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To the Graduate Council:

I am submitting herewith a dissertation written by Marti L. Jordan-Welch entitled "Nursing in Hell: The Experience of Providing Care During and After Hurricane Katrina." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Nursing.

Mary Gunther, Major Professor

We have read this dissertation and recommend its acceptance:

Josephine Wade, Johnie Mozingo, Ralph G. Brockett

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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“NURSING IN HELL”: THE EXPERIENCE OF PROVIDING CARE
TO PATIENTS DURING AND AFTER HURRICANE KATRINA

A Dissertation

Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Marti L. Jordan-Welch

December 2007

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DEDICATION

This dissertation is dedicated to the nurses who shared their stories with me and all the other health care providers who risked their lives doing their jobs during and after Hurricane Katrina.

ACKNOWLEDGEMENTS

I would like to thank all the participants in my study who had the courage to talk about what it was like to be a nurse during Hurricane Katrina.

I am deeply indebted to Dr. Susan Speraw. She helped me refine the research question, encouraged me to read philosophy, and spent countless hours with me analyzing and interpreting the data. Most of what I know about phenomenology is due to her tutelage and mentoring. I also wish to thank my committee: Dr. Mary Gunther, Dr. Jo Wade, Dr. Johnie Mozingo, and Dr. Ralph Brockett whose willingness to ask probing questions and edit the manuscript was greatly appreciated.

Lastly, I would like to thank Sigma Theta Tau Gamma Chi Chapter at the University of Tennessee College of Nursing for the award of a small grant.

ABSTRACT

Hurricane Katrina, a Category Four hurricane, made landfall on August 29, 2005, along the Gulf Coast of Mississippi and Louisiana. The strength and the extent of winds resulted in the worst destruction and the largest storm surge in the history of the United States. Within hours after the hurricane hit, the earthen levees in New Orleans were breached and 80% of the city became submerged in up to 20 feet of water. Health care workers and patients were stranded in hospitals, where they experienced extreme environmental conditions. The death toll was reported at, 1836 persons, and the damage was estimated at 200 billion dollars. No one in the United States was prepared for a disaster of this magnitude.

The purpose of the study was to describe nurses' experience of caring for patients in Mississippi and Louisiana during and after Hurricane Katrina. An existential phenomenological research method was used. Face-to-face, digitally recorded interviews were conducted with a purposeful, networking sample of nine Registered Nurses. Transcribed narratives were analyzed by the researcher and members of an interdisciplinary research team using a hermeneutical approach developed by Pollio and applied to nursing research by Thomas. Each interview was examined to identify themes.

The experience of providing care was grounded within the context of caring. The themes that emerged were 1) *Fear*, 2) *Ethical Conflicts*, 3) *Blurred Boundaries*, 4) *Isolation/Connection*, 5) *Powerlessness/Power*, and 6) *No Hope/Hope*. Descriptions of the environment were woven throughout every narrative, and it was described as overwhelming. The nurses in this study experienced terror, chaos, danger, threat, and

isolation while providing care to patients. During this ordeal, basic physiological needs were not met. The nurses experienced physical exhaustion and some became patients.

The findings from this study point out the inadequacies of local, state, and national government and hospital administrators related to disaster preparedness. The findings also illuminate areas where nursing education could be improved, policies to protect nurses could be implemented, and areas needed for future research related to emergency preparedness.

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CHAPTER 1

INTRODUCTION

Hurricane Katrina, a Category Four hurricane with maximum sustained winds of 145 mph, made landfall along the Gulf Coast of Mississippi and Louisiana on August 29, 2005. The strength and the extent of the winds resulted in the worst destruction and the largest storm surge in the history of the United States (Federal Emergency Management Agency, 2005). Storm surges of up to 34 feet were reported along the Gulf Coast of Mississippi, and Katrina's hurricane force winds were reported as far as 190 miles north of the center of the storm. The hurricane's tropical storm strength winds extended as far as 440 miles north of the Gulf Coast. Within hours after the hurricane made landfall, the earthen levees in New Orleans were breached and 80% of the city became submerged in up to 20 feet of water (Wikipedia, 2006). Thousands of the homes and businesses along the beach, the entire length of the Gulf Coast from Mobile to New Orleans, were completely washed away, leaving only slabs. Major highways, roads, bridges, and railroads were severely damaged. Millions of people were without food, water, shelter, electricity and communications. Hundreds of thousands of people lost all their belongings. The death toll was reported at over 1,836 persons, and the damage has been estimated at 200 billion dollars (Wikipedia, 2007). No one in the United States was prepared for a disaster of this magnitude.

Historically, health care facilities have remained open during disasters. Nurses are often mandated to work in health care facilities during disasters or feel compelled to do so out of a sense of professional responsibility, providing care to those in need. In doing

so, nurses must leave their families and their homes and put others' needs before their own.

During Hurricane Katrina, many health care facilities experienced catastrophic structural damage, lost power and water, experienced shortages of food, water, medicines and supplies, and without fuel, emergency generators failed. Because of outdoor temperatures in the high 90's, indoor building temperatures rose to above 100 degrees. Help from rescue workers did not arrive in some health care facilities for as long as a week. All of these factors combined put both health care providers and patients at serious risk for dehydration, other heat related illnesses, and death. Anecdotal accounts of the dire conditions report that patients in some facilities died because of the heat, lack of water and medicines. Health care workers recount their experiences of trying to protect patients despite the extreme conditions by carrying patients from one floor to another to avoid flying glass, debris, and flood waters, and in the immediate aftermath, providing first aid in the streets and in the hospitals (Henderson, 2005). These scenarios reveal only a few of the many grim realities of the situation. Television and newspapers in the area reported that only three hospitals in the New Orleans area remained opened after the hurricane, and several hospitals in that area were damaged beyond repair.

Hospitals are critical to the success of disaster plans, and are required to remain open. Personnel, such as nurses, are required to report to work during disasters as part of the plan. Failure of a nurse to report to duty can result in job loss and difficulty finding work in another healthcare facility in the area. During disasters, the environment in which nurses work has the potential to become chaotic, disorganized, and physically unsafe.

Standards of care during these situations are greatly compromised, and nurses may be asked to make choices that they are ordinarily not asked to make.

Documentation of nurses providing care during disasters began with Florence Nightingale's accounts during the Crimean War (Nightingale, 1860/1969). She documented how environmental conditions affected outcomes and how nurses could make a difference. Rayner (1958), who has been credited with being the first "disaster nurse researcher", found that nurses had unique abilities to function under pressure. She reported that their organization, flexibility, and adaptability helped them carry out duties during disasters.

Chubon (1992), who interviewed home health nurses after Hurricane Hugo, found that in the early days after the storm, nurses coped with the disaster by focusing on the immediate tasks at hand. More recently, Israeli nurses who provided care during terrorist attacks, described similar responses when casualties of the attacks started arriving in the emergency department (Riba & Reches, 2002). Nurses in their study reported that it was as though they were functioning on autopilot with heightened senses and emotional detachment.

Despite the fact that nurses function efficiently during disasters, they still experience negative effects. Rayner (1958) found that nurses experience a variety of stressful emotions during disasters including frustration, anxiety, never feeling like they could do enough for the victims, and inadequacy related to responsibilities above their scope of practice during the disaster. After the Hyatt tea room disaster (Miles, Demi, & Mostyn-Aker, 1984), the Granville rail disaster (Raphael et al, 1983-84), and the Loma Prieta Earthquake disaster (Laube-Morgan, 1992), investigators found that pre-hospital

rescue workers, some of whom were nurses, experienced feelings of anxiety, helplessness and frustration at their inability to help the victims more. Laube (1973) found that nurses working during Hurricane Celia experienced fear for their own personal safety, increased vulnerability, and worry about the safety of their own families, since they could not be with them. Miles, Demi, and Mostyn-Aker's (1984) study also found that some of the providers at the Hyatt disaster experienced fear for their own safety.

Nurses have not only reported experiences of psychological distress during the disaster, several researchers have found that after disasters, nurses also experience heavy emotional burdens. Flight nurses working at the scene during the Hyatt tea room disaster reported haunted sleep and disturbed eating for weeks after the disaster (Campbell & Pribyl, 1982; Demi & Miles, 1984; Patterson, 1981). Other researchers also had nurses in their studies reporting sleep and eating disturbances (Laube-Morgan, 1992; Raphael et al., 1983-84; Riba & Reches, 2002; Shih et al., 2002a; 2002b; Waters, Selander & Stuart, 1992).

Nurses have also reported experiencing excessive physical demands during disasters. During such events, flooding and structural damage may occur, and power and water are often lost. Even under these severe conditions, nurses must still meet the needs of their patients and ensure well-being. Laube (1973) found that some of the greatest stressors the nurses experienced during Hurricane Celia were the physical demands of evacuating patients up and down stairs without elevators and carrying water upstairs and supplies up and down stairs. Rescue workers at the Hyatt disaster also reported experiencing increased musculoskeletal problems after working at that site (Miles, Demi, & Mostyn-Aker, 1984).

Not all findings in the disaster nursing literature have been negative. Several studies indicate that nurses and pre-hospital workers (first responders) who had training and previous experience with disasters functioned most effectively and experienced less psychological trauma (Demi & Miles, 1984; Shih et al., 2002a; 2002b; Sopher, Petersen, & Talbott, 1990). In some instances, after a disaster, people experienced perspective changes that made them critically reevaluate their lives and try to make improvements (Laube-Morgan, 1992; Miles, Demi, & Mostyn-Aker, 1984; Raphael et al., 1983-84; Riba & Reches, 2002; Shih et al., 2002a; 2002b).

Anecdotal accounts told by nurses who worked during Hurricane Katrina include horror stories of events occurring in hospitals, such as water rising to the third floor of the hospital, carrying heavy immobile patients up stairs to safety, moving patients multiple times, using linens to tie patients' room doors closed for security, generators failing and catching on fire on the roof of the hospital, running out of food and water, and nurses being raped and shot at. Friends of the researcher, who worked during and after Hurricane Katrina, reported worrying about the following: family at home; condition of their pets; patients' family members trying to get into the hospital after the hurricane; and elderly chronically ill neighbors who they had checked on daily before the storm.

Purpose Statement

The purpose of this phenomenological study was to describe the experience of nurses providing care for patients in health care facilities in Mississippi and Louisiana during and after Hurricane Katrina. An existential phenomenological approach was used to identify what it meant to care for patients during and after Katrina from nurses' perspectives. This purpose was achieved by interviewing nurses who provided care in an

acute or long-term care facility during and immediately after Hurricane Katrina.

Research Question

What was the experience of providing care to patients during and immediately after Hurricane Katrina?

Delimitations and Limitations

This study was delimited to English speaking licensed registered nurses who were over the age of 21, either male or female, and were working on the Gulf Coast in an acute care or long-term care facility in Southern Louisiana or Southern Mississippi during and after the hurricane. Current employment was not a requirement to participate in the study. None of the participants were previously known to the researcher. Participants were included if they had an experience of caring for patients in a health care facility during or immediately after Hurricane Katrina, (between August 28, 2005 –September 12, 2005) and were open and willing to talk about their experience.

This study was limited to nurses who provided care within 100 miles of Hurricane Katrina's landfall. Therefore, one limitation is that their experiences differ from those who gave care at a greater distance or those nurses who came in to provide care as part of a disaster team. Many nurses in the Gulf Coast areas experienced complete loss of personal property and disruption of employment, while others had to relocate to other geographic areas of the country after Hurricane Katrina. For this reason, participants came from a limited subset of nurses who were employed in the facilities prior to the hurricane.

Another limitation of this study is that participants were interviewed a year after the hurricane. Hurricane Katrina has been reported in the national or local news frequently since the disaster occurred. The media reports, the subsequent hurricane season alerts, as well as the physical destruction that remains along the Gulf Coast serve as reminders to nurses in this study. Some participants still work in those areas, and are still trying to rebuild their lives. This context is part of each nurse's experience.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

Disasters cause great human suffering and inflict catastrophic destruction and death. In addition, they disrupt communities and leave financial loss. This chapter presents a definition of disaster, disaster responses, related stress theories and stress responses, a review of literature related to disaster nursing, expectations from the hospital certifying body, and the emerging Hurricane Katrina literature.

Multiple sources and searches were performed to explore the concept of disaster. Using the electronic databases Cumulative Index of Nursing and Allied Health Literature (CINAHL), PsychInfo, PubMed, and Social Science Indexes, and the Homeland Security Database, articles containing the following words were sought: *disaster*, *natural disaster*, *disaster and nursing*, *disaster and psychosocial factors*, *disaster and stress*, *Hurricane Katrina*, and *Hurricane Katrina and nursing*. This review resulted in fewer than 50 publications, with less than 20 being research articles about disaster and nursing.

After acquiring and reviewing the data base articles, the reference lists were examined and used to secure additional articles. To locate further information not found in scientific databases, the keywords Hurricane Katrina were entered into the search engine Google™.

Definition

Disaster is defined as “events that occur when significant numbers of people are exposed to hazards to which they are vulnerable, with resulting injury and loss of life,

often combined with damage to property and livelihoods” (World Health Organization, 2002, p. 4). Disasters are distinguished as either man-made or natural disasters. Each type of disaster is defined differently and creates different sets of problems. Disaster researchers have found that while natural and man-made disasters affect persons both physically and psychologically, each type of disaster might affect mental health outcomes differently (Murphy, 1985).

Man-made disasters have been defined as disasters occurring because of human carelessness or negligence (Logue, Melick, & Hansen, 1981). Examples of this type include the Buffalo Creek Disaster, the Hyatt Regency Hotel Disaster, the 9-11 attack on the World Trade Center, and terrorist attacks in Israel. Natural disasters have been described as Acts of God or acts caused by agents that one has no control over (Murphy, 1985). This type of disaster includes earthquakes, floods, hurricanes, tornados, and volcanic eruptions.

Disaster Responses and Related Theory

Disasters affect those involved both physically and psychologically. Common physical problems experienced post-disaster may include but are not limited to: cuts or abrasions, sprains or strains, gastroenteritis, pulmonary problems, rashes, rodent-borne illnesses or other vector-borne illnesses, toxic exposures, exacerbation of chronic illnesses, headaches, fatigue, or vague somatic complaints (Freedy & Simpson, 2007). Psychological problems include acute stress response, post-traumatic stress response, and trauma related depression (Fullerton & Ursano, 1997).

Horowitz (1976, 1985, 1991, 2001), who worked with victims who had experienced severe stressful events discovered that the victims responded to these events

in similar ways. He found that immediately after the event, persons experience what he termed “outcry”. During this phase, persons feel overwhelmed and may experience panic and exhaustion. The second phase is “denial”. In this phase, persons are dazed and numb, may experience amnesia, sleep disturbances, fatigue, headaches, become inflexible, take mood altering drugs, or withdraw from normal activities. During the third phase, “intrusiveness,” persons may become hypervigilant; may startle easily; may experience hallucinations, intrusive thoughts, confusion, or mood lability; have difficulty concentrating, and continue to have sleep and dream disturbances. They may also engage in repetitive, compulsive behaviors. In the fourth phase, “working through,” persons will look at previous situations and the new situation, and possibly experience grief and then try to build a new schema in the mind. The final phase is “completion”. During this phase, persons may continue to process new information and develop a new schema of themselves and their world. Failure to work through any of these stages may result in development of a stress response syndrome such as Acute Stress Disorder or Post-Traumatic Stress Disorder (Horowitz, 1985, 1991, 2001).

Stress Response Syndromes

The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, describes an Acute Stress Disorder as “the development of characteristic anxiety, dissociative, and other symptoms that occurs within one month after exposure to an extreme traumatic event” (American Psychiatric Association, APA, 1994, p. 429). Dissociative symptoms include numbing, detachment, amnesia, dreams or flashbacks, or emotional unresponsiveness. The individual with acute stress disorder may also develop distress that impairs normal functioning, sleep disturbances, difficulty with concentration,

hypervigilance, and increased startle response. If symptoms persist longer than one month, the person may then be diagnosed with Post-Traumatic Stress Disorder.

Post-traumatic Stress Disorder is described as “the development of characteristic symptoms, including intense fear, helplessness, or horror; dreams or flashbacks; numbing; and increased arousal following exposure to an extreme traumatic stressor...that threatened death or serious injury, lasting longer than a month” (APA, 1994, p. 424). Post-Traumatic Stress Disorder usually occurs within three months after the event but may occur months to years later. Factors that influence response may include degree of exposure to event, social support, family history, personality type, and co-morbid psychiatric disorders (APA, 1994).

Disasters threaten individuals and societies worldwide. Disasters can create devastation by inflicting injury and death, disrupting societies, and by causing psychological and financial ruin. What follows is a review of what nurses have experienced in previous disasters.

Disaster Nursing

Natural Disasters

Rayner (1958), an early disaster nurse researcher, utilized a field-study approach to interview an unspecified number of nurses who worked during major disasters in the 1950's investigated how nurses functioned during these disasters. She found that nurses' ability to focus on completing tasks helped them carry out their duties. Nurses ability to become organized and to emotionally distance themselves while at the same time remain flexible and able to adapt also helped during disasters. The nurses reported that they experienced strong emotional responses, which included frustration at not being able to

work hard enough or long enough to care for the victims, anxiety while waiting for victims, and role conflict, especially when caring for children, and insecurity while performing without a physician present to direct activities.

Twenty-seven registered nurses who worked in Corpus Christi, Texas, during Hurricane Celia in August of 1970 were interviewed by Laube (1973) to explore the psychological effects of disaster on nurses. She used a semi-structured interview guide which contained questions designed to explore the nurses' personal and social characteristics, including demographic characteristics, previous experience with disaster nursing or disaster nursing theory, and family responsibilities; and to facilitate recounting of the experience in order to describe the experience and recall feelings during the experience. The nurses reported that the greatest stressors they experienced were excessive physical demands such as delivering supplies up and down stairs, carrying water upstairs, and evacuating patients without elevators. Concerns for personal safety of patients were related to: concerns for the safety of the building after witnessing structural damage and flying debris; for supplies to care for patients; for the status and safety of one's own family; for victims and their situations including inability to meet basic needs; for environmental disorganization; and for increased medical responsibility. Despite the concerns, nurses reported feeling able to cope with their anxiety and believed that it did not affect their efficiency. Some reported feeling irritable because of working long hours without relief.

