage of variance explained.

In model five approximately 56% of the variance in employee recruiting and retention is attributable to the variance in negative business effects and employee productivity effects. This is a good predictive model based on the percent of variance explained. Employee productivity effects is a better predictor (β=.581) of organizational employee recruiting and retention adjustments than negative business effects (β=.337). It is logical that negative business effects would provoke adjustments in employee recruiting and retention methods. In addition, certainly employee productivity effects, whether positive or negative, could lead to adjustments in employee recruiting and retention.

In model six, approximately 54% of the variance in employee turnover is attributable to the variance in negative business effects, negative employee reactions and employee anxiety. This is another good predictive model based on the percent of variance explained by the employee effects. Employee anxiety (β=.374) and negative employee reactions (β=.382) were very similar in their effect on employee turnover whereas negative business effects had a much smaller effect (β=.056). Certainly, employees experiencing anxiety and negative employee reactions could increase employee turnover as those employees are clearly not in a content or happy state.

In model seven approximately 31% of the variance in safety and security adjustments is attributable to the variance in employee appreciation and employee withdrawal. Within this model, employee appreciation (β=.388) is a better predictor of organizational safety and security adjustments than employee withdrawal (β=.234). Employee withdrawal could lead to unsafe or distracted behaviors and would therefore increase organizational safety and security adjustments. Employee appreciation could also lead management to put more safety and security adjustments into place.

In model eight approximately 56% of the variance in greater Human Resources presence and involvement is attributable to the variance in negative business effects, employee appreciation and employee withdrawal. This is a good predictive model based on the 56% of variance explained by the employee effects. Employee appreciation is the strongest predictor ($\beta=.406$) in this model with negative business effects ($\beta=.308$) and employee withdrawal ($\beta=.244$) being second and third as predictors of greater Human Resources presence and involvement. It is logical to assume that all three of these would lead to organizational adjustments in Human Resources presence and involvement.

In model nine approximately 42% of the variance in increase in employee relation issues is attributable to the variance in negative business effects, negative business reactions and employee withdrawal. Based on the percent of variance explained this is a good predictive model. Negative employee reactions ($\beta=.367$) is the strongest predictor of an increase in employee relation issues. Employee withdrawal ($\beta=.283$) and negative business effects ($\beta=.182$) were the second and third predictors in this model.

Discussion

This section will address the findings for each research question. First, in regards to organizational responses to employee's personal and family needs or research question one, it appears that organizations did not do all that much for their employees. For the lowest reported item mean in this question, offering increased benefit coverage to employees, it may be that because of financial strains placed on organizations by the Hurricanes that offering increased benefit coverage was not a viable option or it could be that group benefit policy plans did not permit increases in coverage during non open benefit enrollment or renewal periods. It is also possible that the highest reported mean item, allowing an open door policy with management for

discussion of any concerns, was the highest because it was the easiest and least expensive of all of the items in this survey question for organizations to engage in. Other than time, the majority of the other items in this question, (bringing an employee assistance program counselor on site, assisting in evacuating employees and their families from the affected areas, establishing temporary housing for employees, granting paid leave to employees who were displaced, offering increased benefit coverage to employees, scheduling motivational events for employees, assisting employees in finding temporary or permanent housing, setting up employee hotlines for employees to call in and notify employer of their whereabouts, providing financial advice, and allowing flextime schedules) involved financial responsibility or burden by the organization. Many hurricane affected organizations may not have been a financial position to offer these responses to employees or may not have had other necessary resources such as time and manpower to engage in these activities.

In regards to research question two which related to organizational experiences in regards to business, earnings and efforts to maintain continued business operation following the hurricanes, it is easy to believe that Gulf Coast industrial organizations would experience and report positive business effects as the strongest effect of the Hurricanes. Organizations within industrial industries such as oil, gas, contracting, manufacturing, shipping, chemicals and construction would see an increase in business volume and increase in earnings after the Hurricanes because of the rebuilding and reconstruction efforts and projects they may have been or are involved in. In addition, if increase in business volume is the highest reported mean item it makes sense that relocating part or all of the organization would be the lowest reported occurrence since it may not have been necessary for the majority of responding organizations since their business was increasing at their hurricane affected location. So, relocation may not

have been necessary or if needed, it may have just been too expensive. According to research question nine that asked, "When were or when will organizations damaged by the hurricanes or their aftermath be back at pre-hurricane status?" of the 39.8% of responding organizations that were damaged by the hurricanes or their aftermath to the extent that partial or complete rebuilding was necessary, most were back to pre-hurricane status within three months of the hurricanes. And, since only eight organizations reported that their rebuilding efforts would take from eighteen months to some unknown time frame it makes sense that relocation may not have been necessary. In addition, because the responding organizations may have been experiencing positive business effects such as increase in business volume and earnings as a result of the Hurricanes they probably would not even consider relocation. In every disaster it seems that in recovery some organizations will thrive and others will not. It may be that the responding industrial organizations were in a condition to recover more quickly than other types of businesses. And, in the industrial sector for the specific disasters of Hurricanes Katrina and Rita it seems that positive business effects occurred more often than negative effects.

In regards to research question three which relates to philanthropic and/or volunteer activities that organizations participated in for or with their employees, it is easy to imagine that organizations would have a difficult time allowing employees to volunteer on paid company time when the organizations themselves were experiencing staffing issues. In regards to the highest reported item mean, that is contributing supplies and/or money, this may have been an organization wide collection process that involved not only organization but employee contributions as well. It is also easy to believe that many of the responding organizations were in no position to participate in philanthropic and/or volunteer activities as they themselves were recipients rather than providers of such activities.

In regards to research question four which relates to workplace changes in regards to hiring and employee retention, it may be that for the lowest reported mean item, that is employees requesting transfers to less stressful positions, less stressful positions did not exist within the affected areas. It also may be that rather than request transfers employees simply left the affected area and did not return. Responses indicated a slightly higher frequency in employee turnover and employees leaving the affected areas and not returning. For the item with the highest reported occurrence, that is increasing wages in an effort to retain and/or attract employees, certainly increasing wages in a time that employees may have been experiencing their own financial strains due to loss and rebuilding would be an attractive incentive for employees. Overall though, responding organizations did not report many hiring and employee retention adjustments. This could be due to the organizational management focusing on material rather than human aspects of business recovery.

In regards to research question five which related to changes in workplace safety and security, it is logical that, as a result of the Hurricanes, organizations would put disaster plans into place and reevaluate safety and security policies and procedures for possible future disaster events. It also makes sense that increasing crisis management training would be the lowest reported occurrence in that immediately following a disaster might not be the most opportune time to provide crisis management training. It could be that this is something organizations are now engaging in to a greater extent in order to be better prepared for possible future events.

For research question six that dealt with workplace changes in regards to employee performance and activity, the item with the highest reported occurrence was employees have expressed appreciation for the management team being sensitive and responsive in the aftermath of the hurricanes. This goes hand in hand with the organizational response to employee's

personal and family needs that involved management offering an open door policy for employees to discuss their concerns. Higher stress level in the workplace and employees being more caring toward one another had reported occurrences slightly below that of employees expressing appreciation for the management team being sensitive and responsive in the aftermath of the hurricanes. It makes sense that disasters such as Hurricanes Katrina and Rita would increase stress levels. And it appears that other than higher stress levels, respondents reported that more favorable employee performance and activity items such as employees being more caring toward one another, employees are more tolerant of diversity, and employees have expressed appreciation for the management team being sensitive and responsive in the aftermath of the Hurricanes occurred more often than negative employee performance and activity items such as lower productivity, increase in absenteeism, increased taking of sick leave, increase in positive drug and alcohol tests, increase in workplace violence and employees being less tolerant of diversity. Overall it appears that organizations felt that their employee's performance was positive in regards to the hurricanes' effects.

For research question seven which relates to the physical, mental or emotional effects that employees experienced as a result of the hurricanes, organizations again seemed to believe that their employees fared well in regards to the effects of the hurricanes. Most organizations reported that they did not notice or have employees confide in them about physical, mental or emotional effects they were experiencing as a result of the Hurricanes. One caution to note here is that it is possible that employees just kept any physical, mental or emotional hurricane effects to themselves and did not discuss or exhibit them at work. The only item in this question that was reported to have occurred, on average, moderately higher than slight by responding organizations was employees needing to talk about their hurricane experiences. This also goes

hand in hand with the reported workplace change in regards to employee performance and activity that employees expressed appreciation for the management team being sensitive and responsive in the aftermath of the hurricanes and with the organizational response to employee's personal and family needs that involved management offering an open door policy for employees to discuss their concerns. In addition, employee loss of interest in life or persistent boredom being the lowest reported employee physical, mental, and emotional effects from the hurricanes is logical in that it's highly unlikely that employees were bored when they were so pre-occupied with the strains and requirements of dealing with the Hurricanes. And, being the center of world attention also could prevent boredom.

