ORIGINAL RESEARCH

Resilience and Challenges among Staff of Gulf Coast Nursing Homes Sheltering Frail Evacuees following Hurricane Katrina, 2005: Implications for Planning and Training

Sarah B. Laditka, PhD;[1] James N. Laditka, DA, PhD;[2] Carol B. Cornman, BS, RN, PA;[3] Courtney B. Davis, MHA;[4] Jane V.E. Richter, DrPH, RN, CHES[5]

1. Associate Professor and Master of Health Administration Program Director, Department of Public Health Sciences, University of North Carolina at Charlotte, Charlotte, North Carolina USA
2. Associate Professor and Health Services Research Doctorate Program Director, Department of Public Health Sciences, University of North Carolina at Charlotte, Charlotte, North Carolina USA
3. Director of the Office for the Study of Aging, University of South Carolina, Columbia, South Carolina USA
4. Research Associate, Office for the Study of Aging, University of South Carolina, Columbia, South Carolina USA
5. Director, Center for Public Health Preparedness, University of South Carolina, Columbia, South Carolina USA

Correspondence:
Sarah B. Laditka
Department of Public Health Sciences
University of North Carolina at Charlotte
9201 University City Boulevard
Charlotte, North Carolina 28223 USA
E-mail: sladitka@uncc.edu

This study was supported by the Coastal Resiliency Information Systems Initiative for the Southeast (CRISIS) Rapid Response Research on Social and Environmental Dimensions of Hurricane Katrina, University of South Carolina.

Keywords: aging; disabled people; disaster; emergency; frail elderly; healthcare workers; hurricane; Hurricane Katrina; nursing homes; preparedness; long-term care; training

Abbreviations:
CMS = Centers for Medicare and Medicaid Services
CNA = certified nursing assistant
LPN = licensed practical nurse
RN = registered nurse

Abstract

Purpose: The purpose of this study was to: (1) explore experiences and responses of staff in caring for sheltered, frail, Hurricane Katrina evacuees; and (2) identify how planning and training can be enhanced for staff who may care for frail older populations during and after disasters.

Methods: Individual, in-person, semi-structured interviews were conducted with 38 staff members in four nursing homes in Mississippi, sheltering 109 evacuees in November 2005, nine weeks after Hurricane Katrina. Twenty-four were direct care staff, including certified nursing assistants, licensed nurses, dietary aides, and social workers; 14 were support staff, including maintenance and business managers. The number interviewed in each nursing home averaged 9.5 (range 6–15). Using a discussion guide and focusing on their experiences caring for nursing home evacuees, staff were asked to describe: (1) experiences; (2) problems; (3) what helped; and (4) what was learned. Data were processed using grounded theory and thematic analysis. Responses of direct care staff differed in emphasis from those of support staff in several areas; responses from these groups were analyzed separately and together. Three of the researchers identified recurring themes; two organized themes conceptually.

Results: Staff emphasized providing emotional reassurance to evacuees as well as physical care. Many described caring for evacuees as "a blessing," saying the experience helped them bond with residents, evacuees, and other staff. However, caring for evacuees was difficult because staff members were extremely anxious and in poor physical condition after an arduous evacuation. Challenges included communicating with evacuees' families, preventing dehydration, lack of personal hygiene supplies, staff exhaustion, and emotional needs of residents, evacuees, and staff. Teamwork, community help, and having a well-organized disaster plan, extra supplies, and dependable staff helped personnel cope with the situation.

Conclusions: Staff of nursing homes that sheltered Katrina evacuees demonstrated resilience in the disaster's aftermath. Many placed the well-being of residents as their first priority. Results underscore the importance of planning, teamwork, and adequate supplies and staffing. Training for long-term care staff should emphasize providing emotional support as well as physical care for residents and evacuees during and following disasters. Nurses, social workers, and other staff members responsible for promoting emotional well-being for nursing home residents should be prepared to respond to disasters.

Laditka SB, Laditka JN, Cornman CB, Davis CB, Richter JV: Resilience and challenges among staff of Gulf Coast nursing homes sheltering frail evacuees following Hurricane Katrina, 2005: Implications for planning and training. *Prehospital Disast Med* **2009;24(1):54–62.**

Received: 19 February 2008
Accepted: 07 May 2008
Revised: 19 May 2008
Web publication: 23 January 2009

Introduction

Nursing homes present distinct challenges during and after widespread disasters because their residents have serious physical and/or cognitive impairments and rely on others for daily survival. More than 1.5 million Americans reside in nearly 18,000 nursing homes.[1] As baby boomers age and the number of Americans >65 years of age nearly doubles to 72 million by 2030, the number needing nursing home services will increase.[2,3] Residents of nursing homes become even more vulnerable during and after disasters, as illustrated by the effects of Hurricane Katrina in 2005.[4,5] The hurricane struck the Gulf Coast of the United States on 29 August 2005. It was the third strongest hurricane on record to make landfall in the US.[6] It caused massive destruction across the entire Mississippi coast. At least 1,836 deaths are attributed directly to Katrina, making it the deadliest hurricane in the US since the Okeechobee Hurricane in 1928.[6] The Katrina experience highlighted the vital need to enhance preparedness for frail, older people.[4,5,7–11] In New Orleans, >70% of hurricane-related deaths occurred among those ≥65 years of age.[12] At least 70 nursing home residents died in the immediate aftermath of Katrina.[13] These deaths underscored the inadequate development and implementation of community preparedness plans.[4,5,10,11] Nursing homes can better prepare for disasters.[4,7,8,10,11,14] Local emergency management systems also can improve outcomes by including the needs of frail, older people in all aspects of disaster planning, including communications, education, and training exercises.[4,7,8,10,14–18]