After a devastating tornado in Xenia, Ohio, a mixed design study incorporating a survey approach and an ex post facto quasi-experimental approach was used to investigate role conflict and psychological effects of health care workers (Laube, 1985).

Interviews of 101 health care providers, including 49 nurses, revealed that a significant number of health care providers chose to be with family instead of the community, manifested more subjective distress, and maintained normal psychological functioning.

Chubon (1992) conducted an ethnographic study of home care nurses' job stress after Hurricane Hugo in 1990 to determine their experiences. Hurricane Hugo structurally damaged the nurses' office building, destroyed supplies, and left it uninhabitable for one week after the storm. Data were collected using participant observation and interviews. Eleven nurses were observed for 300 hours in their offices and as they visited patients and then were interviewed. During interviews, nurses talked about their behaviors and emotions after the hurricane. At first, nurses reported focusing on personal needs such as feeding and caring for family, checking on personal property and neighbors' welfare, securing homes to prevent further damage, and cleaning up debris. They reported that travel and communication with patients and co-workers were virtually impossible the first week. When the nurses did receive communications from supervisors and co-workers they reported they felt angry because they were being asked to return to work when they felt overwhelmed with their own families' needs. Some nurses reported visiting patients they could reach and providing various emergency services including delivering water, sharing camp stoves, cooking food, and delivering hot meals, delivering clothing and bedding, and helping patients replace lost medications.

Ten days after the storm, the nurses felt their work lives began to return to a routine. During team meetings that week, the nurses expressed conflict about continuing to provide care to persons not needing skilled nursing care. Several nurses reported physical illnesses during the first two weeks after the storm. One employee resigned due

to a mold allergy and environmental conditions in the nurses' building. Nurses expressed a variety of emotions; however, anger predominated because of envy and resentment toward other hurricane victims and the media for giving the inland counties less attention than the coastal counties. The researcher observed that staff conferences functioned like support groups, allowing the nurses to ventilate negative feelings of frustration and anger in a safe environment. The researcher also believed the staff might have benefited from group therapy immediately after the storm, but this could not be arranged until several months later, by which time the nurses felt they were coping adequately on their own.

Seven weeks after the 1989 Loma Prieta Earthquake in San Francisco, which killed 62 persons, injured 3000, and damaged over 116,000 buildings, Laube-Morgan (1992) conducted a study of 74 health-care workers involved in its aftermath to determine psychological distress. The Impact of Events Scale was used to collect data, and 47 subjects were interviewed using a structured interview schedule developed by the researcher. Many of those surveyed reported feeling scared, panicky, or terrified. The causes of the greatest stress for professionals were their immediate fear for safety, followed by concern for the safety of their families. Other stresses included continued aftershocks, seeing dead and mangled victims on the collapsed interstate, and seeing the refrigerated trucks they knew were being used for temporary morgues. After the disaster, persons reported difficulty sleeping and eating, physical exhaustion, guilt at not being able to do more and that they lived while others did not, and perspective changes within their lives. Coping mechanisms respondents reported using included prayer and professional counseling. No one admitted to increased drug or alcohol use. Data were collected again at 6 months, and most people reported that they still responded physically

or emotionally to small quakes, had increased awareness of noises and shakes, and now took earthquakes more seriously.

A cross-sectional, single-group research design was used to survey 25 nurses about the frequency of symptoms of psychological distress the nurses experienced after Hurricane Hugo and the relationship between time, family presence, and amount of damage inflicted by the disaster to one's home (Waters, Selander & Stuart, 1992). Psychological distress was measured using the Impact of Events Scale and the Symptom Checklist, at one month, four months, and one year after Hurricane Hugo. The researchers reported that one month after the hurricane nurses experienced symptoms of psychological distress including unbidden thoughts and images, troubled dreams, strong pangs or waves of feelings, repetitive behavior, ideational constriction, denial of meanings and consequences of the event, blunted sensations, behavioral inhibition, and awareness of emotional numbness. These symptoms were noted to be diminished at four months with some reemergence of symptoms found at one year. No statistically significant differences in symptoms were noted between the group of nurses who were at work or with family during the hurricane, or in relation to the amount of damage one received to their homes. Even though this study had a small sample, the researchers described the methodology, procedure for data collection and findings from the study.

French, Sole, and Byers (2002) explored the needs and concerns nurses experienced after Hurricane Floyd in 1999. Focus groups were conducted on a convenience sample of 30 emergency department nurses. Disaster policies from four hospitals on the east coast of Florida were also reviewed. Findings indicated that nurses felt conflicted by family commitments and professional obligation. Nurses expressed

concerns for the safety of family, pets, and self while at work, and concerns for provisions of basic needs, including food, water, sleep, shelter, and rest. Review of disaster policies at all four hospitals found that hospitals failed to include provisions to meet basic needs and that each employee was responsible for supplying these items for up to three days and expected to stay at the facility for at least two days. Hospital policies directed employees to send families to public shelters and pets to local animal shelters. Nurses working during Hurricane Floyd reported experiencing fear during the hurricane because the hospitals had received inadequate safety ratings for their ability to withstand hurricane force winds. The nurses reported that they felt going to work put their lives in danger and that after the hurricane there would be little hope of evacuation.

After the largest earthquake of this century, on September 21, 1999, in Taiwan, Shih et al. (2002 a & b), conducted in-depth semi-structured interviews of a purposive sample of 46 nurses who provided care during the earthquake. Nurses were interviewed and asked to describe their experiences and perspectives when they functioned as rescuers after the earthquake. The nurses reported that the rescue experience had both positive and negative effects on their lives. Positive effects included recognition that life was transient and they desired to lead a more significant life, improve collaborative relationships between themselves and other nurses working during the disaster and increased love for the people of their homeland. Nurses also felt improved knowledge of disaster care and increased competence in providing disaster care, better appreciation for the value of nursing and their own self-worth, enhanced knowledge of survivors' needs, and enhanced ability to identify factors that hindered rescue effort. One nurse reported

that she had been negatively impacted by feelings of fear after the rescue efforts and being hesitant to seek professional help because of being a nurse.

Man-Made Disasters

On July 17, 1981, two skywalks at the Hyatt Regency Hotel in Kansas City, Missouri, collapsed onto a crowded lobby floor. Because of this disaster, 114 people died and 188 were injured (Campbell & Pribyl, 1982; Demi & Miles, 1984; Patterson, 1981). Patterson (1981) interviewed nurses who worked at the site and two head nurses from operating rooms at two of the hospitals that received victims. All the nurses reported that the response by the rescue teams and the medical teams were efficient but the disaster had put heavy emotional and physical burdens on all associated with the disaster. Campbell and Pribyl (1982) were flight nurses working at the scene and they provided anecdotal accounts of the disaster and of the Emergency Medical System response. Vivid descriptions of injuries, including crushed and mangled bodies, and amputations performed at the site with chain saws to extricate people, painted a picture that all the nurses in both accounts reported as haunting their sleep and disturbing eating for weeks after the disaster.

Demi and Miles (1984) conducted unstructured interviews with nurses involved in the Hyatt disaster and presented a case study of data applied to a model of leadership that they developed to use during the different phases of disasters. They found that most trained and experienced nurses who were formal leaders in disaster response plans were the most effective during disasters and that nurses with less experience in rescue work had high levels of psychological trauma. Demi and Miles felt the flight nurses, who were best prepared to function in the leadership role during disasters, were underutilized. Post

hoc review found that the life flight service was not included in the city's disaster plan, so these nurses were dismissed by the chief triage officer, a physician. This review also found that two small private hospitals that weren't accustomed to caring for trauma victims received the bulk of the patients (67) while a large public hospital with a trauma team only received seven patients and that nurses in leadership roles in the hospitals only had input on the internal disaster plans and had little or no involvement in the external disaster planning.

Miles, Demi, and Mostyn-Aker (1984) collected data from 54 rescue workers including firemen, nurses, emergency medical technicians, and other non-health care related occupations at the Hyatt disaster, using the Hopkins Symptom Checklist (HSCL), the Health Assessment Questionnaire (HAS), and the Disaster Personal-Experiential Questionnaire (DPEQ). The HSCL provides a measure of psychiatric symptoms being experienced by a subject. The HAS was an adaptation of the Health Assessment Scale and was designed to assess the physical health of the bereaved and measure changes in health status and behavioral problems related to health. The DPEQ was designed to collect information about disaster reactions. These researchers found that rescue workers experienced emotional distress in the forms of sadness and depression, feelings of helplessness and frustration, fear for their own safety, and a sense of vulnerability. The rescue workers also reported experiencing musculoskeletal problems, increased use of tobacco, caffeine, alcohol, and tranquilizers. Rescue workers felt that this event had changed their life in some way, and 60% of the rescue workers sought help from someone to cope with their emotional distress. The authors concluded that although this

study had some interesting findings and provided direction for future research the findings should be used with caution due to the small, non-randomized sample..

Raphael et al. (1983-84) surveyed 95 rescue workers involved in the disaster response at the Granville rail disaster in Sydney, Australia, in 1977. The rescue workers included police, doctors and nurses, fire, rail, ambulance, emergency service, and voluntary rescue groups. Respondents to anonymous surveys conducted one month after the disaster were asked to specify the most stressful aspects of the work. Five areas emerged as the most stressful: feelings of helplessness, inadequacy, being unprepared, and frustration at having to wait; the magnitude of the disaster relating to the number of dead and injured; the number and smell of mutilated dead bodies; anguish of relatives and suffering of the injured; and having to work under pressure. Twenty-three to 26% of the respondents reported anxiety, depressed feelings, and sleep disturbances. Role strain was reported by 70% of the workers, and over half felt their life was in danger. Many of the workers who were confronted directly with human mortality reported that after the incident they re-evaluated worth of life and worth placed on relationships with others and enhancement of their own relationships. Debriefing sessions were held informally after the disaster and all those who participated in them reported that they had a positive effect on their healing. The researchers in this study stressed the importance of holding debriefing programs after disasters even though the literature did not support it at the time.

Following the September 11, 2001, attack on the World Trade Center, Dickerson et al. (2002) explored the meanings of the experiences of 17 nurses involved by inviting them to describe their experiences during the terrorist attack. Six themes and one

constitutive pattern emerged from this study. The themes included loss of a symbol, a disaster without patients, coordinating with and without organizations, rediscovering the pride in nursing, traumatic stress, and preparation for the future. Nurses discussed that the profession of nursing lends itself to meeting the needs of others and they were proud to do that. Many of the nurses reported experiencing emotional and physical symptoms that they felt were minor and temporary. They believed that grief counseling, support groups, collegial support, and caring for self helped with these symptoms. After the September 11 disaster, many nurses discussed the need to prepare for the future through training related to disaster nursing and disaster preparedness. They also expressed the need for development of plans to improve coordination of efforts between organizations.

The constitutive pattern in the research was that nursing enables a humanitarian disaster response. During the September 11 disaster, qualities were evident in nurses such as organization, leadership, human caring, meeting needs of others, and flexibility. These qualities enabled nurses to help and gave them pride while helping. These authors described the sample, the methodology, and the findings.

Israeli nurses who provided care after terrorist attacks participated in focus groups conducted by Riba and Reches (2002) to share the perceptions, reactions, and feelings they experienced during the event. Nurses from the Emergency Department, Operating room, and Imaging departments of four hospitals met with the researchers to describe the staff response after multi-casualty terrorist attacks. Nurses described the stages of involvement they went through when a multi-casualty terrorist attack occurred and the feelings associated with each stage. During the first stage, nurses reported that when news of a terrorist attack occurred, all the nursing staff reported for duty. The nurses

reported that during this stage they felt a deep commitment and a compelling need to respond and wait for the casualties. They also reported that they had a sense of empowerment which made them feel superior to others around them. In the next stage, they arrived at work and prepared the emergency room for casualties. They also reported the presence of a very tense atmosphere that was emotionally charged and fraught with anxiety and stress, during which they tried to imagine what horrors they would be faced with and wondered if they would be able to function properly. The third stage began when the casualties arrive. During this time, nurses reported that they were functioning on autopilot with heightened senses, detached from their emotions. When all the victims were treated, the nurses reported being overwhelmed with emotions and at times divested of strength. In the final stage, closure began as the nurses attended debriefing sessions led by professional group therapists. During these sessions, nurses shared feelings. Discussions often brought reality to the environment they lived and worked in and forced them to critically look at their lives, aware that “only by the grace of God do they find themselves standing by the treatment table instead of lying on it” (p. 8) and often times, they reevaluated their lives. Nurses also reported symptoms of restlessness, sleeplessness, and nightmares after the attacks.

Common Stress Responses

In a review of the literature, Errington (1989) discussed common stress responses experienced by disaster nurses and relief workers such as event stressors, occupational stressors, organizational stressors; and stress management, during and after the disaster. Event stressors included personal loss or injury, traumatic stimuli, mission failure, and human errors. Organizational stressors included lack of equipment, factors in the work

environment, environmental hazards, and time pressures. Organizational stressors also included lack of support sources, role conflict, and role ambiguity. Errington believed that during a disaster it was important for workers to learn to recognize early symptoms of stress such as tremors, nausea, loss of concentration, difficulty with thinking and memory before the disaster worker experienced reactions including fatigue, irritability, worsening of physical symptoms, and loss of emotional control. She wrote that when disaster workers reached the state of exhaustion, supervisory personnel should relieve those persons immediately and provide rest periods. Errington believed that counseling should be offered after a disaster to help the workers release emotions and learn coping skills.

Other disasters

Sopher, Petersen, and Talbott (1990) described the crash of Flight 232 in Sioux City, Iowa, on July 19, 1989, and the disaster response timeline that occurred. Rescue workers, including 150 on-duty personnel of the 185th Iowa Air National Guard Unit, triaged all the patients, transported critically injured persons to hospitals within 40 minutes, and cleared the scene within 1 hour and 45 minutes. Hospitals initiated their internal disaster plans and treated 193 patients with only nine deaths after arrival to the hospitals. The authors reported that Sioux City Disaster Planning Committee had staged a disaster drill two years prior that had been almost exactly like the actual disaster and they believed that the drills paid off. Initial review of the disaster response by the citywide disaster committee found that cell phones were helpful, and the committee recommended that personnel in charge at the command center and each hospital have one. The authors also recommended that triage systems utilized by military and civilian

personnel be combined so that all persons involved in the disaster would be able to identify the proper triage categories.

Stanley (1990) described a post-disaster crisis stabilization program initiated to assist nurses caring for patients who were not able to be evacuated after Hurricane Hugo. Nurses remaining with patients experienced role conflict. A crisis recovery program that provided education related to reactions after hurricanes, group debriefing which allowed nurses to share experiences, tips for coping, and referrals for therapy was instituted and was reported by nurses as a positive experience.

Stuart and Huggins (1990) described how the nursing administration of a hospital in Charleston, South Carolina, re-conceptualized its philosophy to meet the needs of nurses as care providers as well as victims of disaster. The Institute of Psychiatry mandated nursing staff to report to work but allowed them to bring immediate family members with them during Hurricane Hugo. During this storm, communication systems and generators failed, water was lost, and curfews were imposed so staff members were unable to check on personal property. Decisions were made to house the children of staff on the youth unit while all staff and their families pitched in to work like the facility was a commune. Staff members were released a few days after the hurricane to go to homes and check on property, bring necessities, and bring back food that was defrosting in their freezers to use at the hospital. Because of the storm, the nursing staff experienced enormous stress, both as providers and victims. Debriefing sessions began three days after the hurricane and were continued for three weeks, at which time the staff felt they were no longer needed. Nursing administration remained flexible, adapting to staff needs. The authors reported that one year after the hurricane the hospital and nurses were

still experiencing the aftermath but that they felt flexibility and being attuned to peoples' needs helped the most.

Strengths and Weaknesses of the Literature

Disaster nursing studies that have been conducted since 1958 have all extended knowledge related to nurses in disasters and filled gaps in the literature. Early studies conducted by Rayner (1958) and Laube (1976, 1985) provided the first accounts of nurses experiences of providing care during natural disasters and their emotional responses to them. Chubon (1992) filled a gap in the literature by conducting a study of home care nurses experiences during natural disasters. Quantitative and mixed methods studies conducted by Miles, Demi, and Mostyn-Aker (1984) and Waters, Selander, and Stuart (1992) used instruments to measure psychiatric symptoms and that nurses experienced after natural and man-made disasters. Demi and Miles (1984) and Sopher, Petersen, and Talbott (1990) filled a gap by exploring whether training and experience affected outcomes.

Even though these studies contributed knowledge related to disaster nursing, many of the studies have flaws that limit the application of their findings. Most have been qualitative field studies using semi-structured interview guides developed by the investigators for that particular study. Frequently, sample sizes were small, descriptions of participants were not included, or authors did not include how the sample was obtained. In several studies, the investigators used mixed methods, including qualitative interviews and instruments to collect data; however, information about the reliability and validity of instruments was not available to analyze their scientific worth. Most of the studies also did not include information about how data were analyzed

As humans, nurses experience all the emotional, psychological, and physical responses common to all victims of disasters, whether natural or man-made. Their unique position of being asked to contain these personal responses while providing care for another is a position required of them by most hospital disaster plans. Hospitals in return are required by Joint Commission to meet standards that provide for their employees.

Standards for Emergency Management Planning

Joint Commission on Accreditation of HealthCare Organizations (JCAHO) (2006) requires hospitals to have emergency management plans that address how they will handle disasters. Joint Commission on Accreditation of HealthCare Organizations (2006) specifically requires that hospitals:

- 1) conduct vulnerability assessments to identify risks to determine what services it might need to provide and its ability to provide these services;
- 2) work with the community to establish priorities for services, determine the hospital's role in addressing these, and establish a link between the two;
- 3) develop written emergency management plan describing the hospital's disaster readiness plan that includes hospital leaders and medical staff;
- 4) describe specific procedures for mitigation, preparedness response, recovery strategies, action and responsibilities for each type of emergency;
- 5) provide processes for initiating the response and recovery phases of the plan;
- 6) provide information about processes to notify staff when disaster response is initiated, and external authorities about emergencies;
- 7) provide processes for identifying and assigning staff to cover all essential staff functions;
- 8) provide a plan for managing emergency conditions;
- 9) provide

information about plan for evacuation, both horizontally and vertically; 10) provide information about process for arranging alternate care sites and the logistics of how that will be logistically will be accomplished; 11) provide process for identifying care providers and other personnel during the emergency; 12) provide information about back up plan for internal and external communication in the event of a failure during emergency; 13) provide information about roles and responsibilities of staff and command structure; 14) provide information about alternative means of essential building utility needs so that service is continuous during disaster; and 15) methods for decontamination” (JCAHO, 2006, p. 1-4). JCAHO also requires that hospitals conduct drills to test the emergency management plan.