For research question eight, that relates to workplace changes in regards to Human Resource department activities, the item with the highest reported occurrence, better company communication methods have been established also goes hand in hand with the physical, mental or emotional highest reported item of employees needing to talk about their hurricane experiences, with the highest reported workplace change in regards to employee performance and activity that was employees expressing appreciation for the management team being sensitive and responsive in the aftermath of the hurricanes and with the organizational response to employee's personal and family needs that involved management offering an open door policy for employees to discuss their concerns. Communication and discussion seem to be central to organizations' responses to the Hurricanes effects. In addition, within this question it appears that most negative Human Resources department activities such as increase in requests for employee assistance program referrals, workers' compensation claims have increased, Equal Employment Opportunity charges/complaints have increased, and processing Hurricane related

401(k) or retirement savings plan hardship withdrawals were reported to have occurred on a very limited basis.

In regards to research question eleven that asked, "Can organizational responses be predicted from effects of the hurricanes on employees and their businesses?" it seems that for the most part the responses of organizations in this study can be predicted to some extent based on the effects of the hurricanes on employees and their businesses. Only the prediction of philanthropic and volunteer activities was limited.

First, in regards to management flexibility it is logical that as both negative business effects and employee's appreciation increases that management would exhibit more flexibility. One can believe that management would need to exhibit more flexibility as a result of or to address negative business effects. It is highly probable that the Hurricanes caused effects that required management to develop or implement new adjustments in order to address those effects. And, organizations may have been required to exhibit flexibility in order to survive and get through negative business effects. It also makes sense that as employees' appreciation for management in regards to management sensitivity and responsiveness in the aftermath of the Hurricanes increased that management would feel that their flexibility was reaping benefits for them and their employees and would therefore continue to engage in management flexibility activities.

In regards to benefits and housing assistance, it is logical to believe that the more productive and appreciative employees are the more likely that organizations would be offer benefit and housing assistance to those employees. In addition, to alleviate stress levels, lower sick leave and reduce absenteeism management might offer new benefit services such as employee counseling or mental health coverage programs. Along these same lines, if

absenteeism and stress were due to employee housing concerns management might assist those employees in finding new housing or establish temporary housing for them in order to reduce the amount of absenteeism and stress and hopefully improve productivity.

In regards to operational changes, as with management flexibility it is logical to assume that operational changes would be made and might be required as a result of negative business effects and that employee appreciation could cause a change in operational changes following the hurricanes. Operational changes and management flexibility go hand in hand in regards to addressing negative business effects such as decrease in business volume and earnings. Employees expressing appreciation for the management teams' post hurricane responses could also initiate or foster operational changes. These changes might even be suggested by the employees themselves.

In regards to philanthropic and volunteer activities the only predictor that emerged was employee productivity. However, the percent of variance explained was so low that one would conclude that the effect variables do not predict philanthropic and volunteer activities very well. Based on the low predictive ability in regards to such activities it may be that the responding organizations did not or were not able to participate in such activities. They may have actually been recipients instead of providers of such services or may not have had the extra time or money to devote to such activities. Or, it could be that such externally charitable activities are engaged in by management without consideration or consultation with employees. Instead, such activities could be engaged in based simply on reported public needs or requests by charitable agencies or groups.

In regards to employee recruiting and retention efforts, it is easy to see how negative business effects would provoke adjustments in employee recruiting and retention methods in

order to increase employee morale and to lower employee turnover. Employee productivity effects which included higher stress levels in the workplace, increased taking of sick leave, increase in absenteeism, employees being less tolerant of diversity, and lower employee productivity would also provoke adjustments in employee recruiting and retention methods in efforts to bring in new employees or to encourage and retain current employees.

It is interesting to note that employee recruiting and retention efforts, employee turnover and greater Human Resources presence and involvement displayed the strongest R^2 of the organizational responses to the Hurricane effects. One should note that these are direct Human Resources responsibilities in most organizations and that Human Resources professionals served as the respondents for this study.

In regards to employee turnover, experiencing anxiety and negative reactions could lead employees to retire or seek employment elsewhere. Negative business effects such as decrease in business volume, canceling non-revenue earning events such as company picnics, parties and golf tournaments, decrease in earnings, relocation of all or part of the organization could certainly lead to employee dissatisfaction because of issues that may ensue. Possible issues could be lower morale, possible pay cuts, layoffs, lower or no pay raises, and requests or requirement of employees to relocate. These issues could then in turn lead to employee turnover. Negative employee reactions such as employees being less caring towards one another, increase in positive drug and alcohol tests, increase in workplace violence, increase in employee relation complaints, and employees expressing anger that the management team was not more sensitive and responsive in the aftermath of the hurricanes are all issues that could lead to changes in employee turnover. Being unhappy with your coworkers, substance abuse, workplace violence, harassment, discrimination, non responsive management are all issues that can initiate employee

turnover. In addition, employee anxiety issues such as eating too much, headaches, difficulty sleeping and irritability could lead to employee turnover issues as the employees experiencing these issues attempt to alleviate the issues and may credit them to their work position.

In regards to safety and security adjustments, employee withdrawal, although only a slight predictor of organizational safety and security adjustments, could lead to unsafe or distracted behaviors and would therefore increase organizational safety and security adjustments. In regards to appreciation, employees being more caring towards one another, employees being more tolerant of diversity and employees expressing appreciation for the management team being sensitive and responsive in the aftermath of the hurricanes could provoke management to put more safety and security adjustments into place as good faith efforts towards employees. Employees themselves may have requested the safety and security adjustments. In addition, increasing crisis management training immediately or even within the year of such disasters as Hurricanes Katrina and Rita may not have been possible or feasible for organizations as they were in the midst of the crisis itself. Training in this regard should take place in non-disaster or crisis time as a proactive safety and security adjustment.

In regards to greater Human Resources presence and involvement, it seems logical that employee appreciation would result in positive Human Resources management responses. In regards to negative business effects and employee withdrawal, both of these might be alleviated or addressed with greater Human Resources presence and involvement. These issues might require greater Human Resources presence in order to sustain the business and the business success.   In addition, greater Human Resources involvement would be required in employee withdrawal issues. Implementation of employee assistance programs, establishment of better company communication methods, greater Human Resources presence overall, and Human

Resources input and expertise in people management can all be used to address employee withdrawal issues and can play a monitoring and buffering role in regards to negative business effects such as decrease in business volume and earnings, cancellation of non-revenue earning events such as company parties, and relocation of part or all of the organization.

In regards to increase in employee relation issues, negative business effects was only a weak predictor of this organizational response whereas both negative employee reactions and employee withdrawal were stronger predictors. Negative business effects, employee withdrawal and negative employee reactions are all issues that could potentially increase employee stress and intolerance and this could in turn lead to more employee relation issues. It makes sense that all three of these independent variables could lead to employee dissatisfaction and stress which could in turn lead to an increase in employee relation issues such as workers compensation claims, equal employment opportunity charges, employee mental health benefits and costs and hurricane related 401(k) or retirement savings plan hardship withdrawals.

Conclusions

The findings of this study should help organizations recognize the need to respond and adjust in regards to disaster effects on individuals who are employees and to recognize how those effects can possibly be transferred to the workplace. The first conclusion is that survey question item responses indicated that responding organizations did not make many employee related adjustments as a result of Hurricanes Katrina and Rita and that, as reported by the organization, employees within the responding organizations did not report or exhibit many hurricane related issues or effects. The possibility that the responding organizational representative was not fully aware of the effects that the hurricanes had on employees should be considered. This could in turn have led to fewer responses by or adjustments being made by organizations. In addition,

some organizations may have just made adjustments or responded to the Hurricanes without any consideration for the Hurricanes' effects on employees. In essence, they may have made adjustments or reacted just because they thought it was the right thing to do. This may have resulted in lower reports of employee related effects.

For future consideration, it is suggested that organizations may best serve their employees' and the organization's best interests by taking the time and effort to understand how their employees are affected by disasters and to address those specific needs. It is important to note that the type, location, severity, and duration of the disaster event can all have an impact on how employees are affected so organizations should not just assume all disasters and employees should be treated the same. This also goes hand in hand with the fact that in regards to the employee physical, mental, and emotional effects from the hurricanes, the item with the highest reported occurrence was employees needing to talk about their hurricane experiences. It seems that the responding organizations for this study handled this correctly in that the highest reported occurrence in what organizations did in regards to employee's personal and family needs was to have an open door policy with management for discussion of any concerns. Cohen (2002) found that 59% of Human Resource management practitioners who responded to a Society of Human Resource Management survey designed to determine the Human Resource implications of the terrorist attacks of September 11, 2001, indicated that they allowed an open door policy with management for employees to discuss concerns. Organizations should take the time to listen to and act on what their employees are experiencing especially given that results indicate that employees express the need to talk about their disaster experiences.