A small number of studies have examined the experiences of nursing homes following Hurricane Katrina, and of hospitals with affiliated skilled nursing facilities and hospice units.[7,8,14,19] These studies primarily have focused on responses of administrators.[7,8,14,19] The devastation wrought by Katrina and its aftermath provided a rare opportunity to examine responses of staff in the natural laboratory created by the hurricane. Nursing homes are vulnerable to many other wide-spread events, such as earthquakes, flooding, infectious disease outbreaks, terrorism, or other challenges involving ice, snow, or wind. Wide-spread disasters raise particularly difficult challenges for preparedness because these events substantially disrupt the usual infrastructures of emergency response and regional economies, often affecting the availability of electrical power, communications, gasoline and other fuels, transportation, food, medicines and other supplies, and nursing home staff. In light of these threats to nursing home residents, it is important to learn from disasters such as Hurricane Katrina. The objectives of this study are to understand the experiences and responses of frontline workers in nursing homes that sheltered evacuees from Hurricane Katrina, and to identify how planning and training can be enhanced for staff who may care for frail, older populations during and after a disaster.

Previous Studies of Nursing Home Preparedness

Relatively little recent research has examined disaster preparedness in nursing homes. Of this small number of studies, most were conducted in response to major events that occurred more than a decade ago,[20–24] at a time when the US was less prepared to respond to large-scale threats. One recent study sought to identify perceptions about disaster preparedness among nursing home administrators in South Carolina during the period immediately before and after Hurricane Katrina. Although South Carolina was not affected directly by Katrina, administrators expressed concerns about their ability to care for evacuees from other nursing homes in the event of a disaster, and about their lack of appropriate transportation. In response to a post-Katrina questionnaire asking if Hurricane Katrina influenced preparedness plans, the majority responded that they were rethinking their preparedness plans in the areas of transportation, supplies, staffing, and communication.[14] Similar concerns were expressed in a study of primarily Mississippi nursing homes that sheltered nursing home residents evacuated from Hurricane Katrina.[8] In a study that emphasized the perspectives of nursing home administrators, Laditka and colleagues identified reports of long-term mental health needs among residents and staff following Katrina. This study also provided evidence that nursing homes were not included in community preparedness planning.[8] In a study of nursing home administrators in New Orleans that evacuated or sheltered victims following Hurricanes Katrina and Rita, major challenges included a lack of appropriate transportation, staffing shortages, and a perception of abandonment by state and federal response agencies.[7] A narrative account of hospitals in New Orleans serving older patients in skilled nursing facilities and hospice units notes that loss of power, shortages of staff and supplies, and extreme heat were major challenges following Katrina.[19]

Two recent meetings of leaders in long-term care, transportation, emergency management, medicine, and related disciplines, as well as federal and state agencies and nursing home representatives, were convened to discuss challenges and opportunities in disaster preparedness for nursing homes.[4,10] Recommendations that emerged from these meetings included: (1) enhancing transportation and communication resources; (2) improving coordination between nursing homes and local emergency preparedness systems; (3) refining disaster preparedness guidelines; and (4) conducting emergency drills.[4,10]

In sum, previous research and recent meetings of key stakeholders have identified a number of common problems faced by nursing homes during disasters: (1) loss of power; (2) lack of sufficient or appropriate transportation available for evacuation; (3) widespread disruption of communication systems with breakdowns in telephone and cellular phone service; (4) lack of food, water, gasoline, medications, and other medical and general supplies; and (5) lack of adequate staff.[4,7,8,14,20–24] Recent studies provide evidence that nursing homes receive substantially less support from local, state, and federal response agencies than do hospitals, and this shortcoming affects them during all stages of a disaster.[4,7,8,10,11] For example, state and federal laws do not require that nursing homes receive priority for power restoration during a disaster.[11] Although the literature on disaster preparedness in nursing homes is relatively sparse, there is growing evidence that the level of preparedness in these facilities generally is inadequate. Moreover, the existing literature focuses almost exclusively on the views of

administrators. No previous study has focused on the experiences of nursing home staff in the aftermath of recent wide-scale disasters. This is a notable shortcoming, as the health and well-being of nursing home residents are affected directly by their routine daily interactions with direct care staff. Moreover, disasters present unique challenges that can be difficult to anticipate. Thus, to respond adequately to a disaster, a nursing home must rely on the skills, knowledge, commitment, active involvement, ingenuity, and compassion of its direct care workers, in addition to preparation at the administrative level.

Nursing Home Staff: Challenges and Training

Nursing homes are labor-intensive healthcare organizations in the long-term care continuum. These facilities rely on large numbers of direct care workers.[25–27] Professional care staff include registered nurses and licensed practical nurses; in the US, the size of this workforce is estimated at one-half million people.[26] All nursing homes also are required to provide social services; those with more than 120 beds must employ full-time social workers (US Code of Federal Regulations, 42 CFR 483.15). Nursing homes also employ dietary personnel, physical therapists, occupational therapists, and respiratory therapists. In addition to direct care workers, nursing homes employ substantial numbers of support managers and staff, including housekeeping, business, and maintenance personnel.