Emerging Katrina Literature Related to Health Care Facilities

Nurses and doctors in the New Orleans area reported that generators were often located in the basement, so when the city flooded, the facility flooded, and the generators failed (Rainey, Scardina, & Updike, 2005). Anecdotal accounts by nurses and doctors in some Mississippi hospitals also reported problems with generator failure. When generators failed, essential equipment such as ventilators, intravenous pumps, locked systems that held medications and/or medical supplies, and dialysis machines would not work. Air conditioning in the facilities was also lost as a result of power failures, so inside temperatures reached over 100 degrees. Power failures also affected city water systems, so clean water was unavailable.

Personnel in facilities with catastrophic structural damage, system failure, and flooding worked to find ways to transfer patients out of the buildings. Patient transfers

were difficult in areas of flooding as the only way out was by boat or by helicopter.

Doctors and nurses in the New Orleans area reported that at times it was difficult to reach helipads because they were under water (Rainey, Scardina, & Updike, 2005). Availability of helicopters to use for transfers was also limited (MSNBC, 2005). MSNBC showed footage of helicopters being shot at during coverage of the Katrina disaster. Anecdotal accounts by nurses and hospital administrators reported that it was also difficult to transfer patients at times because hospitals that usually accepted transfers sustained damage as a result of the Hurricane and so could not accept new patients.

One year after Hurricane Katrina, emergency medical care and mental health care were severely limited. A survey completed by the American College of Emergency Physicians (ACEP) found that 60 % of the emergency physicians practicing in the area believed their departments were not functioning to the extent they had before the storm and 65% felt patients were being harmed because of the wait for treatment (ACEP, 2006). The researchers also found that there was a shortage of emergency department beds and an increasing number of uninsured patients seeking emergency care. It was estimated that only 1,200 primary care physicians were practicing in the New Orleans area compared to 4500 pre-Katrina..

Mental health problems and care have also been reported as in crisis after the storm (Eisler, 2007; Weisler, Barbaee, & Townsend, 2006). Sixteen months after the storm, local officials had seen increases in suicides, fights, and domestic violence (Eisler, 2007). By September of 2006, only 22 out of 196 psychiatrists continued to practice in the New Orleans area (Weisler, Barbee, & Townsend, 2006).

The overall lack of health care facilities and health care providers after the storm has drastically affected the health of residents. A study conducted by the New Orleans Health Department found that the death rate in 2006 was up 47% from the year before Hurricane Katrina (Sternberg, 2007). The researcher attributed this to the lack of primary and mental health care and long emergency room wait times. Inability to secure health care has exacerbated and worsened people's chronic illnesses, which in turn has increased morbidity and mortality.

Summary

Most of the literature related to disaster nursing revealed that nurses experience psychological responses, role conflict, and have excessive physical demands placed on them while working during disasters. Nurses in Laube's (1985) and Chubbon's (1990) experienced a variety of psychological responses including anxiety, fear, and anger. Rayner (1958), Laube (1985) and Raphael et al., (1983-84) found that during natural and man-made disasters nurses experience role conflicts. Acute stress responses and post-traumatic stress responses were found in nurses in the studies by Campbell and Pribyl (1982), Laube-Morgan (1992), and Waters, Selander, and Stuart (1992). Demi and Miles (1984) and Sopher, Petersen, and Talbott (1990) found that training and experience helped nurses function better. Stuart and Huggins' (1990) described an innovation that addressed limitation of resources, by having employees bring back food from home freezers to feed staff and visitors.

Most of the studies' findings are limited due to sampling issues, lack of descriptions about methodology, data collection techniques, and data analysis. A paucity of literature describing what it means to provide care during a hurricane was found.

Minimal research has been done exploring the experience of providing care to patients in hospitals during disasters, about nursing concerns or needs when caring for these patients, or about nurses' experiences providing care during disasters. Chapter Three discusses methodology.

CHAPTER 3

METHODOLOGY

This chapter includes a brief historical background of existential phenomenological philosophy. In addition to philosophical issues, this chapter discusses the steps of the existential phenomenological methodology including selection of participants, data collection through interviews, interpretation of the data using the hermeneutic circle, and a review of the means to ensure validity and rigor of the analysis.

Qualitative Method Characteristics

Qualitative approaches allow nurses to explore the meanings of experiences and understand how human beings make sense of their subjective reality. Researchers using this method believe that understanding one's unique experience of an event is very important. Qualitative methods give participants the opportunity to provide rich descriptions of the experience from their own perspective and enable researchers to have a greater understanding of the participant's experience. Qualitative researchers also understand that experiences are bound by context and that they must be sensitive to this. The interaction between the researcher and the participant leads to interpretations of meanings of experiences, which in turn may help nurses discover new ways of helping people live with the experience. It may also help persons develop new perspectives that can change their view of the world.

Nurses working from a humanistic perspective realize that meanings of experiences are created by individuals and that they act according to the meanings they have created. Within this perspective, multiple views of reality exist, individuals do not always respond to experiences in the same way, and there is more than one way to

respond to these experiences. Realizing these facts necessitates that the nurse researcher comes to understand this experience from an individual's perspective. If we are to understand the meaning of an experience to people, we must allow them to describe their experience. It is important for the researcher to use a holistic framework that allows participants to describe what is important or figural to them. Research about nurses' experiences of providing care to patients during and after disasters is lacking. In order to understand the experience of providing care during a disaster, a qualitative approach that allows the researcher the opportunity to describe the phenomena from the point of view of persons who are experiencing it is essential.

Existential Phenomenology

Existential phenomenology is a combination of two philosophies; existentialism, which is concerned with how human existence is viewed; and phenomenology, which is a method of analyzing all forms of human existence (i.e. consciousness and experiences). This methodology provides the researcher with a philosophy and method to use which describes how human beings holistically experience or perceive their world (Pollio, Henley, & Thompson, 1997; Thomas & Pollio, 2002).

Existentialism and Phenomenology have both been described as movements that came together because "both were concerned with the relationship between human experience and the world and the essences or essential structures that support that relationship" (Solomon, 2001, p. X). Existentialism is generally considered a movement concerned with how human beings create meaning in their lives and discover their values by becoming aware of possibilities in their lives, choosing the path their lives will take, and accepting responsibility for the choices they have made

*Existentialists**Soren Kierkegaard*

Soren Kierkegaard (1813-1855), who is generally recognized as the first existentialist, was a Danish philosopher who lived in the 1800's. During much of the 1800's Denmark was ruled by a monarchy. A minority of noble and wealthy families held the political and social power in Denmark (Kirmmse, 1998).

Kierkegaard attended the University of Copenhagen, where he studied theology and philosophy. While at college, he began to doubt his own Christian faith. At this time, he also started attending lectures on Hegelian philosophy. Hegel's view of nature and reality was that truth existed only when it was discovered scientifically, or objectively, and that the whole was more important than the individual.

Kierkegaard disagreed with this so he launched attacks on Hegel's philosophy and set the foundation for existential philosophy (Kierkegaard, 1843/1987). To Kierkegaard, the individual human being was much more important than the whole and he believed that truth was subjective. To Kierkegaard, Hegel's philosophy on life left out the individual's ability to make choices. Kierkegaard believed that when an individual was allowed to make choices, the person was thrust into an ethical way of living and thinking (Kierkegaard, 1843/1987).

Kierkegaard also believed that the Lutheran Church had created a society of non-Christians: persons who went through the motions of being a Christian but did not know what it meant to be a Christian. To Kierkegaard, a Christian had to take a leap of faith and have an individual relationship with God (Kierkegaard, 1859/2004). This focus on the individual fits well with the phenomenological method.

Phenomenology is often referred to as a philosophical movement that Husserl developed to study consciousness of the world (Solomon, 2001). Phenomenology begins its study of consciousness by putting aside the presuppositions we hold about the world and studying how phenomena are experienced. The aim of phenomenology is to describe the essences of the experience.

Phenomenologists

Edmund Husserl

Husserl, described as the founder of phenomenology, believed the purpose of phenomenology was to clarify questions concerning being and the nature of reality (Husserl 1911/1965). He believed however, that it was impossible to do this if one subscribed to the assumptions and methods for establishing scientific knowledge known as psychologism, the accepted method at that time. Psychologism was criticized by Husserl because it was an approach that investigated the structure of phenomena using objective measures and logical reasoning and was reductionistic. He believed that not all phenomena could be described using this method.

Husserl presented phenomenology as a rigorous science that could answer questions related to being and the nature of reality without being reductionistic (Husserl 1911/1965). To use his method, it was necessary to begin scientific investigations without preconceived ideas, assumptions, or scientific prejudices or, what Husserl referred to as the natural attitude. Suspending the acceptance of “natural attitude” was known as *epoché* or the belief that reality must be suspended or “bracketed” in order to become aware of one’s preconceived ideas, assumptions, or scientific prejudices.

Merleau-Ponty, who was one of Husserl's and Heidegger's students continued with this work (Solomon, 2005).

Existential Phenomenologists

Husserl's original presentation of this concept was also viewed by others as reductionistic, and problematic. Heidegger, who was one of Husserl's students believed that it was impossible to truly separate our consciousness of objects from the actual objects and therefore, complete bracketing was impossible (Matthews, 2006)

Martin Heidegger

Martin Heidegger (1889-1976), who was considered the first existential phenomenologist, was a German philosopher who during his early years lived in rural Germany and was raised Catholic (Sheehan, 1993). While Heidegger was a student at the Jesuit school, he was introduced to Franz Brentano's work about Aristotle. As a student at the University of Frieberg, Heidegger continued to be interested in Aristotle and began to study philosophy. At this time he also began to read Husserl's work in phenomenology and believed it could be useful to extend Brentano's work.

When Husserl came to the University of Frieberg, Heidegger became his assistant and during his work with Husserl, Heidegger began to question Husserl's methodology and the emphasis he put on theory over lived experiences. Heidegger believed that one can only come to understand one's self and one's world by being a part of the world and understanding it and how one lives in it. He also believed that at times people ignore or conceal things in their world and that to become authentic, they must reveal what they were concealing about themselves. Heidegger believed that phenomenology allowed Dasein (Being) to reveal and understand itself. He also believed that our moods

influence how we experience and understand our world, but since we are “thrown” into the world, we do not have total control over our interpretation and things are always understood within a context. Heidegger also believed that with understanding comes the realization of the possibilities and that even though it is important to continue to realize possibilities, *dasein* is oriented towards an end (Heidegger, 1927/1962).

Maurice Merleau-Ponty

Maurice Merleau-Ponty (1909-1968), was a French phenomenologist philosopher who studied philosophy at one of the most influential institutions in France in the late 1920's (Matthews, 2006; Primožic, 2001). While at *Ecole Normale Supérieure* in Paris, Merleau-Ponty studied the works of the German Philosophers, like Husserl and Heidegger. Later he went to Belgium to study Husserl's in the Belgium archives.

Influenced by phenomenology, Merleau-Ponty believed that objectivism limited knowledge about the world. To him, knowledge was developed by human beings who were perceiving beings, situated in a world that they were experiencing and that had meaning for them. Merleau-Ponty questioned Husserl's phenomenological manner of thinking about *epoche* because he believed we could not completely withdraw from the world. He further developed phenomenological reduction as a way of looking at the world without the thematic structures we create to understand our world and just looking at it in a new way in order to create a new truth (Merleau-Ponty, 1962/2005).

Existential Phenomenological Approach

The existential phenomenological approach has increasingly been used by nurse researchers in the 20th and 21st century. Using this research method allows nurses the opportunity to explore the meaning of experiences of participants through one-on-one

interviews. Thomas and Pollio's (2002) method, which was used in this study, is based on Merleau-Ponty's philosophy.

According to the existential phenomenological method outlined by Thomas and Pollio (2002), the purpose of the interview is to obtain descriptions that allow the researcher to gain new insights about the participant's world, as they lived it, and to understand the meaning of the experience from that persons' perspective (Kvale, 1996; Thomas & Pollio, 2002;). The phenomenological interview is like a conversation between two partners where the person who experienced the phenomenon is the real authority (Thomas & Pollio, 2002). It is important that the researcher is open and flexible, establishes trust, explains risks and benefits, assures confidentiality, listens attentively, and shows respect to the participant (Kvale, 1996).

According to the method outlined by Thomas and Pollio (2002), the researcher seeks to understand his/her own preconceived notions about the phenomena under study. To do this, the researcher must bracket, or identify and set aside previous knowledge and assumptions about the issue. Bracketing is seen as a way to increase the interviewer's awareness of his/her understanding of the phenomenon (Pollio, Henley, & Thompson, 1997; Thomas & Polio, 2002). By doing this, the researcher can put aside what she thinks she knows about the experience and be attentive to what is truly being said by participants during the interview. A bracketing interview also brings to light any biases or preconceived ideas which would distort the research either during the interview or in interpretation of the data.

After the bracketing interview, data are transcribed and analyzed by the interpretive research group. Themes that emerge during interpretation of the interview

sensitize the researcher to her assumptions and presuppositions so that she may avoid introducing bias during the interview, such as asking leading questions. It also illuminates the essence of the experience for the researcher.

Human Subjects Procedures

In accordance with the guidelines for research involving human subjects at The University of Tennessee in Knoxville, a completed Form B was provided to the College of Nursing Human Subjects Committee and the Institutional Review Board (IRB). Recruitment efforts began after approval was obtained from the IRB. The informed consent process was also discussed with participants, and the risks and benefits of the study were explained. Individuals were assured that participation was voluntary and that they could refuse to answer questions, stop the interview at any time, or withdraw from the study at any time.

At the first face-to-face meeting, verbal informed consent was obtained. As part of the effort to maintain confidentiality, no signatures or addresses were obtained. The consent form was read to participants, and their responses were obtained verbally and digitally recorded using the pseudonym that the participant had chosen (Appendix A). Informed consent and interviews were digitally recorded onto separate files. Participants were given a copy of the consent form. Due to the sensitive nature of the subject and the possible fear of retribution, the consent process was modified so that no signatures were obtained and no identifying papers were generated. While it is often true that the researcher assigns pseudonyms and changes names of places during the transcription, in this case I redoubled efforts. Pseudonyms were selected by the participants for purposes of contact and interviewing, and those were changed again, to other pseudonyms, during

transcription. Participants were asked not to refer to the hospital where they were working during and after Hurricane Katrina by name and to substitute, “Hospital A or Hospital B”. They were asked to do the same with names of doctors and other staff. Those names were also changed during transcription.

Once the interviews were completed, transcribed, and transcriptions were verified, participants contact information was destroyed. Participants were informed that all the information gained from this study would be reported in summary form only, without identifiers, and with no identifying information to be revealed to anyone. They were informed that the actual digital recording would not be listened to by anyone except a transcriptionist who had signed a confidentiality pledge and by me (Appendix B). They were also informed that the transcribed interview data would not be read by anyone other than me, the Interpretive Phenomenology Group and the dissertation committee members, all of whom signed a confidentiality pledge. Participants were informed that reading of the transcripts is done for the purpose of assistance with data analysis.

The interview data were entered into a file on a home computer, which was protected by a password and downloaded onto a data storage device (CD). The CD's and copies of the transcripts were stored at my office in a locked file. The computer files and the CD's were destroyed once transcripts were verified and the dissertation was defended. Informed consent, which was recorded separately and downloaded to a CD will be destroyed after 3 years. Participants were informed that findings may be published in professional journals or at a professional meeting, reported only as group data, or without identifiers and they were reassured that confidentiality would be maintained throughout the study and in publications and reports.

No information was collected regarding name, address, nursing license number, place of employment, state(s) where license(s) held, or city of employment. Before the interview, I assured participants that 1) they would be known by first name only; 2) the only demographic information that I would collect would be: age, gender, educational level, and years as a nurse; and 3) after the interviews were transcribed and verified, the contact information would be destroyed. Regardless of where the interviews were held, I was not able to identify where participants worked. It was possible that nurses who lived and worked in New Orleans or the Gulf Coast Region drove to cities other than where they lived or worked to meet the primary investigator, since the distance from New Orleans, Louisiana to Pascagoula, Mississippi is only 110 miles.

Risks

Though the physical risks to participants in a phenomenological study are rare, I was aware that emotional risks were possible. In this particular research, potential risks existed for both participants and myself. Some of these risks were actual risks, while others may have been only perceived. Risks to participants included: 1) emotional distress; 2) perceived threat to licensure and professional livelihood; and 3) perceived risk of incarceration in the event that practice during Hurricane Katrina violated laws or scope of practice rules. Emotional risks to the researcher included: 1) emotional distress; and 2) ethical dilemmas.

Risks to participants

1) Emotional distress: Participants may have experienced emotional distress by recalling the experience and remembering the original hurricane event and aspects of providing care under less than optimal conditions. Participants who were already

experiencing signs and symptoms of stress related to Hurricane Katrina may have been especially vulnerable to emotional upset as they told their story.

To address this potential risk, I was alert to a) evidence of extreme duress which may be obvious at the time of the initial phone call or at the time of the interview(s), or b) evidence of escalating stress or anxiety that manifests as the interview(s) progress. If participants were manifesting signs of extreme or escalating distress, I either a) refrained from scheduling an interview (at all), or b) would have ended an interview in progress, either offering to reschedule or not, as the situation seemed appropriate. Since I am a nurse practitioner and have been trained in assessment of patients with mental health issues, I was able to make a clinical judgment about participants' mental health. If I had felt that a participant was becoming distressed, I would have stopped the interview before distress was too great or would have directed participants to the appropriate resources as needed. I would not have provided care to participants. All interviews took place within a convenient driving distance to a mental health facility or a fully functioning emergency department in a hospital. While acute mental health crises were not expected to occur, emergency mental health care could have been obtained at these facilities if necessary.