A second conclusion relates to communication and that is that communication is paramount in disaster and post disaster situations. As the data indicated, the highest reported

occurrence workplace change in regards to Human Resource department activities was establishment of better company communication methods. The highest reported employee physical, mental or emotional effect was employees needed to talk about their hurricane experiences. The highest reported workplace change in regards to employee performance and activity was employees expressing appreciation for the management team being sensitive and responsive in the aftermath of the hurricanes. Ryan, West and Carr (2003) in their study of the effects of the terrorist attacks of September 11, 2001 on employee attitudes, suggest that the simple fact that companies offered support and services in the aftermath of a disaster was more important than the employees actually utilizing the services and supports. The highest reported occurrence organizational response to employee's personal and family needs was management offering an open door policy for employees to discuss their concerns. The theme of communication and open avenues for discussion seems to be central to all of these. Open lines of communication also ties in well with whether Human Resources has the ability and methods to utilize communication to determine disaster effects on their employees. Byron and Peterson (2002), in their study of individual and organizational outcomes as a result of the September 11, 2001 terrorist attacks, found that the highest frequency occurring organizational response to the attacks was to allow employees to talk about the tragedy (84%) and that the third highest occurring organizational response was to send a company wide email expressing concern for victims of the attacks (64%). The more open the communication the more likely the organization and Human Resources professional will be knowledgeable of employee effects. Glass and Schoch-Spana (2002) indicate that the availability of accurate information extends the benefits of stress and anxiety reduction and Schouten et al. (2004) indicates that providing accurate information to employees and their families can reduce anxiety and other emotional

responses to the situation. Byron and Peterson (2002), in analyzing the impact of the terrorist attacks of September 11, 2001 on individual and organizational outcomes found that employees in companies that took such actions as sending company wide emails tended to be less dissatisfied with their jobs.

Stemming from the second conclusion, a third conclusion is that Human Resources has to play a key role in ensuring that open lines of communication are established and maintained. From the data it also seems that Human Resources may have played a buffering role in regards to their responses to hurricane related employee effects such as negative business effects and employee withdrawal. It is easy to see Human Resources value in becoming more involved in an effort to minimize or address negative business and employee withdrawal effects. Research on traumatic events suggests that support provided by organizations has a direct and negative effect on adverse outcomes following the trauma (Stephens & Long, 2000). In a study of Hurricane Andrew survivors Norris et al., (1999) found that post-disaster factors such as the administration of social support and other resources was found to decrease the amount of psychological strain. In addition, when studying Hurricane Andrew survivors, Sanchez et al., (1995) found that employees who were given relief services by their employers experienced less strain. Bryon and Peterson (2002) found that following the terrorist attacks of September 11, 2001 employees who worked for companies that provided social support were less likely to be dissatisfied with their companies.

The highest reported Human Resources adjustment was better company communication methods being established.   Organizations would do well to recognize Human Resources input and expertise in people management in disaster and post disaster situations. Human Resources has tremendous value and importance in regards to direct contact with the employees and in

providing assistance such as employee assistance programs and communication avenues. Organizations can also designate Human Resources as the disaster management department specifically in regards to employee issues and employee disaster effects. Glass and Schoch-Spana (2002) indicate that demonstration of an ongoing leadership structure reduces employee stress and anxiety.

A fourth conclusion ties communication and Human Resources responsibilities together in that because there are so few reported employee effects it is possible that organizations and Human Resources representatives need to be more sensitive to their employees needs. It is possible that Human Resources representatives did not take the time to observe or question the employees for or about potential hurricane effects. Such communication and observation would be paramount to identifying and then addressing harmful effects. In a study of businesses affected by the Northridge earthquake, it was determined that the more employee related problems an organization experiences, the more likely it is that the organization will not recover (Dahlhamer, 1998). Human Resources professionals must make the necessary effort to identify employee issues and needs.

A fifth conclusion is that because employee appreciation was a predictor for several organizational responses it would serve organizations and Human Resources professionals well to foster a caring, sensitive and appreciative workforce and work environment. Results indicated that more caring and appreciative employees lead organizations to be more flexible and make operational changes. After the September 11, 2001 terrorist attacks employees conveyed to their employers their appreciation for the offer of support and services, the demonstrated awareness of employee grief, emotional distress and need for information that would help them cope with the event (Ryan, West & Carr, 2003). Organizations should focus on fostering employee

appreciation for each other and for organization management. It makes sense that positive

morale of employees towards each other, their jobs, Human Resources and their managers would

make the workplace more productive and efficient. Overall organizations did seem to respond to

employee appreciation. This should be noted in the reverse as well. That is, the more responsive

organizations are the more appreciation from employees the organization will receive. This

could hold true in disaster situations as well as normal situations.

A sixth conclusion relates to management flexibility and operational changes. Negative

business effects and employee appreciation were predictors for both of these organizational

responses. It makes sense that flexibility and change would be predicted by the same effects. In

order to remain productive organizations should recognize the need for flexibility and change

when negative business effects occur. The flexibility component will make the operational

change component easier for organizations. It makes sense that organizations take proactive

steps in creating a flexible organizational management style. Managers with a flexible attitude

will make operational changes easier to carry out. This type of training will also encourage

managers to brainstorm for creative ideas on the best ways to handle negative business effects

when and if they occur.

A seventh conclusion is made in regards to the low predictive ability in regards to

philanthropy and volunteer activities. This could be due to the fact that many of the respondent

organizations, because they were in the affected areas, were recipients rather than deliverers of

such organizational responses. In addition, it would be expected that the least predicted

organizational responses, philanthropy and volunteer activities and benefits and housing

assistance would be costly to organizations and given the extreme situations that many of the

responding organizations may have been in they may have not been in any position to perform

philanthropic and volunteer activities. It also may be that these organizations were focused internally and only on themselves and were just too vulnerable to engage in such activities. Organizations would serve themselves and their employees well in knowing in advance what philanthropic and volunteer agencies they can turn to in times of disaster. And, where possible organizations could engage in or encourage employee participation in these types of activities in order to take their employee's minds off of their own personal situation. This may in turn lower employee stress levels and absenteeism rates and increase employee productivity and diversity tolerance.

An eighth conclusion is made in regards to increasing wages in an effort to retain and/or attract employees. This was the highest reported organizational experience in regards to hiring and employee retention. At the time of the disasters money may have been the primary need of most employees as they attempted to rebuild their homes and lives. In normal circumstances organizations should be creative in their incentives and employee motivators being careful not to always reward with money. However, in a time such as following a disaster in which the employees may have lost homes, cars, other possessions and family, friends, money may have been the one thing they needed most in order to provide food and shelter for themselves and their families. This goes hand in hand with Human Resources representatives and organizational management taking the time to identify specific employee needs following a disaster.

A ninth conclusion is related to disaster planning. Organizations putting disaster plans in place for their workplace after the hurricanes is very similar to what occurred after the 9/11 terrorist attacks. Sometimes it takes an event or disaster to bring about change and to make organizations realize their vulnerability. In a survey of Human Resource practitioners conducted after the September 11, 2001 terrorist attacks results indicated that 56% of respondents in this

survey predicted that organizations would put higher security in place following the attacks (Cohen, 2001). In this same survey results indicated that 54% of Human Resources professionals reported that their organizations had a disaster plan in place while 33% did not and 13% did not even know whether they had a plan in place. For those who did not have a plan in 2001, 33% reported in 2002 that they had created a disaster plan as a result of the attacks.

It would serve organizations well to implement crisis management training in an annual training program to be more proactive in regards to disasters and how they are to be handled. Weisaeth (1989) in a study of victims of a factory explosion found that 71% of the employees who had had disaster training responded optimally whereas no one without such training and experience did so. Schouten et al. (2004) suggested that in addition to likely increasing optimal behavior, proper planning and rehearsal reduces stress by providing participants with a sense of control and suggested that the effect extends throughout the event. Overall in regards to safety and security adjustments, because the prediction of this response was found to be only moderate it may be that organizations engaged in these activities regardless of employee effects. It is highly probable that organizations would re-evaluate their safety and security after a disaster has occurred either based on their own or other organizations' reported experiences. In the SHRM 2001 and 2002 survey of Human Resource practitioners conducted after the September 11, 2001 terrorist attacks 61% of respondents who reported in 2001 that they did have disaster plans in place reported in 2002 that the plan had been updated since the terrorist attacks. As with 9/11 organizations would serve themselves well in implementing disaster plans well before disasters occur. In studies of businesses following major disasters such as the 1993 Midwest floods, Hurricane Andrew in 1992, and the Loma Prieta and Northridge earthquakes (Tierney, 1997; Webb et al., 2000) it was determined that businesses that engaged in some disaster preparedness

showed a somewhat lesser tendency to suffer significant business loss than businesses that did not undertake preparedness actions. In addition, Stith, Panzer and Goldfrank (2003) suggest that workplace involvement in disaster planning is important for reasons such as mitigation of the physical, psychological, and business impacts of disasters; legal obligations to engage in such planning; and the positive effect of such activities on employees' relationships to the workplace.

A tenth conclusion is that as a result the positive increase in business that the responding organizations experienced as a result of the organizations, they may have had to increase wages, lower screening requirements in order to fill positions more quickly, and recruit or bring in workers from other parts of the country or world. Even if the organizations did not lose any employees as a result of the hurricane the increase in business probably necessitated more employees to fulfill business obligations. Changes such as increasing wages may have also been made in order to retain employees in order to fulfill new business obligations.