Most hands-on care is provided by nursing assistants, also referred to as Certified Nursing Assistants (CNAs), or State-Tested Nursing Assistants (STNAs).[25,26] Hereafter, in this study, nursing assistants are referred to as CNAs. The number of CNAs in the US is estimated at about 1.4 million.[25,26] Knowledgeable observers often conclude that CNAs in nursing homes are overworked and underpaid,[27,28] which is suggested by their estimated annual turnover rate of 71%.[29] This high turnover, as well as difficulty recruiting CNAs, has been attributed to low pay, poor benefits, few professional development opportunities, physically and emotionally demanding work, and short staffing.[27,28]

The training and education of CNAs varies considerably. In nursing homes licensed by Medicare, federal regulations require CNAs to complete at least 75 hours of initial training, with 12 hours of annual continuing education.[25,30] Training topics must include: (1) interpersonal communication skills; (2) basic nursing skills (e.g., monitoring blood pressure, pulse, temperature, and the intake and output of fluids); (3) personal care skills (e.g., assisting with activities of daily living); (4) emotional and social needs of residents; and (5) basic safety and emergency procedures.[30]

From a regulatory perspective, the US Centers for Medicare and Medicaid Services (CMS) requires that facilities have detailed plans and procedures to address possible disasters and emergencies. Facilities are required to "have detailed written plans and procedures to meet all potential emergencies and disasters, such as fire, severe weather, and missing residents," and to "train all employees in emergency procedures when they begin to work in the facility, periodically review the procedures with existing staff, and carry out unannounced staff drills using those procedures" (42 CFR 483.75[m]). However, it is the responsibility of individual states to oversee the details of emergency planning in nursing homes.[9,21] Although nursing homes are required to provide basic emergency training, a recent study of disaster preparedness in eight Gulf Coast states found evidence of substantial variation in the type and amount of training, and in the frequency of reviews that are stipulated by state regulations.[11]

Moreover, evidence from a recent survey of preparedness among long-term care administrators suggests major shortcomings in nursing home staff preparedness training. In a 2005 survey of administrators in 194 long-term care and senior living facilities in 30 states, about 90% indicated that their employees were not well-prepared for a disaster.[31] Despite the CMS requirements for training staff in emergency procedures and for conducting periodic drills, <10% of administrators reported "providing education to their staff in performing drills," and helping residents to cope in the aftermath of a disaster. Also, <10% of administrators reported readiness to help employees manage disaster-associated stress; approximately 80% said they were not aware of local or state emergency management plans.[31] Results of an evaluation by the Office of the Inspector General approximately 10 months after Hurricane Katrina underscore the fact that many nursing homes do not adequately address disaster training for their staff.[9]

Study Objectives and Contributions

The focus of this study is the experiences of nursing home staff in the short-term aftermath of Hurricane Katrina. The study objectives are to: (1) explore the experiences and responses of nursing home staff in providing care to evacuees; and (2) identify areas of training that can be enhanced for nursing home staff who may care for frail, older populations during and after disasters.

Methods

Study Design and Sample

This study focuses on the experiences and views of staff members of four nursing homes in Mississippi that sheltered Hurricane Katrina evacuees. The study was part of a larger project, which examined the experiences and views of administrators of 14 nursing homes, primarily in Mississippi, that sheltered Hurricane Katrina evacuees.[8] Telephone interviews were conducted with administrators of these four nursing homes five weeks after Hurricane Katrina. Administrators were asked if they would be available for a site visit by several of the researchers, and if direct care staff (e.g., licensed nurses, CNAs, dietary aides, social workers) and support staff (e.g., maintenance and business managers) would be available for interviews during the site visit. All of the nursing homes agreed to participate. The number of site visits was limited by the research resources that could be arranged immediately after Katrina. Selection criteria for nursing homes in this study were intended to: (1) provide diversity in terms of location (rural, suburban, and urban settings); (2) include nursing homes with varying residential capacity; and (3) include at least one nursing home that offered rehabilitative services as well as skilled care. These selection criteria were used as a first step to investigate whether experiences differed among nursing homes with different features; however, the small sample size of nursing

homes in this study does not allow for rigorous investigation in this area. The site visits were conducted in November of 2005, nine weeks after Hurricane Katrina. This study was approved by the Institutional Review Board at the University of South Carolina.

Discussion Guide and Interview Process

Interviews were conducted in person. Due to widespread news coverage about potential neglect of nursing home residents following Hurricane Katrina, the authors were concerned that staff might be uncomfortable speaking candidly if interviews were audio-recorded. Thus, interviews were not recorded. Instead, each researcher took detailed field notes during the interview. A discussion guide was developed based on the objectives of the study, and on knowledge gained about disaster preparedness in long-term care from in-depth interviews with administrators.[8,24,32] Most questions were semi-structured. Each staff member was asked to describe: (1) experiences caring for evacuees; (2) problems faced; (3) what was helpful in caring for evacuees; and (4) what was learned from caring for evacuees. Staff members were asked how long they had worked in the facility and whether they had previous experience with a disaster. Those with previous disaster experience were asked to describe that experience briefly. Three of the authors conducted site visits; all three participated in every visit, interviewing a total of 38 staff members individually. Each researcher took field notes and elaborated on these in writing immediately after each visit. The site visits averaged 2 hours 48 minutes (range: 75 minutes to 4 hours). Twenty-four direct-care staff and 14 support staff were interviewed. Staff interviews ranged from 5 to 20 minutes; most were about 10 minutes. In three of the four nursing homes, the authors toured the facility. The tour of the fourth facility was less extensive, because the timing of the site visit occurred as the day shift was ending, and the administrator was leaving for the day. General impressions of the site visit and the nursing home's features were recorded in field notes immediately after each interview by the first author. This information was intended to provide insight into the organizational culture, physical environment, and features of the nursing home.