As a precaution, at the end of the interview, regardless of the participant's apparent state of functioning, I gave each participant a list of mental health providers and crisis intervention contacts. This list was updated and included providers who were actively practicing in the area. Several participants said that they appreciated this. They reported that they thought that maybe they should talk to someone

2) Perceived threat to licensure and professional livelihood: Participants could have perceived a risk to licensure or professional livelihood if they revealed some activity

in which they participated—or acts they witnessed—that were illegal, unethical, or questionable.

To address this issue I assured confidentiality to the participant in the following ways: 1) the participants were known by first name or pseudonym only; 2) only age, gender, years as a nurse, and educational level were collected as demographic information.; 3) only pseudonyms, which were changed a second time were used in transcripts; 4) participants were requested to refrain from use of place names, names of specific hospitals, names of colleagues or other staff, and patient names; and 5) after the interview was completed and verified, the contact information was destroyed. I asked participants to contact me if they were interested in the findings.

No information was collected about name, address, nursing license number, name(s) of hospital(s) employed by, state(s) where license(s) held, or city of employment. Regardless of where the interviews were held, I was not able to identify where the participants worked because it is common for nurses who work in one state to live in an adjoining state.

3) Perceived risk of incarceration: It was conceivable that nurses working during Hurricane Katrina may have witnessed or participated in acts that were illegal or unethical, or beyond their scope of practice. They may have feared that if they discussed anything related to these activities, they could be criminally charged.

During the Informed Consent process, participants were advised of legal reporting mandates. However, the Informed Consent also strongly advised participants to avoid all mention or reference to activities that were questionably illegal or out of the scope of

nursing practice. The consent clearly stated that if they wished to discuss those matters they needed to consult either a trained counselor or attorney. During the interview, if participants began to discuss issues that were questionable and/or which led in the direction of discussions about activities that were illegal or unethical, I informed them that I was legally required to report information about acts that violated the law. I reiterated if they felt the need to discuss that kind of information, they should seek legal counsel. If participants stated that nothing they had to say was personally incriminating, the interview continued.

Risks to researcher

1) Emotional distress: I lived in the region that was affected by Hurricane Katrina and had damage to my property as a result of the hurricane. I experienced stress after the incident due to loss of contact with family and friends, and environmental conditions. I have not experienced any lasting adverse effects as a result of the experience with Hurricane Katrina, despite the fact that I continue to live in the same home, and among signs of environmental effects. I felt that conducting these interviews would not expose me to any stressors greater than those I experience on a routine basis as part of conducting my activities of daily living. This risk was addressed in my bracketing interview.

2) Ethical Dilemmas: Nurses are bound by legal Standards of Practice as written by the American Nurses; Association (ANA) to provide safe and ethical care (ANA, 2004a). At the same time, Duty to Report laws exist as parts of each state's Nurse Practice Act.

To address these dilemmas, the following limits on this study were set: 1) Although it is important that nurses be provided the opportunity to discuss experiences when they may have been put in a position of witnessing or performing acts that were questionably illegal or unethical, *for purposes of this research, content was limited to those reports of experience that were not questionable, thus eliminating (as much as humanly possible) the need for me to report.* Participants were strongly advised during the consent process to avoid all references to questionable activities, or to seek legal and/or professional counseling if they participated or witnessed such events. If a participant began to discuss such activities, the interview was stopped, and I reiterated this caution. 2) To further assure confidentiality, minimal demographic data were collected, and no identifying information was maintained, and no signatures exchanged. No names or other identifying information specific to the interviewee was gathered.

Benefits

These research interviews held the potential to be cathartic, healing, and increase the person's self-awareness. Participation in this study allowed participants to talk about their experiences with someone from the area who understood (at least to some degree) the nature of their experience. Because memory is selective and in many ways protective, retelling an experience is not as traumatic as living the original event. Participants volunteered to share their experience. Because the interviews were unstructured and open-ended, they had the choice of what aspects of their experience they revealed. They may have chosen to omit the most painful aspects, and thus protect themselves from unnecessary distress. Some felt that they were contributing to society to the extent that they may influence ways in which future nurses are educated to respond to disasters, or

processes that hospitals may go through to prepare their staffs for future catastrophic events. They may have also perceived that by sharing their experience, they are taking something “bad” and transforming it to something “valuable” or “good.”

It was perceived that the benefits of this study to those who chose to participate were likely to outweigh the risks. The participants always had the option to end the interview. To help potential participants evaluate risk/benefits ratio, all information was completely explained, questions were answered, and all information was kept confidential.

The Phenomenological Methodology Applied

Researcher’s Bracketing Interview

Prior to conducting this study, I (Jordan-Welch) was interviewed about my experiences during Hurricane Katrina. After living through this experience, I knew I had preconceived beliefs about the experience of Hurricane Katrina. I knew, however, that others would have had different experiences. My bracketing interview revealed the essence of my perceptions of the event. It made me aware, for the first time, what was most significant to me and what preconceived notions I held. The most significant theme that emerged during my interview was the feeling of absolute disconnection I felt from the world. Because I had no phone or electricity, I was not able to make contact with friends and family. Downed power poles and trees blocking my subdivision kept me from connecting with my outside world.

Pilot Study

The next step was to conduct a pilot study. The purpose of the pilot study is to test the research question and the design of the study. I conducted a small pilot study

with one participant who had the experience of providing care during and after Hurricane Katrina. This interview was digitally recorded and transcribed. The interview transcript was interpreted in collaboration with the interdisciplinary interpretive research group. Two important findings came from that interdisciplinary group. The first was that the opening research question did not have to be revised. The second finding was that I needed to be aware of asking too many questions and risking directing the interview.

Recruiting Participants

To recruit participants for this study, a flyer describing the study and my contact information was given to persons who knew registered nurses who worked in an acute care or long-term care facilities affected by Hurricane Katrina (Appendix C). In addition, flyers were given to nurses who were interviewed and they were asked to pass them along to other registered nurses they knew who worked during and after the hurricane. Flyers were also posted in public places along the Gulf Coast and Southern Louisiana and Southern Mississippi.

Because many of the areas along the Gulf Coast experienced complete devastation, it was often difficult to find public places to post flyers. I was also told by a colleague doing another research study along that coast that some administrators had instructed nurses to not discuss their experience (Lundy, 2006). I posted 200 flyers in November and did not receive my first call until January. After the first interview, the next seven came very quickly. The ninth came several months after the first call.

Sample and Selection Process

A purposeful, networking approach was used to recruit participants in this study. In qualitative research, purposive sampling is often used because it is necessary to locate

individuals who have experienced the phenomenon. It was expected that 8-10 participants would be interviewed and that interviewing would be conducted until saturation of the data was reached.

In phenomenology, appropriateness of sample is determined by the match between the choice of participants, the methods used to complete the study, and the purpose of the study (Morse, 1991). Adequacy refers to how completely the phenomenon is understood. These two concepts are important in determining sample size. The sample size for this study was nine, and interviews were conducted until informational adequacy or redundancy was achieved. Informational redundancy was achieved after seven participants and as recommended by Thomas and Pollio (2002), two more participants were interviewed to ensure that the phenomenon was thoroughly described.

Data Collection, Recording, and Transcription

Individuals who agreed to participate contacted me on the phone, by email or regular mail. While I was talking with them I asked them to choose a pseudonym to be called and to think about a place they would like to be interviewed. I strived for a neutral place to conduct the interviews, such as a library, a public park, or university classroom. I allowed participants to choose the meeting place, and I met them there. Interviews were conducted at libraries, coffee shops, public conference rooms, a FEMA trailer, and a private home.

At the first face-to-face meeting, I presented myself in a professional manner with a caring demeanor and verbal informed consent was obtained. I listened attentively; remained respectful, non-judgmental, and culturally sensitive; and did not interrupt participants unless clarification was needed to understand the meaning of a word or

words. I anticipated that the interviews would last between 1 and 2 hours, but consistent with the phenomenological method, each participant was allowed to talk as long as needed to fully describe the experience.

During the interviews I used a digital voice recorder and a pancake microphone. Before the interviews, equipment was checked for proper functioning and extra batteries were brought to the interview. At the beginning of the interview, I digitally recorded consent using the pseudonym. I began each interview with the research question “What was the experience like providing care to patients during and immediately after Hurricane Katrina?” Subsequent questions used to encourage the participant to share his/her story or to clarify information included probes such as, “Tell me more about that,” “How did that make you feel,” “What was that like,” “What were you aware of,” and “What stood out for you in that particular situation.” When the interview was nearing an end, I reiterated some of the main points the participant discussed, asked if they wanted to add anything else, and if not, concluded the interview.

The interviews ranged from fifteen minutes to one hour and 45 minutes in length. During the interviews, participants described their experiences in great detail, and often times it seemed like they were reliving the experiences. Many experienced heightened emotions and tears, but no one asked me to stop the interview. Many of them showed me pictures they had taken of the hospital while they were there.

When I left the interview, I wrote field notes or digitally recorded thoughts about the interview on the drive home. Field notes included information about the setting for each interview, body language and non-verbal communication, my personal reactions, and any interruptions that occurred during the interview. When the interview was

emotionally disturbing for me, I talked with a colleague about my feelings, wrote about my feelings in a journal, called my dissertation chair, digitally recorded my thoughts, and planted flowers. Some of the interviews were very disturbing for me, and I became physically ill.

As soon as possible, I sent the digital recordings to a transcriptionist, who had signed a confidentiality pledge (Appendix B), to transcribe the interviews, including pauses and changes in speech patterns, inflection, and tone of voice. After the interviews were transcribed, I listened to the audio-tapes while reading the transcripts to check for accuracy. Any mistakes were corrected.

Data Analysis (The Interpretive Process)

Transcribed interviews were analyzed using the existential phenomenological method described by Thomas and Pollio (2002). Interpretations of interviews were conducted using the existential phenomenological method using hermeneutics, a process that attempts to discover meaning in parts of the text as it relates to the whole.

I analyzed all the transcribed interviews and selected two to be analyzed by the University of Tennessee Interdisciplinary Interpretive Phenomenology Group. Before the transcripts were read, each member of the group signed a confidentiality pledge (Appendix D). The transcripts were read aloud, and words or phrases were looked at in relation to the context of the whole text to discover meaning.

The transcript was read to the group by one group member who acted as a participant, and another group member who acted as the researcher. While the transcript was being read, all group members were allowed to stop the reading if something appeared significant and provide input during the discussion of the text.

During analyses of the transcripts, the researcher and the group were trying to discover words, phrases or metaphors, also called meaning units, which might in turn describe essential characteristics of themes. The patterns, or relationships, which emerged are called themes and they describe how participants experienced the phenomenon. After themes were discovered, the group sought to determine if the themes that emerged truly represented the human experience of the phenomenon that the researcher was interested in trying to understand.

I then analyzed the remaining transcripts with a nursing professor trained in phenomenology. After all the transcripts were analyzed, thematic structures or diagrams, as well as examples of text that supported these themes were developed. After these preliminary themes were developed, I returned to the interpretive group for verification and refinement of the themes and thematic structure. After the thematic structure was developed and validated by the interpretive group, they were shown to participants who agreed to meet with me again.

Rigor in Qualitative Research

Rigor in qualitative research is aimed at accurately representing the study participants' experiences and providing high quality information that is useful in practice. This rigor is achieved when researchers choose a method that answers the question keeping the following things in mind:

- 1) they have an understanding of the philosophical underpinnings and assumptions of the approach they are using to conduct the study;
- 2) they are aware of their own thoughts and perceptions related to the phenomenon they are researching;

- 3) they have chosen participants who have experienced the phenomenon;
- 4) the interview reveals repetitive information or confirms previously collected information;
- 5) they become immersed in the data and commit to understanding what the data is saying to them;
- 6) they explicate all themes relevant to the study; and
- 7) write them up in a way which is meaningful to the intended audience (Morse, 1991).

Rigor issues such as credibility, dependability, confirmability, and transferability or pragmatic validity specifically need to be addressed in phenomenological research (Thomas & Pollio, 2002). Establishment of credibility occurs when the researcher is deemed trustworthy and authentic by demonstrating behaviors of establishing presence and showing genuine interest in the participant's experience, and the text provides rich, thick, believable (can be corroborated) descriptions about the phenomenon under study. I believe I was deemed trustworthy and authentic by participants when they chose to fully describe their experience and refer friends who also experienced the phenomenon.

Dependability is achieved by making a determination about the credibility of the findings. Credibility of the findings was established when nurses who were in different hospitals reported similar experiences.

Confirmability is a process that occurs when the researcher describes, as clearly as possible, the evidence and thought processes which led to the conclusions.

Confirmability occurred when several transcripts were brought to the Interdisciplinary

Phenomenological Research Group for review, and when I returned to present themes and thematic structure.

Reliability is determined when another researcher, who adopted the same frame of reference, can visualize what the original researcher saw. Another way is by taking themes back to some of the participants. I spoke with two participants who believed that the themes that emerged described the experience accurately. Reliability was also determined when several other phenomenological researchers could visualize what I saw.

Transferability or pragmatic validity refers to the utility of the findings and is determined by potential users of the findings. It can be established by other nurses when a determination is made that the findings would be useful in their practice. This study identified educational needs that will be discussed in more detail in Chapter Five.

Summary

The purpose of this study was to explore and describe experiences of nurses caring for patients during and after Hurricane Katrina. This study used an existential phenomenological philosophy to ground the study and Thomas and Pollio's (2002) existential phenomenological method. This chapter provided a brief history of existentialism and phenomenology, and described the participants, the methodology, human subjects protection, and methodological rigor.

CHAPTER 4

FINDINGS

Introduction

This chapter presents the findings of the interpretive analysis with exemplar quotes from nurses about what the experience of providing care during and after Hurricane Katrina was like. Participants will be described by means of demographic characteristics and vignettes. The contextual ground of the experience will also be described and a thematic structure will be presented.

The participants included nine registered nurses: Two nurses had diplomas in nursing, three had Associates Degrees in Nursing, two had Bachelors Degrees in Nursing, and two had Masters Degrees in Nursing. Eight were female and one was male. Their ages ranged from 29-61 years. They had been nurses from 5-29 years. All were working in hospitals that lost power, potable water, food and supplies. Five were in facilities that experienced flooding into the building. Demographic data appears in Table 4.1 and participant vignettes follow.

Table 4.1 Demographic Characteristics

Interview Number	Pseudonym	Gender	Years as a Nurse
1	Karen	Female	18
2	Tamara	Female	29
3	Rose	Female	26
4	Chris	Female	27
5	David	Male	17
6	Kathy	Female	25
7	Tonya	Female	12
8	Alice	Female	18
9	Erica	Female	5

To conduct these interviews, I met the participants at places of their choosing. I frequently drove through neighborhoods that were ravaged by the hurricane, and some interview areas were still completely devastated. Eight of the participants were very articulate and open to talk about their experience. One talked about her experience but it was very different than the others, and the interview was short. Eight of the nine told me that they were terminated from their job after the hurricane. Seven of the nine worked in hospitals that have not re-opened since the hurricane.

Participant Vignettes

Karen

Karen was interviewed in a FEMA trailer located in a neighborhood in a city in a Gulf Coast state. To get to her interview I drove through neighborhoods that were still gutted seventeen months after Hurricane Katrina. Many of the houses still had orange X's on them where they had been searched for bodies after the floods. The smell of mold was pervasive in the air. Karen told me she was in the hospital from Sunday before the hurricane to the Friday afterwards. Karen chose to work PRN (as needed) when she went back to work after Katrina so she would not be required to go in to the hospital during another hurricane. During the interview, she began crying. After the interview Karen told me that this was the first time she had cried since the ordeal. Karen was very focused on the inability to provide patient care in the usual way without technology and with the issues surrounding patient deaths during the hurricane.

Tamara

To interview Tamara, I drove over 750 miles round trip to where she had relocated after the hurricane. The interview took place in an open office at a private

university in an affluent area of a major metropolitan city in the southeastern United States. Tamara told me she moved to a different state so she wouldn't have to work during another hurricane. During the interview she talked a lot about guns, people outside with guns, wishing she had brought her gun to work with her, and those who had brought their guns with them to work. Issues surrounding patient deaths also stood out for her. Tamara was angry and confused that she was told not to care for patients that had been transferred to her hospital because they didn't come with supplies and caregivers.

Rose

Rose was interviewed at a public library. I was stunned to see so many houses along the interstate that were still uninhabited 19 months after the hurricane. Rose left the area for a month after the hurricane and thought about not going back, but she decided that since her kids' school reopened, she would return. Rose went back to the same hospital to work, but it is now owned by a different corporation. Rose talked a lot about patient deaths and how difficult it was to have people in the hospital who were discharged during the hurricane and therefore were considered boarders so they received no nursing care, food, water, or medicine. She just couldn't quite understand how that was reasonable.

Chris

Chris was also interviewed at a public library. Her family was with her at the hospital during and after the hurricane. She was very close to her co-workers and had a very strong faith in God. Unlike the other participants interviewed to this point, Chris did not talk as negatively about the hurricane. She also did not talk about her current

employment status. Chris was very focused on how the environment affected her ability to care for patients, specifically intravenous (IV) skills and assessments of the patients.

David

A public library was also the site for David's interview. David talked a lot about the difficulties caring for patients by flashlights or in the dark and the increased responsibilities he had during the storm. These responsibilities included controlling civil unrest and evacuating people to the roof. He also described helicopters flying around the city after the hurricane. He saved a picture he took with his cell phone of a helicopter landing on the roof of the hospital he was working in during the hurricane. He went to work after the hurricane at a hospital that suffered the least and was geographically removed from the part of the city that flooded.

Kathy

Kathy was interviewed at a coffee shop. Her speech was tense during the interview, and she cried several times. Kathy described how difficult it was to care for patients because of the lack of medications, emergency equipment, and supplies. Kathy also talked a lot about evacuating patients and about her ordeals at the shelter to which the patients were eventually evacuated. Kathy went to work at a different hospital a week after the hurricane but is now teaching at a nursing school.