However, effects such as negative business effects and employee productivity effects made recruiting and retention efforts necessary as well. Organizations should learn from this that having a disaster recruiting and retention plan in place prior to disaster occurrences would be a productive and proactive step. This would include such stipulations as what the organization will do to temporarily and/or permanently replace displaced or non-returning workers. Recruiting plans for where those replacement employees will come or be sought from will also need to be in place. These steps and planning could ensure that the business continues successfully. These same planning techniques can be utilized in monitoring and reducing employee turnover responses. Data revealed that employees requesting transfers to less stressful positions was not a frequent occurrence but in this disaster situation it may be more likely that the stress the employees were experiencing was not related to their work or organizations, but

instead was Hurricane related. Many employees may have viewed their work as familiar and a grounding tool in all of the turmoil following the Hurricanes. With this in mind, disaster affected organizations should strive to maintain as much normalcy as possible in order to retain employees and to keep them as productive as possible. This however would change if the disaster was workplace violence related and this would be a reason why organizations disaster plans and crisis management training should include all forms of disasters.

The following are practical applications that are recommended in regards to the above conclusions. First, organizations must foster open lines of communication with their employees. Second, human resources practitioners should utilize communication to determine disaster effects on employees. Human Resources practitioners must utilize their direct access to employees to encourage, provoke and provide communication. Third, organizations should strive to promote a caring workforce by displaying consideration and sensitivity from the top down. This in turn will lead to employee appreciation for their organization. Fourth, organizations should have disaster management plans and disaster training in place prior to an actual disaster occurrence. Fifth, organizations should engage in activities with and training of their employees in regards to flexibility and adapting to change. Lastly, organizations should have a disaster employee recruiting and retention plan in place in the event of a disaster.

<div align="center">Study Limitations</div>

There are some limitations of this study that must be noted. First, the study was limited by the low response rate. Of the 753 organizations in the Gulf Coast ABC chapters that the surveys were mailed to only a total of 105 organizations responded to the survey (13.9%). Of this 105, two surveys were returned by the organizations with no responses to any of the questions. Therefore, the usable response rate was 13.67%.

Next, as mentioned previously, one should note that employee recruiting and retention efforts, employee turnover and greater Human Resources presence and involvement displayed the highest variance explained of the organizational responses to the Hurricane effects. This is interesting because these areas are all direct Human Resources responsibilities in most organizations and Human Resources professionals served as the respondents for this study. It is quite possible that the responding Human Resources representative reported their personal or department responses more favorably or inflated.

Lastly, along these same lines one should note that since the Human Resources representative was the respondent for organizations it was their perceptions of employee effects and organizational responses that were reported. That is, all the data reported came from one single source in the organizations. This could lead to issues with common method variance or simply the organizational responses being predicted by the employee effects to some degree because the survey responses were provided by one source.

Implications for Future Research

The study of disasters and their effects on individuals and communities is a frequent field of research. This research however strove to examine the industrial industry workplace implications of disasters utilizing Hurricanes Katrina and Rita as the disaster situations. There are a number of interesting research opportunities that present themselves for future consideration. Some of these opportunities are presented below.

1. The possibility that the responding organizational representative was not fully aware of the effects that the hurricanes had on employees should be considered. This could, in turn, have led to fewer responses by or adjustments being made by organizations. Future research that directly surveys employees affected by disasters such as Hurricanes Katrina and Rita could

address this issue more efficiently. It would be of interest to determine the employee

perspective on these effects and responses.

2. Along these same lines, future research could compare organizational perspective to

     employee perspective in regards to workplace implications of disasters

3. Additionally, the same study and comparison can be undertaken for other disaster types. In

     doing this one might seek to determine if employee effects and organization responses to

     those effects would be the same or similar across other disasters.

4. Next, researchers might wish to repeat this survey in a few years after the Hurricanes in order

     to determine if there were employee effects that had not yet surfaced at the time of this study.

5. Additionally, this study might be repeated for other types of industries to determine if there

     are differences and, if so, what those differences might be.

6. Research might be conducted into reasons or causes for safety and security adjustments made

     by organizations. One would seek to determine if these types of responses might stem from

     employee effects, media reports, past organizational experiences, the reported experiences of

     other organizations or a combination of all of these.

7. Lastly, since Human Resource personnel were respondents in this study, one might survey

     upper management and executives on their viewpoint of Human Resource's Hurricane

     performance. It would prove interesting to see whether the views and responses of the

     Human Resources respondents in this study would match those of upper management and

     executives. And, it would be useful to determine whether upper management and executives

     were pleased with Human Resources' performance during and after the Hurricanes.

In regards to the implications for future research provided here it is this researcher's

suggestion that the next step is to survey employees affected by disasters such as Hurricanes

Katrina and Rita in order to determine their perspective on the effects and responses detailed in this study. This would also lead to a comparison between the organizational perspective provided in this study and an employee perspective in regards to workplace implications of disasters.

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APPENDIX A
SURVEY COVER LETTER

July 19, 2006

Dear Human Resources Professional:

Enclosed please find a questionnaire regarding the workplace implications for hurricane affected Gulf Coast region ABC member industrial companies. This questionnaire specifically targets effects of disasters on employee behavior in the workplace and employee related adjustments organizations have had to make as a result of disaster. This is an anonymous survey so you are not asked to provide any company or unique personal identifying information. <u>Please complete the enclosed survey and return it in the enclosed, postage paid return envelope by August 9, 2006</u>.

As a Human Resources professional myself, I believe that your position in Human Resources best qualifies you to provide the responses for your organization.

This survey and the results obtained via survey respondents such as yourself will be used for a Louisiana State University doctoral dissertation. Your responses are vital to the success of this doctoral research project and I thank you in advance for your consideration and time.

Appreciatively,

Michelle Boullion
Director of Human Resources, F.A. Richard & Associates
Adjunct Faculty Member, Southeastern Louisiana University Department of Management
Ph.D. Student, Louisiana State University, School of Human Resource Education
----

VOLUNTARY Personal Contact Information:
If you would not mind being personally interviewed about your organization's employee related responses to hurricanes Katrina and Rita you may complete the voluntary interview contact information below and return this cover letter with your completed survey.

Name: _____

Contact Address: _____

Contact Phone: _____

Contact Email: _____

APPENDIX B
SURVEY INSTRUMENT

Workplace Implications for Hurricane Affected Gulf Coast Region Industrial Companies Questionnaire

Please respond to the following questions by circling your answer on the scales provided:

1) As a result of hurricane's Katrina and Rita, to what extent has your organization done or continues to do any of the following for its employees in regards to their personal and family needs?

	Not a all	Slight	Moderate	Considerable	Great Extent
Bringing an employee assistance program counselor on site	1	2	3	4	5
Open door policy with management for discussion of any concerns	1	2	3	4	5
Assisting employees in finding temporary or permanent housing	1	2	3	4	5
Establishing temporary housing for employees	1	2	3	4	5
Allowing employees to watch TV or listen to the radio at work	1	2	3	4	5
Setting up employee hotlines for employees to call in and notify employer of their whereabouts	1	2	3	4	5
Assisted in evacuating employees and their families from the affected areas	1	2	3	4	5
Granting paid leave to employees who were displaced	1	2	3	4	5
Offered increased benefit coverage to employees	1	2	3	4	5
Providing financial advice	1	2	3	4	5
Allowing flextime work schedules	1	2	3	4	5
Holding staff meetings with all employees about the hurricanes effects on the organization and it's employees	1	2	3	4	5
Closing organization for more than a day	1	2	3	4	5
Canceling meetings and events	1	2	3	4	5
Scheduling motivational events for employees	1	2	3	4	5

Other (please explain)

_____
_____

2) As a result of hurricane's Katrina and Rita to what extent has your organization experienced or continues to experience each of the following in regards to business, earnings and efforts to maintain continued business operation?

	Not a all	Slight	Moderate	Considerable	Great Extent
Decrease in business volume	1	2	3	4	5
Increase in business volume	1	2	3	4	5
All non-revenue earning events (i.e. Company picnics, golf tournament, parties) have been canceled	1	2	3	4	5
Decrease in earnings	1	2	3	4	5
Increase in earnings	1	2	3	4	5
Relocating part or all of your organization	1	2	3	4	5

Other (please explain)

_____
_____

3) As a result of Hurricane's Katrina and Rita to what extent has your organization done or continues to do each of the following for or with its employees in regards to philanthropy and volunteer activities?

	Not a all	Slight	Moderate	Considerable	Great Extent
Organizing volunteer activities	1	2	3	4	5
Allowing employees to volunteer on paid company time	1	2	3	4	5
Collecting money and supplies to be sent for aid	1	2	3	4	5
Contributing supplies and/or money to affected employees	1	2	3	4	5

Other (please explain)

_____
_____

4) In your opinion, to what extent have Hurricanes Katrina and Rita caused your organization to adjust or cope in regards to hiring and employee retention in the following areas?