Qualitative Data Analysis

Each researcher transcribed her field notes into Microsoft Word 2002 [Microsoft, Inc., Redmond, WA]. These field notes constitute the qualitative data used for the analysis. To confirm accuracy and completeness, the first author compared each transcript word-by-word with the field notes, and made corrections as needed. Data for the responses to the discussion guide were analyzed using grounded theory.[33] Four of the authors participated in the analysis. In qualitative research, it is common to begin data analysis by assigning a code to each segment of text. Three of the authors used a constant comparison method to develop codes from a review of narrative data, from responses to each question, for each brief passage of the text.[34] This process allowed important themes to be identified inductively; that is, the content of the interviews identified empirically-driven labels. These researchers also compared codes between staffing types (e.g., direct care staff and support staff, dietary aides, and CNAs) to examine how different staffing types discussed concepts.[35] This process was designed to enhance the validity of the results.[34] The responses of direct care staff differed in some areas from those of support staff in terms of emphasis; thus, responses from these two groups were analyzed separately. Once the individual analyses were completed, the researchers met to review the recurring themes; researchers were in agreement in nearly all instances. The few areas of disagreement were resolved through discussion. Two of the authors organized the themes conceptually. Themes that were identified in response to two of the questions—what was helpful and what was learned—were closely related; thus the responses to these two questions are presented together. Responses to the question about previous first-hand experience with a disaster were summarized by the first author, and reviewed by the second author. All of the authors agreed that the quotations presented in this study accurately represent both the reported experiences and the stated views of the staff members, and the major findings of the study.

Results

Overview of Nursing Homes Visited

Characteristics of nursing homes in the sample are reported in Table 1. For each facility, the number of nursing home evacuees sheltered, number of beds, number of staff interviews, and the location are shown. Where applicable, the average and standard deviation across the four facilities are shown. The total number of nursing home evacuees sheltered by the participating nursing homes was 109; the number of evacuees varied considerably across the four facilities, from 3 to 50. All of the nursing homes in the study operated for profit. Two of the nursing homes were in rural areas in Mississippi; one of these was in a remote rural farming community. A third nursing home was located in an urban setting; the fourth was in a suburban setting. Two nursing homes solely offered skilled nursing care; one provided skilled nursing and short-term rehabilitation; the other provided skilled nursing and had an attached memory-care unit (i.e., dementia care unit). The organizational cultures and features of the nursing homes varied notably. In one of the nursing homes, the atmosphere was best described as homelike. There was a display of autumn decorations (e.g., colorful leaves, harvest decorations) throughout the facility. The main nurses' station was designed as a large wagon-wheel; there was a large, home-like community room. The nursing home had several pets, including two cats. The design of a second nursing home was modern, institutional, and traditional. The management of this nursing home emphasized training and participation in-patient care of all management staff: all direct care and support managers were required to be certified as CNAs. A third nursing home, built several decades earlier than the second, was institutional. The fourth nursing home, which included rehabilitation services as well as skilled nursing care, was modern and upscale, yet homelike. It featured a large, upscale dining room, with kitchen facilities residents could use with supervision. This facility emphasized its dining services: most of the food was made from scratch. There was a large, attractive popcorn machine adjacent to the

Facility	Evacuees Sheltered	Number of Beds	Number of Staff Interviewed	Facility Location
A	20	100	6	Urban
B	3	80	10	Rural
C	36	120	15	Rural
D	50	145	7	Suburban
Average ±SD	27.25 ±20.87	111.25 ±27.80	9.50 ±4.04	(not applicable)

Table 1—Characteristics of Mississippi nursing homes visited nine weeks following Hurricane Katrina, 2005. *Source:* Telephone interviews conducted with administrators in October 2005, and in-person interviews conducted with direct care staff and support staff in November 2005.

Facility	Number of Staff Interviewed	Average Length of Service (in months)	Staff with Previous Disaster Experience	Gender	
				Women	Men
A	6	47.3 ±89.20	0.3 ±0.52	6	0
B	10	40.0 ±24.48	0.3 ±0.48	10	1
C	15	96.1 ±96.11	0.3 ±0.46	14	1
D	7	132.9 ±108.47	0.9 ±0.38	6	1
Average (SD)	9.5 ±4.04	80.4 ±88.68	0.4 ±0.50	9.0 ±3.83	0.8 ±0.50

Table 2—Characteristics of nursing home staff interviewed in Mississippi nursing homes visited nine weeks following Hurricane Katrina (November 2005). Direct care staff (total = 24): certified nursing assistants (6); registered nurses (3); licensed practical nurses (4); directors of nursing (3); physical therapists (2); social workers (2); and dietary aides (4). Support staff (total = 14): business managers and medical records staff (5); maintenance managers (3); housekeepers (3), administrative assistants (3); and marketing director (1).

reception area. There were separate recreational rooms for female and male residents; the recreational room for male residents included a pool table; there was a "beauty parlor" for female residents.