Tonya

Tonya was interviewed at her home in a rural area in a Southern state. She shared that she had previously been interviewed by the local television station and, for privacy reasons, preferred to do the interview in her home. Tonya described her inability to care for patients in the way she had been trained and to prevent patients from dying as

agonizing. She also talked about how not being able to provide care to her patients made her feel that she had failed as a nurse. She is now working in a medium sized hospital in a different state. She completed the disaster nursing training offered by the Red Cross after Hurricane Katrina and plans to help in future disasters.

Alice

Alice was interviewed in a conference room of a public building in a city in a Southern Gulf Coast state. Alice talked about how difficult it was for her to not be able to meet her patient's physical needs because of the lack of supplies and the loss of technology. She described the change of mindset related to caring for patients during the ordeal. She is now working as nurse practitioner in a clinic.

Erica

Erica was interviewed at a coffee shop. Erica did not work for a while after the hurricane. She left medical-surgical nursing and went to work as a psychiatric nurse. Erica described in detail what the wind was like when it blew so strong that all the windows on one side of the building exploded. She also talked about how scared she was when evacuees started rioting.

Contextual Ground of the Experience

The contextual ground of the experience was that of wanting passionately to provide comfort and care to patients during and after Hurricane Katrina. The extreme conditions under which the nurses had to work hindered their efforts at every turn. The hospital environment was perceived as terrifying, chaotic, dangerous, threatening, isolating, and primitive. The environment was such an overwhelming obstacle to care that it was described in every narrative. The environment was related to everything

experienced, and the term “Hell” was used to describe the circumstances. Regardless of the stories the participants told, the same themes were reflected.

Extreme Conditions: “We were in hell.”

“Hell” as described by the participants was a place where conditions were so brutal that people were unable to escape from it. After the hurricane made landfall, nurses in hospitals along the Gulf Coast lost resources including water, power, telephones, food, and medical supplies and technology needed to provide care to patients. Heat and humidity was unbearable. Conditions were so restricted that nurses were unable to meet their patients’ needs or their own. Lack of sleep led to exhaustion that placed a heavy toll on them physically and emotionally.

Alice described it best, “The conditions were deplorable...you’ve got hunger, heat, fear, anger...none of the toilets work...going into those bathrooms...I thought I was going to throw up...we were in hell.”

The nurses were so heavily assaulted by stimuli from the environment that the experiences were often described in vivid detail from a sensory point of view. They described what they saw, what they smelled, what they heard, and what they touched in such detail that I could picture it in my mind during the interviews.

What they saw: “I can still see their eyes.”

Nurses talked about visual images of fires burning throughout the city, people standing outside the buildings with guns, people looting buildings, floodwaters seven to fourteen feet high, pieces of buildings flying in the wind during the storm, windows blowing in, and helicopters flying over the city.

Karen described what she saw when she went in to assess her patients by flashlight. “Just the looks on their faces, and, their eyes...I saw their eyes...seeing their ...their fear and their...and they’re all diaphoretic and those...and their eyes...and I can still see their eyes.” Kathy talked about a fire in the shopping center two blocks from the hospital. “you could look and see that there was something on fire...that night when we were up on the roof it was beautiful...and the fire was gorgeous...it lit the sky up a little bit.”

What they smelled: “The rush of odors from the morgue.”

Nurses talked about how pungent the smells were inside the buildings as well as outside. Some of the things they remember smelling were fires, decomposing bodies, toxic chemicals, human waste, and sweaty bodies.

Karen described the smells from the morgue when they had to take bodies to it.

It was OR #6 where we had to bring all our expired patients...that caused a lot of anxiety for a lot of us...but the odor and the stench of the morgue...and every time we had to open that door...and that...the...the rush of odor that would come through the hallway...and knowing what that odor was. (Karen)

David talked about the smells inside the building and outside the building.

The water that...that flooded around the hospital was filled with every filth and chemical known to man. It was the stinkiest water I’ve ever smelled in my life. I mean all the sewers were all backed up...none of the toilets worked, so if you had a toilet, it was usually filled with either urine or feces....and you could just smell the smell. (David)

What they heard: "All we heard was helicopters flying and gunfire at night."

Nurses talked a lot about hearing gunshots at various times during the day and night, screams, crying, helicopters, car alarms going off after they flooded, and visitors plotting to get the nurses. Some described what it sounded like when there was complete silence. Gunfire meant different things to different people. To some it was scary and made them wish for a gun for protection. For others it made them angry, because it meant that rescues from the facility would have to stop. Others felt safer knowing there were people in the facility with guns to protect them.

Karen described the sounds she and the other nurses heard after the floodwaters came down the streets and the water started rising. "When the water started to rise, everybody's car alarm...every employee...and it was everybody's alarm started going off at the same time...and as the water rose, and then all the car alarms...just having the muffled underwater...and then just silence." Rose talked about the sounds she heard while working the night shift. "It was a little scary...all we heard was helicopters flying, and gunfire at night...and then having people tell us not to get outside because somebody would shoot us standing out there."

What they touched: "It was so warm in the rooms their skin was moist."

Nurses talked about how the environment affected the sense of touch (feeling). The environment was wet and hot. These two descriptions as well as descriptions of humidity came up in the nine interviews over a hundred times.

Tamara described what it felt like in the operating room that had been converted into the morgue, "It was so hot and humid that it was actually raining...and the...the...the shrouds are that plastic stuff...and fortunately we had put some

identification inside, because what was on the outside...the written tag...it was ruined. It got...the writing just ran right off.” Chris talked about how moist patients’ skin was due to the heat, “It was so warm in the rooms that their skin was moist ...and patients were sweating so the IVs would come out...they were sliding out...and because the adhesive tape would not adhere to the skin, so the IVs were like sliding out...so we really had to monitor those to be sure they stayed in.”

Not only did the nurses describe the sensory aspects of the experience, they also talked about other conditions they faced while living through the hurricane and the aftermath. Nurses were in buildings that suffered structural damage and had design features that even though they were intended to protect, led to more confinement in the aftermath of the storm. Interior building conditions were barely tolerable due to excessive heat, humidity, and unsanitary conditions.

All the participants talked about the heat and humidity. They described how it affected them personally, and how it interfered with other aspects of their jobs. Power outages and loss or failure of generators coupled with heat in the South in August made conditions unbearable. Several of the nurses described the heat and humidity. David said, “During the day, temperatures on the floor would exceed over a hundred degrees and night wasn’t much better...there was no breeze...so it was just a stifling, sweltering heat.” Karen described it like this, “The humidity was so bad the paper was wilted.” Tamara said, “When you watched it [Katrina aftermath] on television, it doesn’t begin to convey how really awful it was. You don’t have the oppressive heat and humidity.”

They all talked about the lack of sanitation also. Hospital stockpiling of contaminated waste and garbage; decomposition of bodies; and hallways, stairwells, and

bathrooms overflowing with human excrement led to a stench that attracted Nutria rats seeking higher ground and food. Seeing the rats, which are the size of a small dog, was horrifying for one participant. Alice described the smell of fecal material, “The conditions were deplorable...none of the toilets work... I’ve been a nurse a long time... real strong stomach...I’ve cleaned people up, never thought anything about it...But going into those bathrooms...I thought I was going to throw up.” Kathy described what it looked like, “No control over anything...all the bathrooms were overflowed...we had excrement in the stairwells.”

Tonya described the Nutria Rats that came because of the unsanitary conditions. I’d heard people talk about Nutria Rats, but I’d never actually seen one, ‘cause that’s not something you’re going to see around a hospital...we were actually containing these things in a stairwell...and they’re as big as my Pomeranian and they have big buck teeth and they’re a huge rat. (Tonya)

Most nurses reported that the hospitals ran out of food and water. Most hospitals had only planned for a two – three day supply of food and water for a minimal census. Some hospitals had an abnormally high census for the time of year. Others that had planned for minimal people had four to seven times that number. What were not accounted for were evacuees other than patients, which included the families of patients and staff. Flooding of the cafeterias also affected the reserve food supplies.

Most of the hospitals began rationing food the first day and some ran out by Wednesday. David talked about the amount of food and water that was available.

For supper we had half of a sandwich and a...and a piece of fruit... I had to explain to the nurses that we only had two gallons of water for twenty-seven

patients for the night...we had to do a med pass on patients...the 9 o'clock, when each patient got exactly one-half of a six ounce Styrofoam cup of water. (David) Erica added to the description. She said, "We got dry cereal and fruit for breakfast...half a ham sandwich for lunch and dinner...in five days I had 16.9 ounces of water."

In summary, the environment evoked fear and contributed immensely to the negativity of the experience. Safety and security and basic physiological needs were not met. The buildings were coming apart while the nurses watched. The heat and humidity were oppressive. Conditions were so extreme that they seemed almost too horrible to be true.

Thematic Structure

Six themes emerged from the participants' descriptions of the experience. Most of the nurses discussed all of these themes during their interview. The themes were 1) *Fear*, 2) *Blurred Boundaries*, 3) *Ethical Conflicts*, 4) *Isolation/Connection*, 5) *Powerlessness/ Power*, and 6) *No Hope/No Hope*. None of the themes were dominant over the others. All the themes influenced each other. The last three themes were experienced opposites on a continuum. The themes were all interdependent and interconnected and described within the context of caring for patients. The thematic structure is diagrammed in Figure 4.1.

While practicing within extreme conditions ("hell"), nurses experienced fear, faced ethical conflicts, and saw the boundaries of nursing blur. During the experience they became physically and interpersonally isolated so they tried to reestablish connection by strengthening bonds with coworkers and with spiritual connections.

Continuing and worsening of extreme conditions led to a loss of control and feelings of powerless. To combat this situation and to try and establish power, nurses adapted and improvised to provide the care they felt their patients required. Throughout the experience, hope fluctuated.

Fear: "I really thought we were all going to die."

When describing their experience, participants noted that the environment was threatening. Doors were chained shut from the inside to prevent criminals from breaking in. Predators, such as alligators and stingrays, circled the buildings, and vermin roamed the stairwells unchecked. Interiors without windows were pitch black 24 hours a day leaving nurses with no resources other than hearing or touch once flashlight batteries failed.

Nurses experienced fear of death when they witnessed parts of the buildings that they were in destroyed during the hurricane, and when the levees broke and the flood waters came in. Later they experienced fear when civil unrest elevated, flooding continued, and predators came into the flood waters. Tamara watched the roof peel back and parts of the building being blown out and wondered if they would make it. She said, "I really thought we were all going to die...I didn't think the hospital would be able to maintain through the storm." Alice described the wind blowing out the windows and said, "I had a true feeling that we were going to die."

Just when people thought the storm had passed and they let down their guard, the sense of relief did not last long. Several of the nurses watched the water coming down street after the levees broke and worried the buildings would implode like the Twin

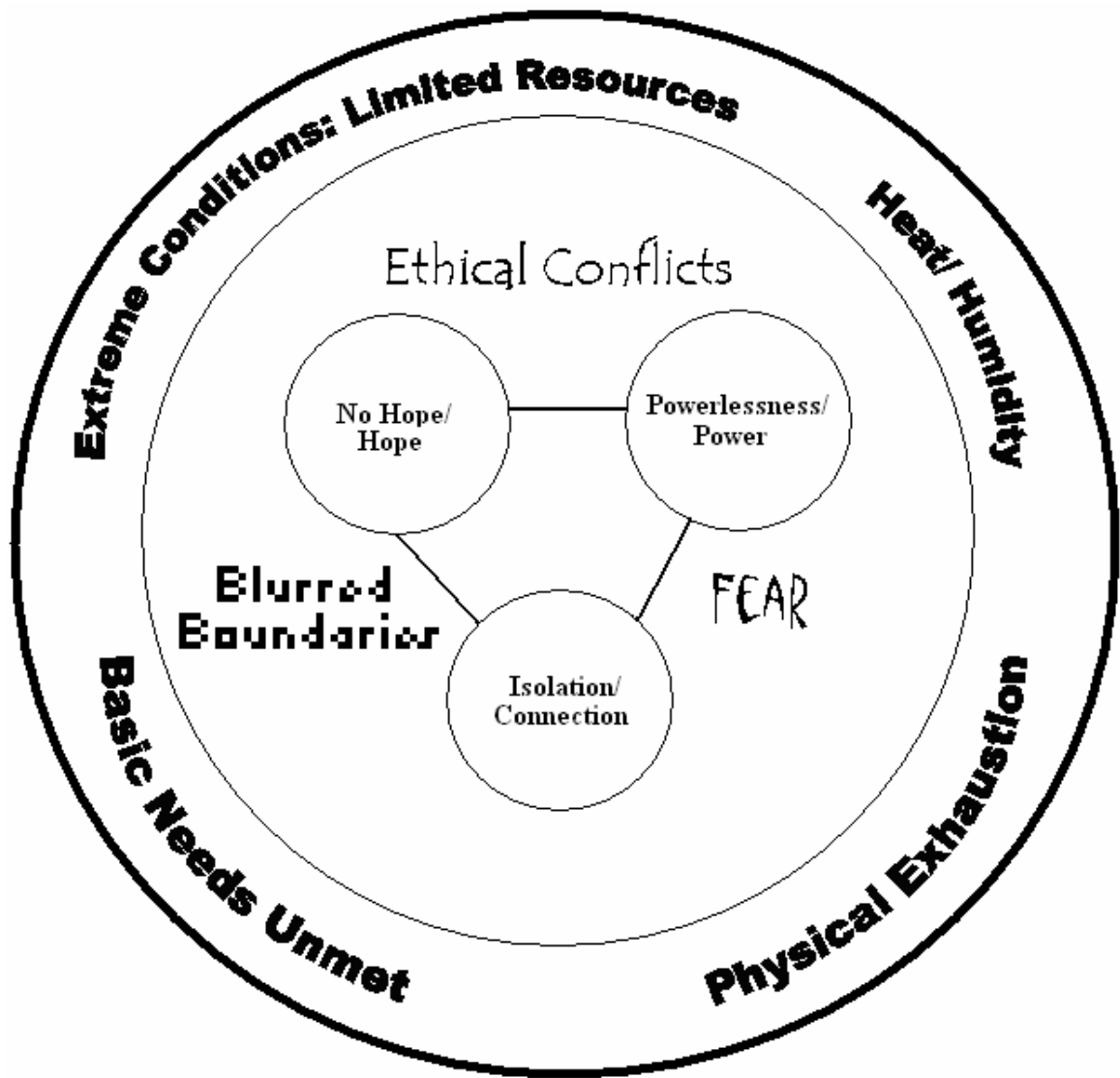


Figure 4.1 Thematic Structure: The Experience of Providing Care During and After Hurricane Katrina

Towers did on September 11, 2001 and feared death. Karen said,

That was the worst part...we saw the water come down the street, and there were white caps coming down the street...and not knowing if it was the beginning of the end...and is this how I was going to die...is this how all of us were going to die...the first thing I thought of was this is how it must have been with 9/11.

(Karen)

Most of the nurses reported that they not only felt threats from outside the building but from inside as well. The situation was so unsettling that nurses described it as surreal, like a dream, like watching a movie, and one hoped she would wake up to find the storm gone. Several of the nurses described the pervasiveness of the violence that they witnessed and the lengths they had to go to protect themselves.

They [hospital administrators] had locked all the doors, and there were actually hoodlums...they were just criminal element, outside with guns, trying to get in. It never occurred to me, never in a million years would it have occurred to me to bring my gun to work with me...fortunately, some people did bring their guns.

And I mean it was vigilante time. (Tamara)

David added to the description, telling what he heard.

In the city....it felt like...it felt crazy. And what was even worse was hearing the shots... because you would hear people shooting...knowing that people with guns out there were shooting... (David)

Kathy described how rescue operations were thwarted after someone shot at the helicopter.

We were pulling patients out to the dock, and we had to stop because somebody

shot at the helicopter. When they wouldn't stop shooting at the helicopter, and they were rushing the helicopter....and then they had to shut everything down because some idiot decides he's going to shoot the helicopter. (Kathy)

Threat from inside the building included fires, hoarding, and riots. Kathy talked about a fire that started after a power surge: "We actually had a fire break out in the emergency room, because of electrical...it flashed and then came back on, and something caught it on fire here in ER." (Kathy)

Several nurses described incidents of violence occurring in the building. David said, "We had instances where families would steal and hoard. So, it was not uncommon that we had to watch our...anything that we set down...if we set it down and did not keep our...our eyes on it, it would become stolen." Alice talked about the riots outside the intensive care unit (ICU). She said, "They were threatening outside....there was, like some rioting going on.... we had to worry about our safety from the people that were in...in the hospital." Erica told about a direct threat she received.

You could hear kind of whispers ...and I just could almost feel dissension in the air... and just people started gathering and screaming and...and cussingI got a flashlight shined in my eye, and a male voice said, "There's a nurse. If she leaves, I'm gonna f***** slit her throat. (Erica)

Threats were not only from people, but from unexpected sources as well. These included animal predators and vermin. Particularly frightening were threats from alligators and sting rays which circled the buildings. Tonya said, "And you could take your flashlight and shine it at night, and see the alligators' eyes everywhere." David

talked about other predators he saw in the water, “I seen for myself a three-foot wide stingray swimming at the parking lot at the hospital that I was working.”

Blurred Boundaries: “*We did everything. We did anything. We did what we had to.*”

Participants reported that during the hurricane they did everything and anything they had to do to care for their patients. Nurses described situations where credentials were ignored and professional boundaries became blurred. They reported that they wore many different hats and had to make many adaptations to carry out their responsibilities. At times, they reported they felt like policemen, patient transporters, and professional movers. While in the hospital during the hurricane, they reported that boundaries became blurred and team work increased, but at times responsibility also increased. During the ordeal, they had to reach out for help from others. Nurses trained patient’s family members, staff’s family members, National Guardsmen, and nurses’ aides how to help them care for patients because at times they were not physically able to carry on. During this time lay people were trained to provide care, and doctors did “non-doctor” work. Anybody who was able and willing was trained to help out because the nurses weren’t physically able and didn’t have the resources to do it all.