	Not a all	Slight	Moderate	Considerable	Great Extent
Increased wages in an effort to retain and/or attract employees	1	2	3	4	5
Less stringent screening of employees for hiring in order to fill positions more quickly	1	2	3	4	5
Having to recruit and bring in workers from other parts of the country or world	1	2	3	4	5
Higher rate of employee turnover	1	2	3	4	5
More employees are seeking transfers to other parts of the country	1	2	3	4	5
Employees left the affected areas and will not return	1	2	3	4	5
Employees have requested transfers to less stressful positions	1	2	3	4	5
Employees are seeking more of a work/life balance	1	2	3	4	5

Other (please explain)

_____
_____

5) To what extent have hurricanes Katrina and Rita caused your organization to adjust or cope in regards to the following safety and security items?

	Not a all	Slight	Moderate	Considerable	Great Extent
Reevaluated safety and security policies and procedures	1	2	3	4	5
Increased crisis management training	1	2	3	4	5
More stringent safety and security procedures have been put in place	1	2	3	4	5
Disaster plans have been put into place for our workforce	1	2	3	4	5
Disaster plans have been edited as a result of the Hurricanes	1	2	3	4	5

Other (please explain)

_____
_____

6) To what extent have hurricanes Katrina and Rita caused your organization to adjust or cope in regards to employee performance and activity in the workplace in the following ways?

	Not a all	Slight	Moderate	Considerable	Great Extent
Higher stress level in the workplace	1	2	3	4	5
Increased taking of sick leave	1	2	3	4	5
Increase in absenteeism	1	2	3	4	5
Employees are more caring toward one another	1	2	3	4	5
Employees are less caring toward one another	1	2	3	4	5
Increase in positive drug and alcohol tests	1	2	3	4	5
Employees are more tolerant of diversity	1	2	3	4	5
Employees are less tolerant of diversity	1	2	3	4	5
Lower productivity	1	2	3	4	5
Workplace violence has increased	1	2	3	4	5
More employee relations complaints	1	2	3	4	5
Employees have expressed anger that the management team wasn't more sensitive and responsive in the aftermath of the hurricanes	1	2	3	4	5
Employees have expressed appreciation for the management team being sensitive and responsive in the aftermath of the hurricanes	1	2	3	4	5
Greater use of employee assistance programs	1	2	3	4	5

Other (please explain)

_____

_____

7) To what extents have you noticed any of the following or have had employees confide in you about any of the following physical, mental or emotional effects after the hurricanes?

	Not a all	Slight	Moderate	Considerable	Great Extent
Difficulty concentrating	1	2	3	4	5
Eating too much	1	2	3	4	5
Eating too little/Loss of appetite	1	2	3	4	5
Needing to talk about their hurricane experiences	1	2	3	4	5
Mood swings	1	2	3	4	5
Headaches	1	2	3	4	5
Difficulty sleeping	1	2	3	4	5
Restlessness	1	2	3	4	5
Social numbing or lack of feeling	1	2	3	4	5
Irritability	1	2	3	4	5
Fearfulness	1	2	3	4	5
Depression	1	2	3	4	5
Social withdrawal	1	2	3	4	5
Shortness of breath	1	2	3	4	5
Heartburn	1	2	3	4	5
Inability to sit still	1	2	3	4	5
Excess energy	1	2	3	4	5
Increased use of alcohol	1	2	3	4	5
Increased use of drugs	1	2	3	4	5
Increased use of cigarettes	1	2	3	4	5
Inability to concentrate or work effectively	1	2	3	4	5
Difficulty completing tasks	1	2	3	4	5
Arguments with co-workers	1	2	3	4	5
Family conflicts	1	2	3	4	5
Loss of interest in life or persistent boredom	1	2	3	4	5
Hopelessness	1	2	3	4	5
Persistent worries about health or security	1	2	3	4	5
Feeling isolated	1	2	3	4	5

Other (please explain)

_____

_____

8) To what extent have Hurricanes Katrina and Rita caused your Human Resources department to adjust or cope in the following ways?

	Not a all	Slight	Moderate	Considerable	Great Extent
Implementation of employee assistance programs	1	2	3	4	5
Human Resources has had a greater presence	1	2	3	4	5
Human Resources has been called on for more input and expertise in people management	1	2	3	4	5
Better company communication methods have been established	1	2	3	4	5
Increase in requests for employee assistance program referrals	1	2	3	4	5
Worker's compensation claims have increased	1	2	3	4	5
Equal Employment Opportunity Charges/complaints have increased	1	2	3	4	5
Equal Employment Opportunity Charges/complaints have decreased	1	2	3	4	5
Increased employee mental health benefits and costs	1	2	3	4	5
Processed hurricane related 401k or retirement savings plan hardship withdrawals	1	2	3	4	5

Other (please explain)

_____

_____

9) Was your organization damaged by the hurricanes or their aftermath to the extent that partial or complete rebuilding was necessary?

❑ Yes

❑ No

If yes, when was or when do you anticipate your organization to be back at pre-hurricane status?

O 3 Months after the hurricanes	O 6 months after the hurricanes
O 9 Months after the hurricanes	O 12 months after the hurricanes
O 15 months after the hurricanes	O 18 months after the hurricanes
O Other: (please specify time frame) _____	O Unknown at this time

10) What, in your opinion could your organization have done differently to better support its employees after the hurricanes?

_____

_____

_____

11) What is your position?

O Personnel Manager/Director	O Human Resources Manager/Director
O Human Resources Vice President	O Other title: (please specify) _____

12) Please identify the number of employees in your organization for which you have HR responsibility.

O 0-99	O 100-500
O 501-1000	O 1001-1500
O 1501-5000	O 5000 +

13) What type of industry is your organization involved in?

O Oil	O Industrial Contracting	O Shipping	O Chemicals
O Gas	O Manufacturing	O Construction	O Other (please list) _____

APPENDIX C
DESCRIPTIVE STATISTICS FOR ALL ITEMS IN SURVEY QUESTIONS ONE THROUGH EIGHT

Descriptive Statistics for all items within Survey Question One that asks, "As a result of hurricane's Katrina and Rita, to what extent has your organization done or continues to do any of the following for its employees in regards to their personal and family needs?

Item	N	Mean	Standard Deviation		Not at All (1)	Slight (2)	Moderate (3)	Considerable (4)	Great Extent (5)
1. Bringing an Employee Assistance Program counselor on site	103	1.49	.979	Response Category Frequency	78	8	12	2	3
				% in Categories	75.7%	7.8%	11.7%	1.9%	2.9%
2. Open door policy with management for discussion of any concerns	103	3.40	1.338	Response Category Frequency	14	9	30	22	28
				% in Categories	13.6%	8.7%	29.1%	21.4%	27.2%
3. Assisting employees in finding temporary or permanent housing	102	2.23	1.349	Response Category Frequency	41	28	13	9	11
				% in Categories	40.2%	27.5%	12.7%	8.8%	10.8%
4. Establishing temporary housing for employees	102	1.77	1.342	Response Category Frequency	68	15	4	4	11
				% in Categories	66.7%	14.7%	3.9%	3.9%	10.8%
5. Allowing employees to watch TV or listen to the radio at work	103	2.78	1.228	Response Category Frequency	24	10	43	17	9
				% in Categories	23.3%	9.7%	41.7%	16.5%	8.7%
6. Setting up employee hotlines for employees to call in and notify employer of their whereabouts	102	2.80	1.605	Response Category Frequency	39	5	15	23	20
				% in Categories	38.2%	4.9%	14.7%	22.5%	19.6%
7. Assisted in evacuating employees and their families from the affected areas	103	1.83	1.172	Response Category Frequency	58	20	15	4	6
				% in Categories	56.3%	19.4%	14.6%	3.9%	5.8%

8. Granting paid leave to employees who were displaced	103	1.83	1.237	Response Category Frequency	61	18	11	6	7
				% in Categories	59.2%	17.5%	10.7%	5.8%	6.8%
9. Offered increased benefit coverage to employees	103	1.44	.946	Response Category Frequency	80	9	9	2	3
				% in Categories	77.7%	8.7%	8.7%	1.9%	2.9%
10. Providing financial advice	103	2.17	1.256	Response Category Frequency	46	14	28	9	6
				% in Categories	44.7%	13.6%	27.2%	8.7%	5.8%
11. Allowing flextime schedules	103	2.80	1.286	Response Category Frequency	23	16	35	17	12
				% in Categories	22.3%	15.5%	34.0%	16.5%	11.7%
12. Holding staff meetings with all employees about the hurricanes effects on the organization and it's employees	103	2.64	1.454	Response Category Frequency	35	13	24	16	15
				% in Categories	34.0%	12.6%	23.3%	15.5%	14.6%
13. Closing organization for more than a day	103	3.06	1.507	Response Category Frequency	26	11	21	21	24
				% in Categories	25.2%	10.7%	20.4%	20.4%	23.3%
14. Canceling meetings and events	103	2.88	1.517	Response Category Frequency	29	15	20	17	22
				% in Categories	28.2%	14.6%	19.4%	16.5%	21.4%
15. Scheduling motivational events for employees	103	1.80	1.166	Response Category Frequency	60	20	13	4	6
				% in Categories	58.3%	19.4%	12.6%	3.9%	5.8%

Descriptive Statistics for all items within Survey Question Two that asks, "As a result of hurricane's Katrina and Rita to what extent has your organization experienced or continues to experience each of the following in regards to business, earnings, and efforts to maintain continued business operations"?.