All four nursing homes experienced a loss of power following Hurricane Katrina. The temperature in Mississippi was nearly 100°F (37.8°C) with high humidity for several weeks following Katrina. Although all of the nursing homes had generators, they could not support air conditioning. Thus, staff worked in extremely hot, humid conditions. Power disruption lasted considerably longer in the rural areas, with power restoration taking a week or more. Telephone and computer communications were disrupted for several weeks in these areas. In the case of the nursing home in the rural farming community where power was disrupted for about seven days after the Hurricane, electrical power still was being restored in the surrounding community at the time of the site visit, nine weeks after Katrina. Thus, in addition to the general, widespread, and long-lasting disruption of community infrastructure, the homes of many staff members were without power for many weeks. Physical damage to the nursing homes was minimal. However, administrators commented that a number of staff experienced severe damage to their homes from the wind and/or falling trees, and in some instances, the loss of their homes.

Participant Characteristics

Characteristics of nursing home staff in the study are listed in Table 2. A total of 38 staff members were interviewed. The number of staff interviewed in each nursing home averaged 9.5 (range 6–15). Consistent with the predominance of women in the nursing home workforce, all of the staff interviewed were women except for the three maintenance directors. As a whole, staff reported an average length of time working in the facility of 6.7 ±7.4 years (range: 1 month to 26 years).

Experiences with Disasters before Katrina

In response to the question, "Before Katrina, did you have any first hand experiences in a major disaster?", 40%

https://doi.org/10.1017/S1049023X00006543 Published online by Cambridge University Press

Experiences Caring for Evacuees - Difficult, evacuees were in poor physical condition and extremely anxious - Provided emotional reassurance - Provided physical care - Positive experiences: caring viewed as a "blessing"; bonded more closely with staff and residents - Needs of evacuees and residents were the top priority
Problems Faced Caring for Evacuees - Communicating with families of evacuees - Preventing dehydration - Lack of supplies - Staff shortages and exhaustion
What Was Helpful/What Was Learned While Caring for Evacuees - Teamwork and dependable staff - Having a disaster plan and being well-organized - Having extra supplies on hand - Community assistance

Table 3—Results of thematic analysis of interviews with direct care staff (n = 24) and support staff (n = 14) in four nursing homes in Mississippi that sheltered Hurricane Katrina evacuees, November 2005
Source: In-person interviews conducted with direct care staff (certified nurses aides, licensed nurses, social workers, dietary aids, physical therapists), and support staff (business managers and medical records staff, maintenance managers, housekeepers, administrative assistants, marketing director).

responded yes. Prior disaster experience included ice storms and tornadoes. Two RNs said: "[We had] tornadoes and deep freezes in the hospital"; and, "We had an ice storm and the power went out". Three spoke about fires. One maintenance director said, "We had a fire 10 years ago and had to evacuate". A dietary manager said, "Fire and storms, where there was no electricity. We used candles, paper supplies, canned goods, crackers, juice, and sandwiches". One registered nurse (RN) spoke of a disaster following a train derailment. Three staff spoke about hurricanes. A housekeeper said, "At the state hospital, we had expected a hurricane. I helped move residents to a safe place in the hallway". A CNA spoke about her hurricane experiences, saying, "I had been in hurricanes in the Gulf coast when raised there as a child ... I volunteered to help in the South Carolina coast after Hurricane Andrew". One staff member, a housekeeping manager, described "a terrorism threat that was a false alarm". Four staff members described experiences with a disaster in their personal lives rather than in their professional roles. For example, a physical therapist said, "I was eight years old in Hurricane Camille, and we had to live in a shelter for three days". A CNA commented, "My family home was destroyed by a tornado in 1970".

Staff Descriptions of Caring for Evacuees

Results of the thematic analysis are in Table 3 and described below. Responses to a given question could contribute to more than one theme for that question. To be included as a theme, at least four staff members had to make a similar comment. In most instances, themes listed in Table 3 represent comments made by nine or more staff members.

Experiences Caring for Evacuees—Many staff members said that caring for evacuees was difficult because the evacuees were in poor physical condition and extremely anxious. Most of the staff reported providing emotional reassurance as well as physical care. Many spoke of the importance of listening, being patient, and addressing emotional needs. This was true for direct care staff *and* support staff. A business office manager said, "It was really sad, knowing what they had been through and their condition... They were hungry, thirsty, and wanted reassurance". A CNA commented, "It was hard. We helped residents feel comfortable and at home". Another CNA said, "They were depressed and dehydrated". Another CNA commented, "Unimaginable. You need to be prepared for the medical condition of the evacuated elderly and sick". A director of nursing said, "They were scared, weak, tired, and sick. I set up their care, made sure they had a home environment, tried to get in touch with their families, took care of their health needs, and made them feel welcomed". A licensed practical nurse (LPN) commented, "Reassuring people is important, and so is showing concern, love, and care. It is necessary to have patience with residents who are shocked out of their familiar environment". A housekeeper emphasized, "You have to be alert. Listen to what the residents are saying. Let them tell you how you can help". A social worker said, "Please touch them. Hug them. We gave each new resident a comfort bear. We are still trying to get them to verbalize. Especially now with the holidays coming, their depression will be worse". A CNA emphasized the importance of, "making people feel at home and welcome. Older people don't like change. They like familiar faces. Their old place was their home". An activities director stressed the impor-

https://doi.org/10.1017/S1049023X00006543 Published online by Cambridge University Press

tance of: "Showing that you actually cared. Reassuring that they were going to be taken care of. Listening. Being sympathetic. Reading or talking about the Bible". A CNA commented: "It is important to make them feel as welcome as possible. Give them a smile. Show them kindness. Touch them. Put yourself in their shoes for 10 minutes".