Rose, who didn’t have a patient assignment but helped with tasks on a unit, reported that she did anything the nurses asked her do to and it ranged from passing out water to wrapping people after they died. She said, “We did anything....We did everything. We started IVs, cleaned patients, gave them water, took vital signs, gave IV pushes, anything....we admitted people who were brought to the hospital right after the storm and we wrapped people when they passed away.” Karen added to the description.

She said, "It wasn't a status thing...everybody's credentials went out the window. We just did whatever needed to be done. Everybody worked well as a team.

Not only did the boundaries blur between nurses and lay people, other allied health workers, and doctors, but the responsibilities added to the nursing work load included moving equipment, policing hallways, and transporting patients.

David describe the experience of moving things up when the flooding started.

The water was coming in, so we had to get our critical services up. We had to get, we had to work really fast to get ER, our lab services, our cafeteria...we had to get all that the sixth floor. And so that was, that was the job. To get all that secure....pharmacy had to be moved.... (David)

David also talked about the added responsibility that came while trying to maintain control in the chaos.

I had to try to maintain an atmosphere of calm and some authority over the situationYou defused every situation you come to. You just went around....that's all you did was just defuse, defuse, defuse...You policed, like you would children. (David)

He also talked about the role changes he went through.

When the helicopters started coming, my role changed from a nurse to a transporter. I spent from Wednesday...Wednesday morning to Friday morning transporting patients. I did not sleep, because my goal was to get everybody out. (David)

Increased responsibilities not only came with trying to maintain control of the chaos, it came as a result of the situation they faced. Rose described incidents where they experienced increased responsibility. She said, "It's not nursing like I have ever experienced before...you had to make many more decisions on your own, what was good for the patients, and you...you just didn't have the...anybody to fall back on."

Boundaries not only blurred between nurses and the people they enlisted to help as caregivers, the boundaries between being a caregiver and a patient blurred when nurses succumbed to the extreme conditions and became patients themselves. Nurses described how they were exposed to horrific environmental conditions, and were unable to meet their basic physiological needs. Further, they described daily exposure to threats and death, and that their bodies were in a state of starvation and dehydration. Tamara, Kathy, and Tonya described their own personal experiences with becoming patients. Karen and Kathy described incidents where they watched other nurses becoming patients. When the nurses became patients, they were forced into a role change from nurse to patient.

Four of the nurses described the experience of nurses succumbing to environmental factors and becoming patients. Most of the nurses experienced dehydration, one was floridly psychotic, and one described the experience as being like that malnourished person from third world countries experience.

Several nurses described what it was like when the nurses started becoming sick and their roles changed from nurse to patient. Tonya said, "At first you had so much adrenaline going that you felt like...you can just do anything...but then you started to wear down. And one by one, some of our nurses started getting sick and dehydrated." Kathy talked about a nurse that had a psychotic break.

One of our nurses that night started going down. We just started IVs on her.... We had already lost one nurse as far as she started hallucinating. She had...voices that she was hearing....she was just total psychotic. You could look at it in her face and it was just a whole different person there. (Kathy)

Kathy, and Tonya describe their own experience of becoming a patient.

When I got up there, I didn't feel good. Something just didn't feel right. I felt bad...I remember leaning up against the wall. And the next thing I realized I was out on the balcony, laying on a mat...and a doctor was starting an IV on me.

(Kathy)

Tonya told about her physical condition during and after the experience.

I literally quit going to the bathroom. Most of us did. ...I don't remember anything but waking up and laying on the ground and seeing a propeller over me, right beside the helicopter..... I was severely dehydrated. I had lost ten pounds in a week. When I got back home...try to eat a bite of food...throw up. Stomach couldn't take it. Got used to having nothing. (Tonya)

Ethical Conflicts: "What makes one patient more important than another?"

Decisions needed to be made and nurses were often forced to make decision when no good choices were available. Some nurses made choices to rise above the bad decision(s) and do the right thing, as they perceived it, no matter what they were told to do. Other nurses, who had to make bad choices, later made career changes so they would not have to be in a position to make those kinds of decisions again.

Participants described this theme with great emotion. Some were angry at the decisions made for them or for the positions that they were put in, while others did not understand them. I believe most of them had to look at situations they had never faced before or ever thought they would have to face. Kathy talked about a conflict between two nurses during a code.

They were going to take this man's oxygen away. And the nurse who was assigned to him said, "But if you take his oxygen away, he's going to die. And it got to be a battle between two nurses, "But if I don't put it on this lady over here in the code, she's going to die." And one nurse finally said, "But what makes that patient more important than this one? How do you decide in this situation who's more important? (Kathy)

Tamara described the dilemma of not being able to care for patients who had been transferred into her hospital. She said, "Our CEO, decided that the medicine that we did have in the pharmacy would be for our patients and they were not going to take care of these [transferred] patients. They were just providing shelter." Tamara and Rose describe instances where administrators made choices to discharge people when the people had nowhere to go. They could not understand this decision. Tamara said,

We didn't have enough water....enough food....I got very, very concerned when the CEO said, "We're going to have to just start telling some people they have to leave." ... and some of the doctors came in and started discharging their patients. I said, "Where are you going to send those patients? I mean, so Grandma...now you say she couldn't go home Friday, but she can go home now, and she has no home? (Tamara)

Rose provided additional detail. She said,

Some people were just boarders...[they were] discharged from the hospital but had no where to go...we weren't allowed to do anything to them...you discharge them but they don't have anywhere to go, so they're not really discharged to me.

I mean, how do you give somebody prescriptions and tell them, "Go." Where?

There wasn't anywhere to go. So how do you discharge somebody? (Rose)

Tonya talked about wrestling with the dilemma of possibly having to choose between her own life and the lives of her patients. She said, I remember ambuing patients until I thought to myself, "I cant' believe this might come down to me or my patient. How can I choose?"

Isolation/Connection: "We were an island"/ "We just stuck together like glue"

Many of the nurses were in buildings that were surrounded by flood waters. Several described it as feeling like they were on an island. Others described it as feeling like they were stuck, isolated, and cut off from everything. When participants looked outside they were unable to see anything on the ground or any people outside.

Not only were they in buildings surrounded by water, they also had no telephone service or cell phone signals. Because of this participants were unable to call out and nobody could call in.

Several of the nurses described isolation in the physical sense as if they were on an island. Karen said "we were under nine feet of water, and we were an island." David said "you could look out over the city, and you would feel that you were in a...in a lake, and all these little islands that were houses were all around you".

Rose, who had claustrophobia in the past, felt stuck and scared. She described it

like this, “we couldn’t use the elevators, we couldn’t take the stairs. We were basically stuck. It was very scary. I don’t think I have ever been that scared. I don’t like to be stuck anywhere.”

Others felt the isolation as a loss of interpersonal connection. David said, Knowing that my family did not know whether I was alive or dead...there was no way I could call them or talk to them. There was no cell signals... No cell phone worked. There was absolutely no communication with our families. (David)

Rose said, “It [loss of power] just cut us off from everything. We were just cut off from information...any kind of way.”

Participants described connection as sticking with their friends and supporting each other, forming support groups to talk about feelings and the situation they were in, and as strengthening bonds they had with people they had worked with for a long time. During the hurricane, staff at the hospitals worked together, ate together, slept together, cried together, and were scared together. Alice and Kathy described the connection they had with people. Alice said, “When I got to the break room about 7pm... one of my long, long time friends was there.... and, oh my gosh, we just stuck together like glue, said “Okay, let’s both do night shift together; we’re going through this together.” Kathy said, “And one particular physician...we sat there and we talked for hours...and what was important at this point. What was going to happen when we got out of here and the hope that it... it made it a whole lot more bearable. It was just a bonding that I’ll never forget.”

Rose and Chris were friends. They talked about the support they received from the nurses they worked with in their department who were sent to the floors as extra help for the staff nurses and how it helped them get through the time they were at the hospital after the storm. Rose said, “We stayed...we slept in the area...so we had ourselves to rely on. And we kind of stuck together. There wasn’t anytime that we were alone, without our friends.” Chris added to the description, “We’re such a close knit group, that we relied on each other for sanity. Our friends were there...we were a close group of people. We had our talk sessions, our talk sessions every night when we would come back to our rooms, probably 2...3 o’clock in the morning.” David also talked about the support he received from co-workers who were like a second family to him and how it helped him get through the ordeal.

Whenever we wondered if we were going to make it or not you would talk to people around you. Everybody would try to help everybody else. We’d all worked together there for more than...for almost a complete year. So this even pulled us togetherit helped relieve stress. We’d talk to each other about what was going on...bounce ideas off each other and just talk to each other about what had happened. (David)

Spiritual connections also helped Tonya cope with the situation.

What finally gave me peace was I got down on my knees and I prayed to God and told Him I wasn’t as strong as I thought I was, and that even as a Christian when you’re put in...in that situation...I said, “I can’t do this anymore. I just can’t.”...And I felt like God sent me...sent me the message...I may not have been there to help them medically...but maybe I was to help them spiritually...so then

my whole focus change...off of nursing...which I was still doing...but praying with these patients....and talking to family members and visitors...and started singing gospel songs, and everything just kind of changed. (Tonya)

Powerlessness/Power: "I felt like a failure in every sense of the word."/ "We just had to pave our own road."

Participants described the care they provided to patients as primitive due to the lack of technology, resources, and supplies. Some felt that using only the most basic nursing methods to care for patients was agonizing. To Karen it was distressing to not be able to care for patients in the way she had been trained.

We basically used up all those supplies. And then it came to a point where we just didn't have any...any more morphine...we didn't have any more Tylenol.

We didn't have any more linen. We had no running water....I felt like a failure in every sense of the word....it was an overall sense of failure....and not being able to have anything to just take care of patients... and then you don't have a purpose.

(Karen)

Lack of supplies, resources and technology affected how the nurses did their jobs and forced them to go back to skills they described as primitive, basic, and archaic in the dark or with flashlights. Chris said,

We had to incorporate the skills that we had acquired in nursing school. The situation was complicated because you had to bring out skills that you had not used, primitive skills.... it made you think and use skills which today's technology have kind of taken away from us. (Chris)

David talked about what it was like to work in the dark.

We had to do everything by flashlight...so, for the majority of the night, we had to sit in our stations with the...with our flashlights off, listening for our patients....It was just basic nursing care. It was down to just basic nursing, giving medications, giving out water, and providing as much comfort as you could.

(David)

Nurses reported having to return to “old school” methods and to provide care without technology. Through improvising they were able to provide the care they felt the patients desperately needed, and in the process of doing this, restored feelings of efficacy in themselves. Alice said,

Patient care was pretty much just...it wasn't happening...Our monitors didn't work... you couldn't do anything that you were used to doing...we just had to pave our own road...I went back to... the very basics of nursing care...and to provide comfort... I think I made comfort like my number one priority for my patients. (Alice)

Tonya described ways they improvised. She said,

We ran out of linens, so as the patients, needed to be changed, or had bowel movements, we ended up using curtains. We cut them down and cut them..... sheets off beds that might have been on the other floors that were not occupied.

(Tonya)

Karen added more detail about improvisations. She said,

We basically were squeezing bags [of pressors] into patients... we had no suction ...our ventilator patients that were in...in CHF and pulmonary edema...we

actually used the bulb suction for infants...and would put a Foley catheter on the end...making stretchers out of sheets... we went to the OR and got... we got the, 3000cc, liter bags of saline that we use for bladder irrigation, we used that to...to...to bathe patients, to, rinse them off. (Karen)

Feelings of power were also restored by affirming that you were in control and and you were going to take care of yourself. Kathy equated feeling like a drug dealer as having power and this is how she described it:

I've got twenty-five 50mg Demerols stuck it in the top of my scrub [to give patients who needed them], and I walked around for two days with 50mg Demerol in my chest...we just kept count. Because they'd come find me and they'd go, "We need another one." ...I felt like a drug dealer. (Kathy)

No Hope/Hope: "Were we going to live or die?"/"God's not done with me yet."

With dwindling hope and conditions worsening, the participants not only faced threats coming at them from outside the hospital but from inside as well. Lack of resources (food, water, sanitation) prevented them from meeting their own basic physiological needs, and watching their patients die made them lose hope and question whether they would survive.

There was a lot of anxiety not knowing... were we...were we...you know...all perish?... and when patients started to expire because of lack of power and supply and food and everything... we had know idea how long what we had was going to last.... And how long everybody could...could make it, including staff. (Karen)

Tonya added to the description. She said,

You didn't know if you was going to get out alive or not....the situation was getting so desperate. Under conditions like that you were more just...just overwhelmed at times..... I knew if we didn't get out of there and get these patient's out pretty soon, we were all going to die. (Tonya)

Participants discussed how hope came and went. In the face of devastation they tried to remain optimistic. Hearing a radio broadcast instilled hope in one, while spiritual connections such as talking to God or having a service by the chaplain helped others. Tamara described how her hope was restored. She said, "My husband got out and he got to our house...our house was fine...our neighbor's house wasn't fine...we had seven trees in our back yard....they all fell...not one of them hit the house. So I figured, okay, God's not done with me yet." David revealed that the voice of another nurse's husband on the radio was a ray of hope that changed her whole focus.

We were able to pick up a radio station, and one of our nurses heard her husband on the radio. And he called her name, and he said "If you can hear us, just know I love you. We're still looking for you." And that was like hope for everybody. (David)

Karen and Kathy talked about the spiritual connections that helped them get through it.

The one thing that I did remember that really helped a lot was, a group of therapists that were in the hospital...every day would come at lunchtime and sing...On each unit...And that...that I can tell you was very uplifting, and

helped....we had our, our chaplain that was there at the hospital with us, and every day we'd have a service....that did alleviate a lot of stress. (Karen)

Kathy added detail. She said,

I spent those four or five days talking to God, and every once in a while it would be, "Okay, Lord." And my prayers went from....in the hospital I went from,

"Lord, protect us all from the storm," and then it was, "Lord, keep my kids safe."

At one point my prayer turned to, "Lord just take me now. Let me go and end this now, I can't do this anymore."....But it got better. (Kathy)

Additional Findings

Participants reported that sometime during their experience of Hurricane Katrina they reflected. Some realigned their priorities while others decided that they would never be in the situation again. One grieved losses, while another used it as an experience for growth. Perspective Changes occurred because of nurses' experiences of providing care during and after Hurricane Katrina. Karen said,

You learn what's important. You value relationships a little bit more, and you're not as selfish... I didn't go back to fulltime nursing because I had a lot of anxiety as the new hurricane season approached. I took a PRN job, and that alleviated a lot of the obligation because as a PRN you're not obligated to go to the hospital. I have no....no plans or ever desire to do that again.... And I...and I won't. (Karen)

Rose said,

I would have to think long and hard if I would stay again. I don't know that I would stay. When you wouldn't necessarily have to do anything for somebody to

die. Actually, you'd have to do nothing. You don't have to kill them, you just do nothing. You just let them... I mean, they just would...oh my God...I don't think anybody can imagine how hot is hot. And how draining and ...it just was an unbelievable ...I don't know. It's hard to even explain. (Rose)

Many talked about the structural damage that the facilities encountered during the hurricane. In the storm ravaged environment, architectural design features, such as hurricane shutters and hurricane windows and layout of departments, to ensure out patient and public access were a serious detriment to the safety and comfort of patients and staff. Every structure in the hospital proved to be vulnerable.

Participants told stories about roofs and windows. Karen said, "The roof caved in, which had one of the generators on that roof. And when the roof caved in, we also had all of our glass windows on the North side of the hospital that blew in." Alice said, "Windows were imploding, we were having to block off doors, and, the...the ceilings were just panels and so they were just falling and falling and falling and falling."

Kathy talked about the material that made up the outside of the new building that had just recently been completed: "Our building was made...what we call foam...part of that started getting some water up it and the front part started collapsing."

Hospital design which placed all the essential services on the first floor was fatally flawed and magnified the ultimate loss of resources when flooding occurred.

Karen talked about ancillary services. She said,

Materials management on the first floor... pharmacy on the first floor... generators on the first floor...Ultrasound, lab, x-ray, everything on the first floor...so we basically had no back-up. (Karen)

David talked about food supplies. He said,

Our cafeteria and our...our resources for the food and for food storage all on the ground floor...when the flood waters started coming in, it came in so fast that only minimal food was able to be taken out of storage and moved up...so automatically [food supply], cut in half. (David)

Features which were intended to protect the hospital during hurricanes led to more confinement and in turn worsened environmental conditions. Tamara described the windows. She said, “It was so incredibly hot in that building, and it’s a modern building...the windows don’t open.”

Kathy added detail about windows. She said,

When it got so hot...we decided we needed to do something for patients...the heat was getting intolerable and we noticed there were two windows so we decided we’d just go and break the windows open...unfortunately, the new part of the building had the hurricane proof windows....we took fire extinguishers and were, like bouncing them off those windows and they wouldn’t break...one nurse had some sort of jigsaw knife and cut a hole through the window...a hole about golf ball sized...it took her a good couple of hours to cut through that. (Kathy)

Summary

The thematic structure of the experience of providing nursing care during and after Hurricane Katrina was described within the context of caring. The environment was described as “Hell”. Working during Hurricane Katrina created an environment where the participants experienced fear, ethical conflicts arose, and the boundaries of nursing became blurred. Along with these conditions they

also felt isolated, powerless, and hopeless but didn't give up because they tried to reestablish connection, power, and hope. Discussion of the findings, along with implications for theory, nursing practice, education, research, and policy are presented in Chapter Five.

CHAPTER 5

DISCUSSION

The meaning of this experience was grounded within the context of providing care to hospital patients. It was within this ground that the themes of 1) *Fear*, 2) *Ethical Conflicts*, 3) *Blurred Boundaries*, 4) *Isolation/ Connection*, 5) *Powerlessness/ Power*, and 6) *No Hope/Hope* emerged. This chapter discusses how the findings relate to past research and theory. It also includes the implications for nursing theory, education, practice, research, and public policy.