Item	N	Mean	Standard Deviation		Not at All (1)	Slight (2)	Moderate (3)	Considerable (4)	Great Extent (5)
1. Decrease in business volume	103	1.85	1.150	Response Category Frequency	58	18	13	12	2
				% in Categories	56.3%	17.5%	12.6%	11.7%	1.9%
2. Increase in business volume	103	2.80	1.458	Response Category Frequency	29	16	23	17	18
				% in Categories	28.2%	15.5%	22.3%	16.5%	17.5%
3. All non-revenue earning events (i.e. Company picnics, golf tournament, parties) have been canceled	103	1.90	1.209	Response Category Frequency	59	11	22	6	5
				% in Categories	57.3%	10.7%	21.4%	5.8%	4.9%
4. Decrease in earnings	103	1.84	1.243	Response Category Frequency	61	17	12	6	7
				% in Categories	59.2%	16.5%	11.7%	5.8%	6.8%
5. Increase in earnings	103	2.58	1.425	Response Category Frequency	36	12	28	13	14
				% in Categories	35.0%	11.7%	27.2%	12.6%	13.6%
6. Relocating part or all of your organization	103	1.57	1.053	Response Category Frequency	75	8	11	7	2
				% in Categories	72.8%	7.8%	10.7%	6.8%	1.9%

Descriptive Statistics for all items within Survey Question Three that asks, "As a result of hurricane's Katrina and Rita to what extent has your organization experienced or continues to experience each of the following in for or with its employees in regards to philanthropy and volunteer activities"?.

Item	N	Mean	Standard Deviation		Not at All (1)	Slight (2)	Moderate (3)	Considerable (4)	Great Extent (5)
1. Organizing volunteer activities	103	1.58	.995	Response Category Frequency	71	12	14	4	2
				% in Categories	68.9%	11.7%	13.6%	3.9%	1.9%
2. Allowing employees to volunteer on paid company time	103	1.56	1.073	Response Category Frequency	75	10	10	4	4
				% in Categories	72.8%	9.7%	9.7%	3.9%	3.9%
3. Collecting money and supplies to be sent for aid	103	1.88	1.157	Response Category Frequency	56	19	15	10	3
				% in Categories	54.4%	18.4%	14.6%	9.7%	2.9%
4. Contributing supplies and/or money to affected employees	103	2.36	1.282	Response Category Frequency	38	17	28	13	7
				% in Categories	36.9%	16.5%	27.2%	12.6%	6.8%

Descriptive Statistics for all items within Survey Question Four that asks, "In your opinion, to what extent have Hurricanes Katrina and Rita caused your organization to adjust or cope in regards to hiring and employee retention in the following areas"?.

Item	N	Mean	Standard Deviation		Not at All (1)	Slight (2)	Moderate (3)	Considerable (4)	Great Extent (5)
1. Increased wages in an effort to retain and/or attract employees	103	3.17	1.442	Response Category Frequency	21	14	17	29	22
				% in Categories	20.4%	13.6%	16.5%	28.2%	21.4%
2. Less stringent screening of employees for hiring in order to fill positions more quickly	103	2.16	1.203	Response Category Frequency	43	22	20	15	3
				% in Categories	41.7%	21.4%	19.4%	14.6%	2.9%
3. Having to recruit and bring in workers from other parts of the country or world	103	2.17	1.351	Response Category Frequency	52	9	22	13	7
				% in Categories	50.5%	8.7%	21.4%	12.6%	6.8%
4. Higher rate of employee turnover	103	2.25	1.144	Response Category Frequency	33	31	23	12	4
				% in Categories	32.0%	30.1%	22.3%	11.7%	3.9%
5. More employees are seeking transfers to other parts of the country	103	1.59	.890	Response Category Frequency	65	19	16	2	1
				% in Categories	63.1%	18.4%	15.5%	1.9%	1.0%
6. Employees left the affected areas and will not return	103	2.06	1.145	Response Category Frequency	44	26	19	11	3
				% in Categories	42.7%	25.2%	18.4%	10.7%	2.9%
7. Employees have requested transfers to less stressful positions	103	1.35	.696	Response Category Frequency	77	18	7	0	1
				% in Categories	74.8%	17.5%	6.8%	0%	1.0%
8. Employees are seeking more of a work/life balance	103	1.71	.966	Response Category Frequency	58	25	13	6	1
				% in Categories	56.3%	24.3%	12.6%	5.8%	1.0%

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Descriptive Statistics for all items within Survey Question Five that asks, "To what extent have hurricanes Katrina and Rita caused your organization to adjust or cope in regards to the following safety and security items"?.

Item	N	Mean	Standard Deviation		Not at All (1)	Slight (2)	Moderate (3)	Considerable (4)	Great Extent (5)
1. Reevaluated safety and security policies and procedures	102	2.74	1.168	Response Category Frequency	18	24	35	17	8
				% in Categories	17.6%	23.5%	34.3%	16.7%	7.8%
2. Increased crisis management training	103	2.23	1.238	Response Category Frequency	42	16	30	9	6
				% in Categories	40.8%	15.5%	29.1%	8.7%	5.8%
3. More stringent safety and security procedures have been put in place	103	2.37	1.204	Response Category Frequency	33	23	28	14	5
				% in Categories	32.0%	22.3%	27.2%	13.6%	4.9%
4. Disaster plans have been put into place for our workforce	103	2.77	1.293	Response Category Frequency	25	14	35	18	11
				% in Categories	24.3%	13.6%	34.0%	17.5%	10.7%
5. Disaster plans have been edited as a result of the Hurricanes	102	2.58	1.338	Response Category Frequency	31	18	26	17	10
				% in Categories	30.4%	17.6%	25.5%	16.7%	9.8%

Descriptive Statistics for all items within Survey Question Six that asks, "To what extent have hurricanes Katrina and Rita caused your organization to adjust or cope in regards to employee performance and activity in the workplace in the following ways"?.

Item	N	Mean	Standard Deviation		Not at All (1)	Slight (2)	Moderate (3)	Considerable (4)	Great Extent (5)
1. Higher stress level in the workplace	103	2.30	1.119	Response Category Frequency	28	36	24	10	5
				% in Categories	27.2%	35.0%	23.3%	9.7%	4.9%
2. Increased taking of sick leave	103	1.71	.882	Response Category Frequency	53	31	17	0	2
				% in Categories	51.5%	30.1%	16.5%	0%	1.9%
3. Increase in absenteeism	103	1.87	1.045	Response Category Frequency	48	32	14	6	3
				% in Categories	46.6%	31.1%	13.6%	5.8%	2.9%
4. Employees are more caring toward one another	103	2.30	1.083	Response Category Frequency	30	28	32	10	3
				% in Categories	29.1%	27.2%	31.1%	9.7%	2.9%
5. Employees are less caring toward one another	103	1.38	.768	Response Category Frequency	76	19	6	0	2
				% in Categories	73.8%	18.4%	5.8%	0%	1.9%
6. Increase in positive drug and alcohol tests	103	1.48	.739	Response Category Frequency	67	25	9	2	0
				% in Categories	65%	24.3%	8.7%	1.9%	0%
7. Employees are more tolerant of diversity	102	2.10	1.067	Response Category Frequency	30	26	27	8	2
				% in Categories	38.2%	25.5%	26.5%	7.8%	2.0%

8. Employees are less tolerant of diversity	103	1.33	.632	Response Category Frequency	78	16	9	0	0
				% in Categories	75.7%	15.5%	8.7%	0%	0%
9. Lower productivity	103	1.61	.910	Response Category Frequency	61	28	9	3	2
				% in Categories	59.2%	27.2%	8.7%	2.9%	1.9%
10. Workplace violence has increased	103	1.22	.523	Response Category Frequency	85	13	5	0	0
				% in Categories	82.5%	12.6%	4.9%	0%	0%
11. More employee relations complaints	103	1.51	.906	Response Category Frequency	72	15	11	4	1
				% in Categories	69.9%	14.6%	10.7%	3.9%	1.0%
12. Employees have expressed anger that the management team wasn't more sensitive and responsive in the aftermath of the hurricanes	103	1.50	.778	Response Category Frequency	67	24	9	3	0
				% in Categories	65.0%	23.3%	8.7%	2.9%	0%
13. Employees have expressed appreciation for the management team being sensitive and responsive in the aftermath of the hurricanes	103	2.50	1.267	Response Category Frequency	32	17	33	13	8
				% in Categories	31.1%	16.5%	32.0%	12.6%	7.8%
14. Greater use of employee assistance programs	103	1.60	.963	Response Category Frequency	67	18	11	6	1
				% in Categories	65.0%	17.5%	10.7%	5.8%	1.0%

Descriptive Statistics for all items within Survey Question Seven that asks, "To what extents have you noticed any of the following or have had employees confide in you about any of the following physical, mental or emotional effects after the hurricanes"?.