Most staff, both direct care and support staff, also emphasized positive experiences. Many staff described their experiences as giving them an opportunity to bond more closely with evacuees, residents, and other members of the staff, and placing the needs of evacuees and residents above their own. Several staff spoke of caring for evacuees as a positive, fulfilling experience. A dietary manager expressed her feelings, saying, "It has been a blessing". A dietary aide said, "When you give, you get blessed and feel blessed". A dietary supervisor said: "Everyone pulled together, we laughed, had fun, and we were united. God pulled all my gifts together through this tragedy. We were blessed". An LPN said: "It was a pleasure. We got battery lights and lamps for rest rooms—kept their spirits up. They thought we were going back to the old days without electricity". Many staff commented that their priority was the residents. A physical therapist said: "Everyone came together. Our priority was the residents". A marketing director commented: "Evacuees came as a blessing ... All of the staff became one big family and team." A CNA said, "All of us came together to care for the residents." A housekeeper commented, "There was genuine caring about residents, one on one, showing love." A dietary manager described her experiences this way: "There is a special bond when you have purpose and a sense of direction. Everyone had the residents' best interests at heart".

Problems Faced—Direct care workers were more likely than support staff to emphasize challenges associated with communicating with families of evacuees, keeping residents properly hydrated, and lack of supplies. One RN commented, "Their family members weren't available". Another RN said, "Our social worker is locating responsible parties". A business office manager described one of the major problems as, "Helping families reconnect with residents". Regarding hydration, a rehabilitation director commented, "We had to watch for dehydration and heat exhaustion because there was no air conditioning". A dietary aide said, "We tried to keep them hydrated every hour because it was so hot". As for supplies, an LPN commented: "A major problem was not having enough supplies. There were incontinent residents who needed pads and wipes".

Several of the support staff spoke about exhaustion of staff because of overtime and extra work. A housekeeping manager said, "Staff was unable to come in, so others had to pick up their work". Another housekeeper, who reported working 12-hour shifts, commented, "I was just tired". Another housekeeper said: "It would have helped if I could have taken a break. But we had high volumes and I understand the need. So I worked through the tiredness". A director of nursing described one of the biggest problems as: "Exhaustion for staff. We set up a room in the back for staff to take naps". A social worker commented: "Staff had to worry about their own families too. It was tough".

What Was Helpful/What Was Learned—When asked what was helpful and what was learned while caring for evacuees, staff emphasized teamwork, having a preparedness plan, being well organized, community assistance, and having extra supplies on-hand. Many of these themes were interrelated in the staff comments. An RN said: "It is important to have a plan in place. We worked as a team. We didn't mind taking on new roles. We did what was needed to be done. Our staff was willing to work extra hours". A maintenance director commented: "Everything we needed was available. Preventative maintenance was taken care of. Everybody pulled their own load, pitched in, stayed late, and worked late to care for evacuees appropriately". A dietary supervisor said, "Everybody pitched in, no questions asked". A medical records staff member emphasized: "Working as a team made a difference. Everybody—nurses, CNAs, electricians, cooks—made sandwiches and served food. This made a huge difference. You didn't just work in your setting. We stocked up on disposable supplies and extra supplies". A CNA commented, "We all pulled together". Another CNA commented: "Dependable staff is a very important asset that we have". A social worker said, "All of our department heads are [trained as] CNAs, so they were able to care for residents". A housekeeper said: "Adapt. Do what needs to be done."

The majority of direct care workers and support staff emphasized the importance of being well prepared. Many spoke about receiving assistance from the community. A number commented about the importance of having extra supplies. A medical records administrator commented: "Need to have a disaster plan. Every resident needs to be prepared for a disaster emotionally and physically. All residents should be asked to take with them important possessions such as pictures, and families should be involved in the whole process. Efforts to make evacuees feel 'at home' are needed. Also, it is important to meet with other residents and to prepare for receiving them". A RN put it succinctly, saying, "Have a more specific plan that all staff are aware of". A business office manager said: "You need to have a very organized plan. You need to be ready and prepared. You need committed and dedicated staff. When you accept the job, make a commitment to be here no matter what". In a related comment, a RN said: "You are needed a lot more in a nursing facility than at home. You need to stay focused on the job even though you have personal needs to take care of". A maintenance director commented, "You need to conduct fire drills and emergency preparedness training so staff feel comfortable and don't panic". A director of nursing said: "Always have emergency supplies, water, and a generator. Always share a plan of action. Have a drill every quarter". A marketing director emphasized, "[Need to] have serious drills about big disasters". A CNA commented, "It's important to have training on what you can and can't do".

As for assistance received from the community, a social worker said: "The community was very helpful. Several families donated food that would've been lost in the freezer...The grocery store opened for us and gave us freezer foods. Lumber was donated". Another social worker said, "People from the community donated clothing". A CNA commented, "The community helped to get supplies, and

brought us food, fans, diesel, supplies, and gas". Another CNA said, "We had extra clothing that families donated". A LPN put it this way, "People [from the community] provided ice, fresh clean bottled water, fans, lamps, and cool moist towelettes to bathe residents".

Discussion

This study examined experiences and views of staff in nursing homes that sheltered evacuees in the short-term aftermath of Hurricane Katrina. The staff spoke of positive experiences as well as challenges. Most staff emphasized providing emotional reassurance to evacuees, as well as physical care. Many described caring for evacuees as a blessing, and reported that they bonded more closely with the residents and evacuees, as well as with other staff. Describing what helped, most emphasized teamwork, help from the community, and having a well-organized disaster plan, extra supplies, and dependable staff. Also of interest, 40% of staff reported previous experience with a disaster. This notable proportion suggests that nursing home staff are likely to be receptive to preparedness training, as it relates to events that many have experienced in their professional and/or personal lives.