Fear

The theme of fear described feelings of apprehension participants experienced when they were faced with imminent danger and did not know what was going to happen. Fear was present throughout the experience because of the threats participants experienced every day. Fear is one of the consequences of threat and when people experience threat, they often times respond to it like stress (Scholtz, 2000). When faced with threat, cognitive appraisal begins and assessment of the stimuli occurs. Based on perceptions people hold of stimuli, they assign different meanings to experiences. Negative appraisal of threat may cause individuals to 1) feel vulnerable, 2) elicit anxiety, or 3) overwhelm ability to cope.

In this study, nurses feared they were going to die while the hurricane was hitting, when the flooding began, when civil unrest escalated and continued, when observing patients dying, and observing nurses becoming patients, and when facilities ran out of food and water. Fear exposed nurses to psychological suffering. After their hurricane experience, some nurses reported flashbacks, sleep and dream disturbances, mood

lability, and difficulty concentrating. These reports are consistent with Horowitz's Disaster Stress Response Theory (1976, 1985, 1991, 2001) that victims of disasters respond in similar ways. Findings in the current study were also similar to Laube's (1973) study of nurses working in hospitals during Hurricane Celia, when they experienced concerns for personal safety when they witnessed structural damage and flying debris during the hurricane.

Blurred Boundaries

When describing this theme, nurses recounted all the different roles they had to assume while providing care to patients within the extreme conditions. They also described how boundaries were crossed in order to provide care to patients when they were unable to do it all. When the term role is described, one thinks of a part someone plays or of an individual's specific function (American Heritage, 2001). The nurse's role is performed by someone with special training and a license and is directed toward caring for patients. State nurse practice acts, State Medical Practice Guidelines, and scopes of practice define the boundaries of nursing and medicine. The *American Heritage Dictionary*, (2001) defines boundary as "something that indicates a border or a limit" (p. 104). Practice acts also direct health care providers to the requirements of the job and what they are allowed to delegate.

Nurses in this study recognized when the boundaries of traditional roles were crossed when they had to delegate care that was within the boundaries of nursing and when the roles they performed were not within the scope of nursing practice. They also became patients. This was an unexpected role in which to find themselves.

Rayner's (1958) study of nurses working during major disasters in the 1950's found that nurses experienced role conflict and insecurity with increased responsibilities. Laube's (1973) study also found that in a disaster situation nurses had increased responsibilities, they assumed what they considered medical responsibilities or made decisions that were usually made under physician supervision. Nurses becoming patients during a disaster was a new finding. This finding was not found in the review of the literature related to disaster nursing.

Ethical Conflicts

As they described this theme, participants talked about situations where they faced ethical conflicts. During these discussions participants expressed anger, lack of understanding about the decisions that were made, and inability to make decisions between choices they faced. When placed in these situations, nurses were faced with a dilemma. A dilemma is described as a situation where there are two or more alternatives from which to choose from (Sletteboe, 1997).

The American Nurses Association's (ANA) Code of Ethics (2001) provides nurses with a framework to use when analyzing ethical situations and making decisions. It tells nurses how to act and what the values and obligations are when individuals practice nursing. The ANA Code of Ethics (2001) specifically addresses how nurses are "to protect the health, safety, and rights of patients" (p.12). However, dilemmas in nursing are not always clear. At times nurses are forced to make decisions where one choice is not better than the other. At other times they are asked to make decisions when they don't know what the right decision is to make. In situations like disasters, nurses may not always be able to protect their patients. In this study, nurses advocated for and

sought to protect patients health and safety after administrators told them not to give resources to patients who were discharged with no place to go or who were considered boarders. When nurses are required to make decisions such as this, moral distress may result.

A review of the literature related to moral distress found that nurses had encountered moral distress in situations such as low staffing, overly aggressive treatment, patient wishes disregarded by a physician, definition of brain death, effects of cost containment, and working with unprepared staff (Corley, 2000; Elpern, Covert, & Kleinpell, 2005; Gutierrez, 2005). Moral distress has been found to affect nurses psychologically. Psychological manifestations include anger, frustration, loss of self-worth, anxiety, helplessness, powerlessness, and dread (Corley, 2002). The findings of with-holding resources or discharging patients during a disaster, when they had no where to go, was a new finding.

Isolation/Connection

Feeling like they were on an island was how participants described the physical isolation they endured during the aftermath of Hurricane Katrina. After the levees broke in New Orleans, the city experienced flooding and many of the participants reported that their hospitals were flooded to the second or third floor.

A review of the literature related to physical isolation found research related to mental health patients being isolated during periods of severe psychiatric distress and patients being isolated with outbreaks of communicable illnesses. In the nursing literature, isolation often refers to social isolation and is found in the literature related to North American Nursing Diagnosis Association's (NANDA's) nursing diagnosis of the

concept (Warren, 1993). Social isolation is described within the context of the pattern of relating that exists between two or more persons. When individuals enter this pattern, they try to connect with or establish a link with another thing or person. If they are not able to establish this connection, they are considered socially isolated. Social isolation can develop as a result of loss of the usual support networks and may produce abnormal coping responses that lead to anxiety. With continued isolation comes feelings of powerlessness and feelings of inability to control life as it is being lived at that time and in the future (Warren, 1993). If people who are socially isolated reestablish connection, anxiety is less likely to continue as a long term consequence. Positive ways to cope with social isolation include strategies which identify and eliminate the causative and contributing factors so that socially isolated persons can connect with others (Warren, 1993).

In this study, nurses were unable to connect with some of their usual support systems, i.e. families and friends outside the hospital. They were also unable to eliminate the causative and contributing factor. Nurses did, however, attempt to establish connections with others within the constraining situation. The concept of connection is most often associated with spirituality in the nursing literature and is defined as joining with someone (Buck, 2006). Connections may be experienced physically, emotionally, or spiritually. Connecting with others has been found to decrease anxiety and it is thought to be a positive coping mechanism.

The experience of feeling isolated and reestablishing connections during disasters was not found in the literature in previous studies of nurses working in natural disasters.

It was also not found in a search of the literature related to isolation and disasters and isolation and flooding.

Powerlessness/Power

The theme of powerlessness/power was described by participants as “feeling like a failure” and “having no purpose.” Powerlessness has been described as the inability to make change occur, being trapped in one’s situation, and being vulnerable (Pieranunzi, 1997; Strandmark, 2004). Powerlessness has been associated with decreased feelings of self-worth and causing suffering (Strandmark, 2004). Ways of decreasing feelings of powerlessness include finding ways to alleviate the situation, such as discovering alternate ways to accomplish things, improving the situation, and establishing bonds with supportive people (Strandmark, 2004).

In this study, exposure to extreme conditions, not being able to provide the care they felt their patients needed, and inability to make assessments of patient situations in the usual way placed the nurses in a vulnerable position. These facts, coupled with the feelings of being trapped in the situation in the physical and emotional sense and realizing that they had limited ways to change the situation, led to feelings of powerlessness.

To combat the feelings of powerlessness and to provide the care they desperately felt their patients needed, nurses started thinking innovatively and began making improvisations. These actions helped them reestablish some feelings of power.

Power is defined in many different ways and has been described from many different contexts. Power as it applies to this situation is defined as “the ability or capacity to perform effectively” (American Heritage, 2001, p. 660). Hawks (1991)

suggests that there are two different ways to conceptualize power including “power to” which is consistent with the definition I have chosen to use, and “power over”. “Power over” connotes that someone is trying to gain dominance over someone else.

In this study, nurses attempted to change the situation by changing the way they looked at the situation, by establishing different priorities, and by becoming innovative and improvising. The feelings nurses experienced of powerlessness and the attempts they made to regain power during a disaster were not found in previous studies of nurses working in natural disasters. It was also not found in a search of the literature related to power and powerlessness.

No Hope/ Hope

Hopelessness means to be without hope. Some nurses watched as roofs caved in and bricks blew out of their buildings and feared that the buildings would not remain stable under the hurricane force winds and that they would perish. Others watched the water flowing down the streets after the levees broke and wondered if the buildings would implode, like the Twin Towers during 9/11. As food was rationed and the situation became more desperate, others wondered if they would get out and if they would ever see their children again.

Hopelessness is found in the nursing literature related to NANDA diagnoses and is described as a state with limited choices and/or no alternatives available (Drew, 1990). Hopelessness was experienced in this study because of the nurses’ exposure to the extreme conditions, isolation, inability to care for patients adequately, and uncertainty about what was going to happen to them, especially if they were going to live or die. Uncertainty has been found to affect psychosocial adaptation in patients with illness

because they are unable to determine the meaning of the experience (Neville, 2003). If individuals are unable to cognitively appraise situations, this is a significant stressor.

As participants discussed their hurricane experience, they described that after they survived the hurricane force winds and the flooding they were optimistic that they would be rescued. As the days went on and they continued in isolation, their hope began to fade. According to *the American Heritage Dictionary* (2001), hope is defined as “to wish for something with expectation” (p.). Hope has been described in many different ways in the nursing literature including: a precursor to health and well being by protecting against stress; as a coping strategy; and as a sense of the possible (Benzein & Saveman, 1998; Stephenson, 1991). Hope has been equated with meaning and value in life by persons who were prisoners in concentration camps during World War II, such as Victor Frankl (Stephenson, 1991).

Additional Finding

Even though perspective change did not emerge as a theme, most of the nurses told me about the changes they had made after their hurricane experience. Nurses talked about employment changes they had made after the hurricane. The finding about perspective changes supports the results of Shih et al. (2002) who studied nurses providing care after the largest earthquake of the century. The authors found that after the disaster nurses recognized that life was transient and they felt a desire to lead a more significant life.

This finding is also consistent with Mezirow's (1978) Transformation Theory about the process individuals go through when they experience life crises and try to make meaning out of the situation. According to Mezirow, during perspective transformations

people experience a disorienting dilemma which causes them to critically examine the situation and their assumptions. They then explore options for a new way of living, plan a course of action, and then try out the new way of living. Seven of nine nurses interviewed in this study made decisions that they would not work in the situations they found themselves in during the hurricane again and made those changes after the experience.

Implications for Nursing

Theory

Nightingale's Theory of Nursing

As the environment was such a strong influence, and the nurses had to go back to basics when providing care because of the loss of resources, technology, and supplies, Nightingale's theory of nursing, which was developed before the advent of our modern technologies and focused on the environment in which care is given, is an appropriate theory to apply to the findings from this study. Nightingale (1860/1969) believed that the environment was important to the health of patients and that nurses should support the environment to assist the patient with healing. She also believed that nursing's main concern was with the patient in the environment and how they were interacting with the environment.

Nightingale (1860/1960) described the goal of nursing as one of creating an environment that was conducive to health so that patients could act in the environment and heal themselves. In order for the nurse to create an environment conducive to health, five environmental components were required including pure air, pure water, efficient drainage, cleanliness, and light. To Nightingale, the nurse was in charge of making sure

the components were present and if they were not, the environment needed to be manipulated so that they were there.

Nightingale asserted that patients' health could be maintained if attempts were made to prevent disease. She believed that this could be done by controlling the environment. Control of the environment could be achieved by keeping the air that patients breathed clean; bathing patients and properly disposing of bodily secretions and sewage; and moving and exposing patients to sunlight (Nightingale, 1860/1969).

Nightingale also maintained that nursing was an art and a science. She believed that nursing required education and devotion and that all actions put forth by nurses were guided by caring (Nightingale, 1860/1960). Nightingale considered observation as the only way to acquire and validate knowledge.

Education

Nurses in this study reported that nothing had prepared them for this experience. Nurses had to complete assessments by flashlight or by using their senses in the dark after the batteries ran out. They had to start IV's on patients whose skin was so wet that the tape did not hold allowing IV's to slide out. They had to make determinations of death in patients who still had body temperatures of 101° F hours after death.

Health assessment courses need to be designed to include content which exposes students to those situations. Traditionally, nursing students practice physical assessment on each other in the laboratory course, and then on patients in the hospital under ideal conditions. With simulation equipment, modules could be designed where students practice doing assessments in the dark and start IV's on simulation mannequins with wet skin.

Care of medically unstable patients with extremely poor prognoses was the priority during some situations reported in this study. When a patient coded, all the resources were used on that one particular patient and often times these efforts were futile. Teaching field triage techniques used by the military to civilian nurses would address this problem. In the field, patients who are determined to be fatally wounded, or who would die despite heroic measures, are provided with comfort measures, and valuable resources are shifted to where they provide the greatest good for the greatest number of persons.

Many nurses discussed the importance of providing emotional support to each other and talking about what was happening during this event to help each other cope with the situation. During mental health or public health courses, students could be given hypothetical situations and then role-play these situations so they could practice techniques that assist each other.

A review of major nursing public health textbooks revealed that disaster nursing content is traditionally taught to nursing students during this course. This review also revealed that only content about how to set up shelters, how to develop and administer programs to control and prevent disease, and how to respond to bioterrorism events is in these textbooks. Courses with CEU credit could be designed and administered in a seminar format to teach nurses in the Gulf Coast Region how to provide care in situations similar to those that the nurses in this study described. Nursing needs a formal career ladder that would clearly designate those with such knowledge to be in leadership/decision making roles during disasters. These people with advanced training

could help others learn in the field even if they don't ordinarily function in such a role during non-disaster times.

Practice

Nurses in this study were stranded in hospitals that could not provide for basic needs. In the future, nurses must plan in advance and institute strategies to meet their own needs when they go to work during a hurricane. Nurses need to take food and water for at least five days, clothes which allow comfort and relief from the heat, flashlights and digital recorders with batteries to run for five 24 hour days, personal toiletry items, and a five to seven day supply of prescription drugs.

Facilities must provide secure storage for these personal items with no possibility that they will be commandeered. This provision would increase staff feelings of safety, decrease feelings of isolation (personal items are concrete reminders of home and family), and perhaps increase staff reporting during disasters.

Food choices should include non-perishable, nutritious food that are compact and don't require refrigeration or heating. Examples of this include: tuna or chicken in factory sealed foil packs; dehydrated fruits such as apricots, banana chips, raisins; fruit snacks, yogurt snacks; and nuts. Camping and hiking stores sell dehydrated food in packets that would also meet nutritional needs.

During a disaster, nurses also need to think about packing unconventional items one would not think about taking with them to the hospital on a normal day. Tamara talked about a nurse who had military experience bringing a jigsaw knife that was useful to make adaptations to structural features during the extreme conditions. One of the nurses in this study also verbalized that she felt so threatened by civil unrest that she

would bring her gun to work during future disasters. Although this author does not advocate taking a gun to work, there are other products available that one can use for personal protection such as mace or pepper spray canisters.

Administration

Many of the nurses worked in hospitals that experienced flooding, as well as loss of power, water, food and medications. As a result of the extreme conditions and these losses, nurses were unable to meet even the most basic physiological needs of their patients and themselves. Most hospitals in this study had enough food and supplies to last two days and were counting on a minimal census before flooding occurred. Some hospitals had five times the number of people in the building than planned for.

Most hospital's architectural designs have cafeterias on the first floor. After the hospitals flooded, they were left with one-half the amount of food with which they started. Risk assessments could have been done by administrators before hurricane season. Such an assessment would have shown that 49,000 households in New Orleans were without private means of transportation (Taylor, Morningstar, & Molway, 2005). Without private means of transportation many of these residents did not evacuate the city. It was a reasonable assumption that some of them would come to a hospital to seek shelter or be with their families since hospitals often meet the needs of visitors.

Hospital administrators are responsible for making decisions about stockpiling adequate supplies and the evacuation of patients. They need to bring nurses to the table when these decisions are made. Planning in the future should include increasing stockpiles to meet the needs of at least five times the amount of food and supplies needed for seven days. Further, because hospitals in the Gulf Coast Region are at increased risk

of tidal surges after Hurricane Katrina changed the terrain in the Gulf of Mexico, hospital administrators should also consider evacuating critically ill, ventilator dependent and dialysis patients to facilities farther north if a Category Three or higher hurricane enters the Gulf of Mexico.

Implications for Public Policy

Legislation needs to be enacted providing nurses immunity from prosecution if patients die as a result of extreme conditions. Another alternative would be to extend the boundaries of the Good Samaritan Laws that some states have to cover such situations during disasters.

During their hurricane experience, nurses and patients were exposed to such extreme conditions that basic physiological functioning slowed or ceased. Many of the nurses reported that elderly patients, patients with chronic illnesses, and dialysis patients died. Several nurses in the study had a wrongful death civil suit filed against them 17 months after Hurricane Katrina.

The elderly, chronically ill, and patients on dialysis are all immunocompromised. Patients who are immunocompromised have difficulty adjusting to changes under normal environmental conditions. It is well documented that elderly people experience changes with aging that alter the normal physiological functioning of their bodies. Elderly people have less ability to regulate temperature, detoxify medications through the liver and kidneys, have less subcutaneous tissue so they don't sweat as much, and have altered internal functions which affect electrolyte balances. All of these factors could precipitate death.

Persons with chronic illnesses have pathophysiological changes that affect the way the body responds to internal and external stresses. Many chronic illnesses affect liver and kidney function so excretion of waste and ability to balance electrolytes decreases. Dialysis patients who are in end stage renal disease have minimally to non-functioning kidneys, so if they are not dialyzed frequently or for several days, they experience neurological, cardiovascular, and respiratory sequelae, that left untreated, result in death.

Lack of food and water, extreme temperatures, and the psychological stresses people experienced during the hurricane coupled with age, chronic illnesses, and infirmity could easily lead to death. As Rose said, “Actually you’d have to do nothing for somebody to die. You don’t have to kill them, you just do nothing.” Lack of food, water, medications, and resources led in effect, to doing nothing.

Another situation that occurred while the nurses and other health care providers were stranded was the continued use of acute care triage protocols. Several nurses reported that when a patient’s conditions would deteriorate, they would focus all the resources such as personnel, medical supplies, and life support, on that one patient, possibly at the risk of death to another, more stable patient.

Policies must be developed and instituted that support changing from using acute care triage protocols, where all personnel focus on saving one person and using scarce resources, to a military triage system. In this way, patients who will most likely die despite heroic measures are given medications to be kept comfortable and not otherwise treated (Hart & Norton, 2003). Using this system, resources are directed towards those patients who have the best chances of surviving given the adverse situation.