Item	N	Mean	Standard Deviation		Not at All (1)	Slight (2)	Moderate (3)	Considerable (4)	Great Extent (5)
1. Difficulty concentrating	103	1.64	.884	Response Category Frequency	59	28	10	6	0
				% in Categories	57.3%	27.2%	9.7%	5.8%	0%
2. Eating too much	103	1.55	.936	Response Category Frequency	66	26	5	3	3
				% in Categories	64.1%	25.2%	4.9%	2.9%	2.9%
3. Eating too little/Loss of appetite	103	1.35	.606	Response Category Frequency	73	25	4	1	0
				% in Categories	70.9%	24.3%	3.9%	1.0%	0%
4. Needing to talk about their hurricane experiences	103	2.50	1.488	Response Category Frequency	41	16	11	23	12
				% in Categories	39.8%	15.5%	10.7%	22.3%	11.7%
5. Mood swings	103	1.71	.935	Response Category Frequency	54	33	10	4	2
				% in Categories	52.4%	32.0%	9.7%	3.9%	1.9%
6. Headaches	103	1.65	.936	Response Category Frequency	62	21	15	4	1
				% in Categories	60.2%	20.4%	14.6%	3.9%	1.0%

7. Difficulty sleeping	103	1.77	1.068	Response Category Frequency	59	19	19	2	4
				% in Categories	57.3%	18.4%	18.4%	1.9%	3.9%
8. Restlessness	103	1.52	.815	Response Category Frequency	65	26	9	2	1
				% in Categories	63.1%	25.2%	8.7%	1.9%	1.0%
9. Social numbing or lack of feeling	103	1.46	.764	Response Category Frequency	68	27	5	2	1
				% in Categories	66.0%	26.2%	4.9%	1.9%	1.0%
10. Irritability	103	1.67	.922	Response Category Frequency	57	31	8	6	1
				% in Categories	55.3%	30.1%	7.8%	5.8%	1.0%
11. Fearfulness	103	1.94	1.136	Response Category Frequency	53	18	18	13	1
				% in Categories	51.5%	17.5%	17.5%	12.6%	1.0%
12. Depression	103	1.90	1.071	Response Category Frequency	51	22	21	7	2
				% in Categories	49.5%	21.4%	20.4%	6.8%	1.9%
13. Social withdrawal	103	1.44	.750	Response Category Frequency	71	22	7	3	0
				% in Categories	68.9%	21.4%	6.8%	2.9%	0%

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14. Shortness of breath	103	1.32	.630	Response Category Frequency	79	15	9	0	0
				% in Categories	76.7%	14.6%	8.7%	0%	0%
15. Heartburn	103	1.41	.706	Response Category Frequency	73	19	10	1	0
				% in Categories	70.9%	18.4%	9.7%	1.0%	0%
16. Inability to sit still	103	1.37	.741	Response Category Frequency	76	20	4	2	1
				% in Categories	73.8%	19.4%	3.9%	1.9%	1.0%
17. Excess energy	103	1.36	.669	Response Category Frequency	75	21	5	2	0
				% in Categories	72.8%	20.4%	4.9%	1.9%	0%
18. Increased use of alcohol	103	1.47	.669	Response Category Frequency	64	31	7	1	0
				% in Categories	62.1%	30.1%	6.8%	1.0%	0%
19. Increased use of drugs	103	1.40	.632	Response Category Frequency	70	25	8	0	0
				% in Categories	68.0%	24.3%	7.8%	0%	0%
20. Increased use of cigarettes	103	1.68	.910	Response Category Frequency	59	23	16	5	0
				% in Categories	57.3%	22.3%	15.5%	4.9%	0%
21. Inability to concentrate or work effectively	103	1.50	.726	Response Category Frequency	64	29	8	2	0
				% in Categories	62.1%	28.2%	7.8%	1.9%	0%

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22. Difficulty completing tasks	103	1.45	.696	Response Category Frequency	66	31	3	3	0
				% in Categories	64.1%	30.1%	2.9%	2.9%	0%
23. Arguments with co-workers	103	1.47	.777	Response Category Frequency	68	26	6	2	1
				% in Categories	66.0%	25.2%	5.8%	1.9%	1.0%
24. Family conflicts	103	1.46	.683	Response Category Frequency	64	33	5	0	1
				% in Categories	62.1%	32.0%	4.9%	0%	1.0%
25. Loss of interest in life or persistent boredom	103	1.31	.627	Response Category Frequency	77	22	3	0	1
				% in Categories	74.8%	21.4%	2.9%	0%	1.0%
26. Hopelessness	103	1.40	.647	Response Category Frequency	71	23	9	0	0
				% in Categories	68.9%	22.3%	8.7%	0%	0%
27. Persistent worries about health or security	103	1.68	.962	Response Category Frequency	63	16	18	6	0
				% in Categories	61.2%	15.5%	17.5%	5.8%	0%
28. Feeling isolated	103	1.36	.639	Response Category Frequency	74	22	6	1	0
				% in Categories	71.8%	21.4%	5.8%	1.0%	0%

Descriptive Statistics for all items within Survey Question Eight that asks, "To what extent have hurricanes Katrina and Rita caused your Human Resources department to adjust or cope in the following ways"?.

Item	N	Mean	Standard Deviation		Not at All (1)	Slight (2)	Moderate (3)	Considerable (4)	Great Extent (5)
1. Implementation of employee assistance programs	103	1.71	.935	Response Category Frequency	57	25	16	4	1
				% in Categories	55.3%	24.3%	15.5%	3.9%	1.0%
2. Human Resources has had a greater presence	102	2.12	1.205	Response Category Frequency	44	21	23	9	5
				% in Categories	43.1%	20.6%	22.5%	8.8%	4.9%
3. Human Resources has been called on for more input and expertise in people management	103	2.07	1.239	Response Category Frequency	50	15	25	7	6
				% in Categories	48.5%	14.6%	24.3%	6.8%	5.8%
4. Better company communication methods have been established	103	2.43	1.201	Response Category Frequency	30	25	27	16	5
				% in Categories	29.1%	24.3%	26.2%	15.5%	4.0%
5. Increase in requests for employee assistance program referrals	102	1.57	.896	Response Category Frequency	65	22	10	4	1
				% in Categories	63.7%	21.6%	9.8%	3.9%	1.0%
6. Workers' Compensation claims have increased	103	1.31	.728	Response Category Frequency	81	17	1	3	1
				% in Categories	78.6%	16.5%	1.0%	2.9%	1.0%

7. Equal Employment Opportunity Charges/complaints have increased	103	1.21	.621	Response Category Frequency	88	11	2	1	1
				% in Categories	85.4%	10.7%	1.9%	1.0%	1.0%
8. Equal Employment Opportunity Charges/complaints have decreased	103	1.20	.616	Response Category Frequency	90	8	2	3	0
				% in Categories	87.4%	7.8%	1.9%	2.9%	0%
9. Increased employee mental health benefits and costs	103	1.23	.546	Response Category Frequency	85	12	6	0	0
				% in Categories	82.5%	11.7%	5.8%	0%	0%
10. Processed hurricane related 401(k) or retirement savings plan hardship withdrawals	103	1.43	.787	Response Category Frequency	71	25	4	1	2
				% in Categories	68.9%	24.3%	3.9%	1.0%	1.9%

APPENDIX D
CORRELATION MATRIX

Correlation Matrix

	Management Flexibility	Benefits & Housing Assistance	Operational Changes	Negative Business Effects	Positive Business Effects	Philanthropy & Volunteer Activities	Employee Recruiting & Retention	Employee Turnover	Safety & Security Adjustments	Negative Employee Reactions	Employee Appreciation	Employee Productivity Effects	Employee Withdrawal	Employee Self Destructive Behavior	Employee Anxiety	Employee Worry & Fear	Greater Human Resources Presence and Involvement	Increase in Employee Relation Issues
Management Flexibility Pearson Correlation Sig. (2tailed)		.478** .000	.546** .000	.351** .000	.075 .451	.209** .034	.360** .000	.417** .000	.647** .000	.263** .007	.691** .000	.314** .001	.451** .000	.394** .000	.359** .000	.545** .000	.628** .000	.378** .000
Benefits & Housing Assistance Pearson Correlation Sig. (2-tailed)	.478** .000		.492** .000	.315** .001	.141 .155	.435** .000	.505** .000	.336** .001	.340** .000	.296** .002	.391** .000	.469** .000	.331** .001	.294** .003	.307** .002	.335** .001	.317** .001	.374** .000
Operational Changes Pearson Correlation Sig. (2-tailed)	.546** .000	.492** .000		.498** .000	-.054 .587	.278** .004	.368** .000	.378** .000	.426** .000	.188 .057	.489** .000	.268** .006	.376** .000	.264** .007	.285** .004	.496** .000	.525** .000	.446** .000
Negative Business Effects Pearson Correlation Sig. (2-tailed)	..351** .000	.315** .001	.498** .000		-.419** .000	.050 .613	.452** .000	.522** .000	.311** .001	.364** .000	.313** .001	.271** .006	.328** .001	.295** .002	.159 .109	.411** .000	.489** .000	.416** .000
Positive Business Effects Pearson Correlation Sig. (2-tailed)	.075 .451	.141 .155	-.054 .587	-.419** .000		.090 .368	.165 .097	-.174 .079	.071 .478	-.087 .381	.212* .032	.207* .036	-.014 .892	-.006 .955	.119 .232	-.037 .710	-.078 .435	-.031 .754
Philanthropy & Volunteer Activities Pearson Correlation Sig. (2-tailed)	.209** .034	.435** .000	.278** .004	.050 .613	.090 .368		.317** .001	.142 .152	.229* .020	.204* .038	.175 .078	.291** .003	.282** .004	.258** .009	.115 .247	.092 .353	.241* .014	.348** .000
Employee Recruiting & Retention Pearson Correlation Sig. (2tailed)	.360** .000	.505** .000	.368** .000	.452** .000	.165 .097	.317** .001		.525** .000	.232* .018	.529** .000	.353** .000	.713** .000	.344** .000	.379** .000	.354** .000	.365** .000	.384** .000	.528** .000