This study provides new knowledge in several areas. First, staff clearly recognized the need to provide emotional care as well as physical care. This was true for direct care workers and support staff in all of the nursing homes visited. Second, direct care and support staff had positive responses about caring for frail, older people during and after Katrina. In a related finding, the results suggest notable resilience on the part of nursing home staff. Evidence of resilience was found despite the fact that most staff worked long hours in extreme heat, many in understaffed conditions. A number of staff experienced damage to their homes, or even the complete loss of their homes. Moreover, many of the staff members who were the focus of this research are among those in the healthcare continuum with the least education, the lowest pay, and the least recognition for their contributions.[25–27] The potential for resilience among healthcare workers and support staff in long-term care facilities is an area that warrants further study, particularly as these workers will be called upon for extra effort during and after disasters.

A number of findings of this study are consistent with research that has emphasized responses of nursing home administrators about problems associated with caring for residents and/or evacuees during and after disasters. These findings include: (1) wide-spread loss of power and disruption to communication systems; (2) lack of supplies; (3) staffing shortages; (3) long-term mental health needs of older people and staff; (4) the importance of receiving help from the community; and (5) the need for planning and conducting preparedness drills.[4,7,8,10,11,14,19]

Several limitations of the study should be acknowledged. Most notably, due to budget and time constraints, the study focused on four sheltering nursing homes. The selection of these nursing homes sought a diversity of perspectives. Nonetheless, the results cannot be generalized to all sheltering nursing homes in the Gulf Coast or in the US. A strength of the study was the short-term response. This allowed for interviews with staff when the experience still was fresh in their minds, limiting recall bias. Further, a broad representation of direct care and support staff were interviewed in four nursing homes with markedly different environments and features. The similar themes among staff of different backgrounds, and across nursing homes with notably different characteristics, increase the likelihood that the findings may be applicable to a variety of nursing home types and locations.

Another potential limitation is that some participants may have felt that it was socially desirable to offer generally positive responses. Researchers sought to limit the likelihood of this bias by speaking with staff individually and privately after obtaining informed consent that assured them that their responses would be confidential. Nonetheless, some participants may have avoided more negative responses in favor of those they perceived to be more socially acceptable. Related to this limitation, the discussion guide focused on staff experiences caring for evacuees, rather than their personal challenges following Katrina. Thus, for example, although staff experienced personal losses to their homes, and a number were without power for weeks after Katrina, few stressed these personal issues in our discussions. Research suggests that staff may have long-term mental health needs following disasters.[8,36] Further research is needed to identify and address these needs.

Conclusions

The findings point to several practice and policy implications. Findings emphasize the need for educational and training programs for staff in nursing homes and other residential, long-term care settings.[4,8,10,11,14] In addition, findings suggest the usefulness of cross training, such as training all staff as CNAs, as one nursing home included in the study did, or at least providing all staff with training in the basics of resident care. Emergency training for staff of nursing homes and other long-term care facilities should highlight the need to provide emotional reassurance as well as physical care for residents and evacuees during and following disasters. This study also provides evidence that support staff, including business office managers, housekeepers, and maintenance managers, often are called on to care for residents and evacuees during and after disasters. Thus, all staff members must be alert to the emotional needs of residents and evacuees, and report needs to a licensed nurse or social worker. Findings underscore the importance of preparedness training and of conducting thorough and unannounced drills. Systematic reviews of decisions and actions during the drills should occur; preparedness plans should be revised as needed.[10] Nurses, social workers, and other staff responsible for promoting emotional well-being for nursing home residents should be prepared to respond to disasters.

Acknowledgements

The authors thank Sudha Xirasagar, MBBS, PhD and Marcia J. Lane, MPH, for their valuable contributions to this research. The authors are grateful to Dale Morris and Whitney Wall, MPH, for their excellent research assistance.