Future Research

This study makes a contribution to the research literature because the experience of providing nursing care during and after Hurricane Katrina has not been described elsewhere. In addition, this study contributes to the body of knowledge related to disaster nursing by addressing a gap in the literature about nurses becoming patients, ethical dilemmas they face during disaster, and feelings of powerless and isolation related to providing nursing care without adequate resources.

Additional research could include studies of the experience of providing care after Hurricane Katrina as a Disaster Management Assessment Team (DMAT) nurse, a Red Cross Shelter nurse; or a nurse at the New Orleans Airport. Qualitative studies which examine factors that contributed to successful coping with the disaster could be conducted. Also studies which attempt to determine how previous disaster training or military training helps nurses cope with disasters could be conducted.

An unexpected finding in this study that could lead to further exploration is how nurses make ethical decisions and ethical judgments during disasters. Nurses were faced with dictates by hospital administrators that they were not allowed to give medicine, food, or water to patients who were “discharged” during the storm or who were “boarders.” These situations led to moral distress. Further research into this topic would be beneficial to patient care and to the future health of nurses providing care during other disasters. An interventional study could be conducted in which nurses are given education about how to prevent and manage moral distress, and then outcomes are measured to determine if moral decision making is improved.

Previous research by Sopher, Petersen, and Talbott (1990) and Demi and Miles (1984) found that previous disaster training increased efficiency with managing disasters. An educational program could be developed and implemented using principles from self-directed learning. Self-directed learning has been reported as a way in which people learn to become lifelong learners and as one of the adult learning theories that has had the most research attention from adult educators worldwide in the last 30 years (Brockett & Heimstra, 1991; Merriam, 2001; Straka, 1999). This type of learning has been described as a goal of education, a learning process, a multidimensional concept, and a personal attribute (Brockett & Heimstra, 1991; Candy, 1991; Merriam, 2001). Although multiple models and instruments have been developed with the goal of advancing the understanding of self-directed learning, a content analysis of the last 20 years of research literature revealed that the movement toward advancing this research agenda has slowed in the last 20 years (Brockett et al., 2000; Merriam, 2001).

Seminal works by Houle (1961) and Tough (1971) have been credited as providing the first description of self directed learning as a form of study and as being the spark that ignited the interest in researching this phenomenon (Brockett & Hiemstra, 1991; Candy 1991; Merriam & Caffarella, 1999). Tough's work, which built on Houle's work, studied the learning projects of 66 adults from Canada, to describe the process involved in self-planned learning. He found that 70 percent of all the learning projects these adults were involved in were self-planned and the learner took the initiative to deliberately gain knowledge and skills with the purpose of retaining them to produce a lasting change in themselves (Brockett & Hiemstra, 1991; Merriam & Caffarella, 1999)

In this study, Tough also found that the “typical” adult had been involved in an average of 8 different learning projects the previous year and spent an average of 104 hours on each project.

Knowles (1975) also contributed to the early literature on self-directed learning by writing a book intended to be a resource for students and teachers to become a self-directed learners. In this book, he provided a description of self-directed learning which is the most widely accepted and is as follows:

a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes (Knowles, 1975, p. 18).

This study identified a lack of preparedness for an experience of this magnitude and the many challenges nurses faced while providing care to patients during and after Hurricane Katrina. Self-Directed Learning could be used as the framework when developing educational programs to help nurses become more prepared in the future. Self-directed learning is more empowering than other ways of learning and has the potential to boost the confidence of nurses in future disasters. It could also be therapeutic as nurses using knowledge gained by this method may feel more empowered and thus more in control.

Summary

Hurricane Katrina was the worst natural disaster in the history of the United States (Times-Picayune, 2006). The amount of devastation that the Gulf Coast incurred

was unparalleled. Participation in this study provided nurses with an opportunity to talk about their patient care experiences during and after Hurricane Katrina with a non-judgmental interviewer. The knowledge gained from this study contributes to the disaster nursing literature and has significance for nursing practice, education, and research. This study provides critical information about the perspectives and needs of nurses caring for patients during widespread disasters such as hurricanes. Knowing what nurses faced during their experience enables nursing educators and administrators to improve education related to disaster preparedness for nurses and address the needs of nurses during and after critical incidents. Information from this study will be helpful in preparing nurses who work in areas such as the Gulf Coast Region where disasters might occur in the future. This study has added to the understanding of what the experience of providing care during and after Hurricane Katrina was like. My hope is that nurses' stories about this experience will be heard and they will never have to endure something like this again.

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August 14, 2006.

APPENDICES

Appendix A

University of Tennessee**College of Nursing****INFORMED CONSENT STATEMENT—TO BE READ TO PARTICIPANT****I. INTRODUCTION OF THE RESEARCHER**

My name is Marti Jordan-Welch and I am the nurse researcher for this study. I am presently working to complete my doctorate in nursing from The University of Tennessee in Knoxville. This research is in fulfillment of requirements for my doctorate. I also have a masters degree in nursing, and have worked for 23 years in nursing.

1. Do you have any questions about me or my background? ___ Yes ___ No

II. TO BEGIN THIS INTERVIEW AND TO PROTECT YOUR CONFIDENTIALITY, I AM ASKING YOU TO CHOOSE A PSEUDONYM.

Please state the pseudonym you have selected for yourself and today's date. (Pause)

III. DIGITAL RECORDING

This study is "An existential phenomenological study of the lived experience of providing nursing care during and after Hurricane Katrina" and our interview will be digitally recorded.

1. Do you understand that in order to protect your confidentiality this consent is being digitally recorded and no signatures will be obtained from you? ___ Yes ___ No

The next sections give you information about what you can expect when you participate.

IV. INTRODUCTION OF THE RESEARCH

You are being invited to participate in a research study being conducted by me. The purpose of this study is to explore and describe the experience of providing nursing care to patients in acute or long-term care facilities in the Gulf Coast Region, Southern Louisiana, or Southern Mississippi during and immediately after Hurricane Katrina (from August 28, 2005 through September 12, 2005).

1. Is this clear to you? ___ Yes ___ No
2. Do you have any questions about the purpose of the study? ___ Yes ___ No

V. INFORMATION ABOUT PARTICIPANT'S INVOLVEMENT IN THE STUDY

1. Do you understand that in this study you will be asked to talk with me face to face about this experience? Most interviews will probably last about an hour. The exact time that you will speak with me will be decided by you. If you are finished with all you need or want to say in less

than 1 hour, that is fine. If it takes longer than an hour, that will also be fine with me. Do you have any questions about the length of the interview? Yes No

2. If necessary, the interview can be stopped, split, and/or reconvened. Do you understand that you can request that the interview be split, reconvened for a second interview, or stopped entirely at any time? Yes No

3. The information obtained during this study may be published in a professional journal or presented at a professional meeting. When this information is presented at conferences or published, it will be presented either as group findings, or without personal identifiers linked to you. You will not be linked to any information in any way. Your identity will not be revealed to anyone.

Do you have any questions about how your identity will be protected? Yes No

The next sections give you information about the risks and benefits of participating in this study.

VI. RISKS & PROTECTONS

In this study, the physical risks are minimal, meaning that they are no greater than you would experience by taking to anyone in everyday life.

However, one possible risk could be emotional distress. As you think about the experience, you may become emotionally upset by recalling your hurricane experience. If you are already experiencing psychological problems, you may not want to participate. If you do choose to participate, the interview may be stopped either by you or by me if your stress seems too great.

1. If you have any questions about whether you should participate or not, please let me know now, or ask to discuss it at this time. Yes No If you decide you want to talk about this at any other time, please stop me and we will talk about it then. Do you understand and agree? Yes No

There have been some news reports that nurses have gotten into trouble with their employers for talking to researchers, or with the authorities about their activities during

the hurricane. Because of these reports, some people who participate in this study might worry about their jobs or licenses, or about being reported to the authorities.

To help put you at ease, and to reduce your risk as much as possible, I am collecting minimal information about you, and recording this consent rather than having you sign any documents. That is also why you are using a pseudonym. Most important, I am asking that if you participated in any illegal activity during the course of your practice, or saw or participated in anything that you worry might be illegal or unethical, you do not discuss it with me. Instead, if you participated in anything illegal, or worry that something you did or saw was unethical, and want to discuss it with someone, you should seek out the advice of a trained counselor or attorney. If you discuss illegal activity with me, I am obligated by law to report those acts to the authorities.

2. Do you understand that I am asking you to limit your discussions to your experience of giving nursing care during Hurricane Katrina—excluding any actions which were against the law. _____Yes _____No

3. If you participated in actions that were against the law or unethical, and wish to discuss them with someone who can help you, you should seek the advice of legal counsel. Do you understand that? _____Yes _____No

4. You are free to discuss any other aspect of your experience of providing care during Hurricane Katrina. You can discuss your feelings, the meaning of the experience, or anything else that you would care to reveal. Do you understand the kinds of information that I am looking for? _____Yes _____No

5. Do you have any questions about what this study is about, or the things that we can discuss? If so, I can talk to you more about this now.

During this study, I will know you by first name only. I will only collect information about your age, gender, educational level, and years as a nurse. I have asked you to pick a pseudonym and I will record this consent with that name and refer to you by that name only during the interview. When you are referring to your place of employment, refer to the place by “Hospital A” or “Hospital B”, to doctors the same, and to co-workers by first name only. When the interviews are transcribed, your pseudonym will be changed to another pseudonym. After the study is completed I will destroy your contact information.

6. Do you understand that I will not release this information to anyone, except as required by law? _____Yes _____No

7. Do you have any questions about the risks or protections of this study? ____ Yes
____ No

VII. BENEFITS

The benefits of this study are that you will be able to talk to a caring professional, me, about what it was like providing nursing care during and immediately after Hurricane Katrina without the risk of judgment. This research interview holds the potential to be cleansing and healing. You may provide critical information that might help nurses better understand what it was like providing care during and immediately after Hurricane Katrina and prepare those who work in the Gulf Coast Region during hurricanes in the future. You may also help nurse educators better understand this experience so that they can provide education to future nurses, which may help them cope with these situations in the future. A better understanding of this experience may also help nursing administrators to develop policies that help nurses address situations like this.

1. Is this clear to you? ___ Yes ___ No
2. Do you have any questions about the benefits of this study? ___ Yes ___ No

VIII. CONFIDENTIALITY

In addition to all the other things I have told you about protection, the information in this study will be kept confidential. Interviews will be transcribed by me or a transcriptionist who has signed a confidentiality pledge. Transcriptions will be read by my dissertation committee and the Interpretive Phenomenology Group which meets weekly at the UT College of Nursing; they have also signed a confidentiality pledge. This group is made up of other researchers who will help assure that I understand the data accurately. The data from the interviews will be entered into a file on my computer and will be protected by a password. The digital recordings will be transferred to a CD. The CD's and copies of the transcripts will be stored at my office in a locked file. The contact information and the CD's will be destroyed after the study is complete. No reference will be made to you in oral or written reports which could link you to this study.

1. Is this clear to you? ___ Yes ___ No
2. Do you have any questions about confidentiality? ___ Yes ___ No

IX. COMPENSATION

You will not be paid for participating in this study.

1. Do you agree to this interview, knowing that you will not be paid for your time? ___ Yes ___ No
2. If you have any questions about this, we can discuss it now.

X. EMERGENCY MEDICAL TREATMENT

The University of Tennessee does not “automatically” reimburse you for medical claims or other compensation. If physical injury is suffered in the course of the research, or for more information, please notify the investigator in charge, me, Marti Jordan-Welch, at my office (601) 266-6950.

1. Do you understand that The University of Tennessee does not automatically reimburse medical claims? Y N

While we will not pay for your medical claims, you will be given a list of mental health providers if you suffer emotional distress during the study, or if you request it. To the extent possible, this list will be of providers who are currently in practice in the Gulf region. It will also include crisis “hot lines”. It would be your responsibility to contact these providers and make your own arrangements for care, including your own arrangements for payment.

2. Is this clear to you? Yes No

3. Do you understand the information about emergency medical treatment? Yes No

You may also stop the interview at anytime if you are becoming emotionally distressed, fatigued, or decide not to continue. A second interview can be scheduled at your convenience if you wish to continue this interview over to another session for any reason.

4. Is it clear that you have the opportunity to stop the interview at any time, split the interview, or reconvene it at another time? Y N

XI. CONTACT INFORMATION

If you have any questions about the study or the procedures, (or if you experience adverse effects as a result of participating in this study), you may contact the researcher, me, Marti Jordan-Welch at work: 118 College Drive #5095, Hattiesburg, MS 39406, or (601) 266-6950. If you have any questions about your rights as a participant, contact the Office of Research Compliance Officer at The University of Tennessee, (865) 974-3466.

Is this clear to you? Yes No

XII. VOLUNTARY PARTICIPATION

Participation in this study is voluntary; you may decline to participate without penalty. If the decision is made to participate, you may withdraw from this study at any time without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw

from the study before the interview is completed, you may choose to have your interview information destroyed.

Is this clear to you? Yes No

XIII. CONSENT

Now that all this information has been given to you do you have any remaining questions? Yes No

Do you agree to participate in this study? Yes No

Please re-state your pseudonym and the date.

Consent given verbally and digitally recorded _____ Date: _____

Investigator's signature _____ Date: _____

Appendix B

Transcriber's Pledge of Confidentiality

As a transcribing typist of this research project, "A phenomenological study of the lived experience of registered nurses caring for patients during and after Hurricane Katrina", I understand that I will be hearing digital recordings of confidential interviews. The information on these recordings has been revealed by research participants who participated in this project on good faith that their interviews would remain strictly confidential. I understand that I have a responsibility to honor this confidentiality agreement. I hereby agree not to share any information on these recordings with anyone except the primary researcher of this project. Any violation of this agreement would constitute a serious breach of ethical standards, and I pledge not to do so.

Transcribing Typist

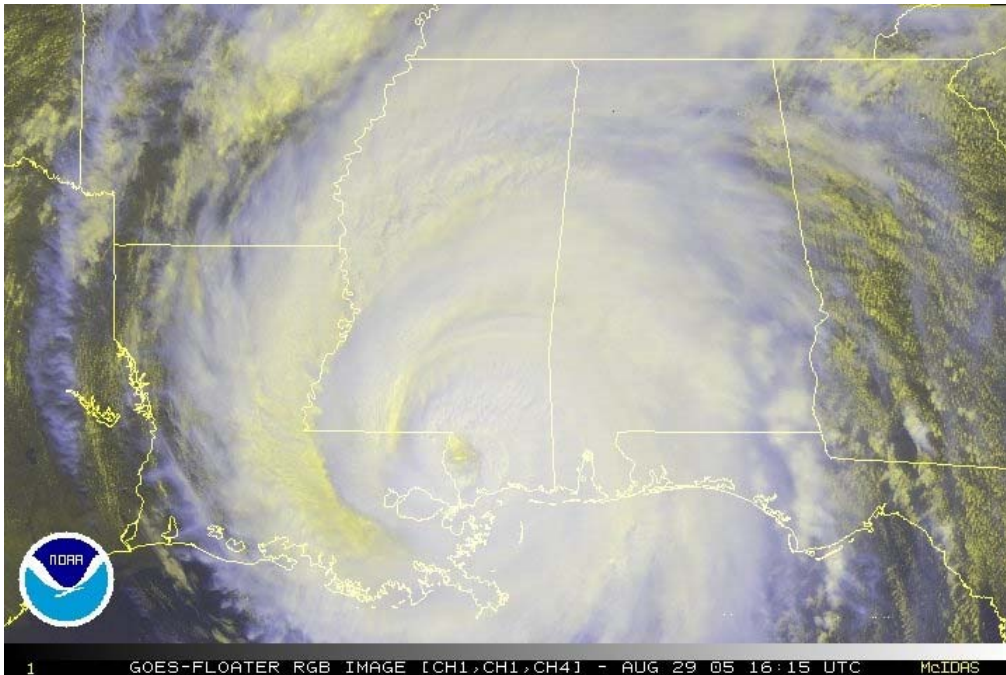
Date

Appendix C



REGISTERED NURSES Want to tell your story?

Marti Jordan-Welch MSN, RN, Nurse Researcher



Were you a Registered Nurse caring for patients in a hospital the day of Hurricane Katrina and in the days after it? Would you like to talk about what it was like caring for those patients during the hurricane. A nurse researcher from Hattiesburg will be conducting a study to find out what it was like caring for patients during and after Hurricane Katrina.

Findings from this study may help nurses be better prepared to handle an experience like this in the future.

Information will be kept confidential.

Please contact me by phone,
e-mail, or regular mail
Marti Jordan-Welch
118 College Drive #5095
Hattiesburg, MS 39406

Phone: (601) 266-6950

To protect your confidentiality when
you call, please leave only your first
name and phone number.



Email: marti.jordan60@comcast.net

Appendix D

Research Team Member's Pledge of Confidentiality

As a member of this project's research team, "A phenomenological study of the lived experience of registered nurses caring for patients during and after Hurricane Katrina", I understand that I will be reading transcriptions of confidential interviews. The information in these transcripts has been revealed by research participants who participated in this project on good faith that their interviews would remain strictly confidential. I understand that I have a responsibility to honor this confidentially agreement. I hereby agree not to share any information in these transcriptions with anyone except the primary researcher of this project, his/her doctoral chair, or other members of this research team. Any violation of this agreement would constitute a serious breach of ethical standards, and I pledge not to do so.

Research Team Member

Date

VITA

Marti Jordan-Welch was born in Urbana, IL on December 30, 1960. She was raised on a farm and graduated from Deland-Weldon High School in 1979. Marti attended Parkland College and earned an Associates Degree in Nursing in 1983; the University of Illinois-Urbana Regional Campus, where she received a Bachelors Degree in Nursing in 1996; the University of Southern Mississippi, where she earned a Masters Degree in Nursing with a concentration as a Family Nurse Practitioner in 2000. She has held numerous positions in acute care facilities in medical-surgical, psychiatric nursing, and administration. She has worked as a family nurse practitioner since 2000 and has taught undergraduate and graduate students at several universities. Marti has presented at several national conferences. She is a member of Sigma Theta Tau, the Mississippi Nurses Association, the American Academy of Nurse Practitioners, and Southern Nursing Research Society. She received her Doctor of Philosophy in Nursing from the University of Tennessee, Knoxville in December 2007.