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18
Employee Turnover Pearson Correlation Sig. (2-tailed)	.417** .000	.336** .001	.378** .000	.522** .000	-.174 .079	.142 .152	.525** .000		.438** .000	.569** .000	.441** .000	.387** .000	.582** .000	.518** .000	.404** .000	.621** .000	.589** .000	.558** .000
Safety & Security Adjustments Pearson Correlation Sig. (2-tailed)	.647** .000	.340** .000	.426** .000	.311** .001	.071 .478	.229* .020	.232* .018	.438** .000		.172 .082	.520** .000	.205* .038	.415** .000	.303** .002	.364** .000	.598** .000	.740** .000	.500** .000
Negative Employee Reactions Pearson Correlation Sig. (2-tailed)	.263** .007	.296** .002	.188 .057	.364** .000	-.087 .381	.204* .038	.529** .000	.569** .000	.172 .082		.263** .007	.577** .000	.386** .000	.678** .000	.218** .027	.336** .001	.379** .000	.550** .000
Employee Appreciation Pearson Correlation Sig. (2-tailed)	.691** .000	.391** .000	.489** .000	.313** .001	.212* .032	.175 .078	.353** .000	.441** .000	.520** .000	.263** .000		.336** .001	.520** .000	.442** .000	.435** .000	.702** .000	.655** .000	.362** .000
Employee Productivity Effects Pearson Correlation Sig. (2-tailed)	.314** .001	.469** .000	.268** .006	.271** .006	.207* .036	.291** .003	.713** .000	.387** .000	.205* .038	.577** .000	.336** .001		.425** .000	.477** .000	.435** .000	.381** .000	.288** .003	.400** .000
Employee Withdrawal Pearson Correlation Sig. (2-tailed)	.451** .000	.331** .001	.376** .000	.328** .001	-.014 .892	.282** .004	.344** .000	.582** .000	.415** .000	.386** .000	.520** .000	.425** .000		.646** .000	.713** .000	.673** .000	.509** .000	.450** .000
Employee Self Destructive Behavior Pearson Correlation Sig. (2-tailed)	.394** .000	.294** .003	.264** .007	.295** .002	-.006 .955	.258** .009	.379** .000	.518** .000	.303** .002	.678** .000	.442** .000	.477** .000	.646** .000		.503** .000	.525** .000	.449** .000	.451** .000
Employee Anxiety Pearson Correlation Sig. (2-tailed)	.359** .000	.307** .002	.285** .004	.159 .109	.119 .232	.115 .247	.354** .000	.404** .000	.364** .000	.218** .027	.435** .000	.435** .000	.713** .000	.503** .000		.637** .000	.340** .000	.321** .001

Employee Worry & Fear Pearson Correlation Sig. (2-tailed)	.545** .000	.335** .001	.496** .000	.411** .000	-.037 .710	.092 .353	.365** .000	.621** .000	.598** .000	.336** .001	.702** .000	.381** .000	.673** .000	.525** .000	.637** .000		.676** .000	.525** .000
Greater Human Resources Presence and Involvement Pearson Correlation Sig. (2-tailed)	.628** .000	.317** .001	.525** .000	.489** .000	-.078 .435	.241** .014	.384** .000	.589** .000	.740** .000	.379** .000	.655** .000	.288** .003	.509** .000	.449** .000	.340** .000	.676** .000		.670** .000
Increase in Employee Relations Issues Pearson Correlation Sig. (2-tailed)	..378** .000	.374** .000	.446** .000	.416** .000	-.031 .754	.348** .000	.528** .000	.558** .000	.500** .000	.550** .000	.362** .000	.400** .000	.450** .000	.451** .000	.321** .000	.525** .000	.670** .000	

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APPENDIX E
IRB EXEMPTION

LSU INSTITUTIONAL REVIEW BOARD (IRB) for
HUMAN RESEARCH SUBJECT PROTECTION

579-8692 FAX 6792
Office:203 B-1 David Boyd Hall

APPLICATION FOR EXEMPTION FROM INSTITUTIONAL OVERSIGHT

Unless they are qualified as meeting the specific criteria for exemption from Institutional Review Board (IRB) oversight, ALL LSU research projects using living humans as subjects, or samples or data obtained from humans directly or indirectly, with or without their consent, must be approved or exempted in advance by the LSU IRB. This Form helps the PI determine if a project may be exempted, and is used to request an exemption.

Instructions: Complete this form.

Exemption Applicant: **if it appears that your study qualifies for exemption send:**

(A) Two copies of this completed form,
(B) a brief project description (adequate to evaluate risks to subjects and to explain your responses to Parts A & B),
(C) copies of all instruments to be used. If this proposal is part of a grant proposal include a copy of the proposal and all recruitment material.
(D) the consent form that you will use in the study. A Waiver of Written Informed Consent is attached and must be completed only if you do not intend to have a signed consent form.
(E) Certificate of Completion of Human Subjects Protection Training for all personnel involved in the project (including students who are involved with testing or handling data) at http://cme.cancer.gov/clinicaltrials/learning/humanparticipant-protections.asp. (Unless already on file with the IRB.)

to: ONE screening committee member (listed at the end of this form)in the
most closely related department/discipline or to IRB office.

If exemption seems likely, submit it. If not, submit regular IRB application. Help is available from Dr. Robert Mathews. 579-8692, irb@lsu.edu or any screening committee member.

Principal Investigator ___   Michelle T. Bouillon_____   Student?___Y___ __Y/N

Ph: . 225-939-7766__. E-mail_michellebouillon@hotmail.com   Dept/Unit Human Resource Education
If **Student**, name supervising professor _Dr. Holton_ _____ Ph:___ _225-939-5350. .____
Mailing Address ___Old Forestry Building - LSU_____ . _____ Ph_____
Project Title _Workplace Implications for Hurricane affected Gulf Coast Region Industrial____ .
_____Companies_
Agency expected to fund project _____ .. _____ _____ _____
Subject pool (e.g. Psychology Students)Gulf Coast Region Members of Associated Builders and Contractors_
Circle any "**vulnerable populations**" to be used: (children <18, the mentally impaired, pregnant women, the aged, other). Projects with incarcerated persons cannot be exempted.
I certify my responses are accurate and complete. If the project
scope or design is later changed I will resubmit for review. I will obtain written approval from the Authorized Representative of all non-LSU institutions in which the study is conducted.

PI Signature _Michelle Bouillon_____ Date _7-12-06_ (no per signatures)
===
Screening Committee Action. Exempted _✓_ Not Exempted . Category/Paragraph . _2_

Reviewer _Matthews_____ Signature _Robt C Math_ Date _8/7/06_
Study exempted by
Louisiana State University
Institutional Review Board
203 B-1 David Boyd Hall
225-578-8692
Robert C. Mathews, Chair

Part A: DETERMINATION OF "RESEARCH" and POTENTIAL FOR RISK

VITA

Michelle T. Boullion is a Louisiana native. She graduated from Louisiana State University with a bachelor's degree in speech communication in 1994. In 1998 she graduated from Louisiana Tech University with a Master of Business Administration degree. Ms. Boullion was a member of Gamma Beta Phi Scholastic Honor Society while at Louisiana Tech University. In May 2007 Ms. Boullion will graduate from Louisiana State University with the degree of Doctor of Philosophy from the School of Human Resource Education and Workforce Development.

Ms. Boullion has worked in corporate human resource management and training and development positions for the last fifteen years. Ms. Boullion also engages in human resources and training and development consultant work for various companies. In addition to her professional human resources practitioner work Ms. Boullion has served as an adjunct faculty member in the Department of Management at Southeastern Louisiana University since August 2004. Ms. Boullion currently teaches a senior level employment law course for the University.

Ms. Boullion is a certified Senior Professional in Human Resources (SPHR) and a member of the Society for Human Resource Management. She has also served as a guest lecturer for The United States Department of Labor, Occupational Safety and Health Administration.