References

1. Olson E: Nursing Homes. In: Evashwick CJ, (ed), *The Continuum of Long-Term Care* 3rd ed. Clifton Park, NY: Delmar Learning, 2005, pp 295–311.
2. Laditka SB: Modeling lifetime nursing home use under assumptions of better health. *J Gerontol B Psychol Sci Soc Sci* 1998;53(4):s177–s187.
3. Laditka SB, Laditka JN: Effects of improved morbidity rates on active life expectancy and eligibility for long-term care services. *J Appl Gerontol* 2001;20(1):39–56.
4. Hyer K, Brown L, Berman A, Polivka-West L: Establishing and refining hurricane response systems for long-term care facilities. *Health Aff (Millwood)* (Web exclusive) 2006:w407–w411.
5. US Office of the Inspector General: Nursing home emergency preparedness and response during recent hurricanes. Available at http://oig.hhs.gov. Accessed 19 February 2008.
6. Knabb R: Hurricane Lane Tropical Cyclone Report. Available at http://www.nhc.noaa.gov/pdf/TCR-EP132006_Lane.pdf. Accessed 28 January 2008.
7. Dosa DM, Grossman N, Wetle T, Mor V: To evacuate or not to evacuate: Lessons learned from Louisiana nursing home administrators following Hurricanes Katrina and Rita. *J Am Med Directors Assoc* 2007;8(3):142–149.
8. Laditka S, Laditka J, Xirasagar S, *et al*: Providing shelter to nursing home evacuees in disasters: Lessons from Hurricane Katrina. *Am J Public Health* 2008;98:1288–1293.
9. [US] Government Accounting Office: Evacuation of hospitals and nursing homes. Disaster preparedness: Preliminary observations on the evacuation of hospitals and nursing homes due to hurricanes. Briefing for congressional committees, 16 February 2006. Available at http://www.gao.gov/new.items/d06443r.pdf. Accessed 19 February 2008.
10. Polivka-West L: Caring for vulnerable elders during a disaster: National findings of the 2007 Nursing Home Hurricane Summit. 2007 Nursing Home Hurricane Summit. St. Petersburg Beach, FL: Florida Health Care Association; 2007. Available at http://www.globalaging.org/armedconflict/countryreports/americas/2007/summitfinal.pdf. Accessed 10 February 2008.
11. Brown LM, Hyer K, Polivka-West L: A comparative study of laws, rules, codes and other influences on nursing homes' disaster preparedness in the Gulf Coast states. *Behav Sci Law* 2007;25(5):655–675.
12. The White House: The federal response to hurricane Katrina: Lessons learned. Available at http://www.whitehouse.gov/reports/katrina-lessons-learned.pdf. Accessed 16 February 2008.
13. King R: Flood-ravaged hospitals are diagnosing their needs for this hurricane season. *New Orleans Times-Picayune*, 21 May 2006.
14. Laditka S, Laditka J, Xirasagar S, *et al*: Protecting nursing home residents during disasters: An exploratory study from South Carolina. *Prehospital Disast Med* 2007;22:46–52.
15. Gibson MJ, Hayunga M: We can do better. Lessons learned in protecting older persons in disasters. Available at http://www.aarp.org/research/assistance/lowincome/better.html. Accessed 11 January 2008.
16. Aldrich N, Benson WF: Disaster preparedness and the chronic disease needs of vulnerable older adults. *Prev Chronic Dis* 2008;5(1):A27.
17. Fernandez L, Byard D, Lin C, *et al*: Frail elderly as disaster victims: Emergency management strategies. *Prehospital Disast Med* 2002;17(2):67–74.
18. Arnold J: Disaster medicine in the 21st Century: Future hazards, vulnerabilities, and risk. *Prehospital Disast Med* 2002;17(1):3–11.
19. Gray BH, Hebert K: Hospitals in Hurricane Katrina: Challenges facing custodial institutions in a disaster. *J Health Care Poor Underserved* 2007;18(2):283–298.
20. Gulitz E, Kurtz A, Carrington L: Planning for disasters: Sheltering persons with special health needs. *Am J Public Health* 1990;80(7):879–880.
21. Friedman E: Coping with calamity. How well does health care disaster planning work? *JAMA* 1994;272(23):1875–1879.
22. Saliba D, Buchanan J, Kington RS: Function and response of nursing facilities during community disaster. *Am J Public Health* 2004;94(8):1436–1441.
23. Mangum WP, Kosberg JI, McDonald P: Hurricane Elena and Pinellas County, Florida: Some lessons learned from the largest evacuation of nursing home patients in history. *Gerontologist* 1989;29(3):388–392.
24. Silverman MA, Weston M, Llorente M, *et al*: Lessons learned from Hurricane Andrew: Recommendations for care of the elderly in long-term care facilities. *South Med J* 1995;88(6):603–608.
25. Menne HL, Ejaz FK, Noelker LS, Jones JA: Direct care workers' recommendations for training and continuing education. *Gerontol Geriatr Educ* 2007;28(2):91–108.
26. Stone R: Introduction: the role of training and education in solving the direct care workforce crisis. *Gerontol Geriatr Educ* 2007;28(2):5–16.
27. Stott AL, Brannon SD, Vasey J, *et al*: Baseline management practices at providers in better jobs better care. *Gerontol Geriatr Educ* 2007;28(2):17–36.
28. Harris-Kojetnin L, Lipson D, Fielding J, *et al*: *Recent Findings on Frontline Long-Term Care Workers: A Research Synthesis 1999-2003*. Washington, DC: Institute for the Future of Aging Service, 2004.
29. Squillace MR, Remsburg RE, Bercovitz A, *et al*: *An Introduction to the National Nursing Assistance Survey*. Washington, DC: US Government Printing Office, 2006.
30. Paraprofessional Healthcare Institute, Institute for the Future of Aging Services: The role of training in improving the recruitment and retention of direct-care workers in long-term care. Workforce Strategies No. 3. Available at http://www.directcareclearinghouse.org/l_art_det.jsp?res_id=150710. Accessed 27 January 2008.
31. O'Brien C, Sclod S, Escamilla V: PREPARE: A study of disaster planning in senior living. *Seniors Housing & Care J* 2007;15(1):57–66.
32. Laditka SB, Laditka JN, Cornman CB, *et al*: Disaster preparedness for vulnerable persons receiving in-home long-term care in South Carolina. *Prehospital Disast Med* 2008;23(3):133–142.
33. Strauss A, Corbin J: *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Thousand Oaks, CA: Sage Publications, 1990.
34. Boeije H: A purposeful approach to the constant comparison method in the analysis of qualitative interviews. *Quality Quantity* 2002;36(4):391–409.
35. Miles MB, Huberman AM: *Qualitative Data Analysis*. Thousand Oaks, CA: Sage Publications, 1994.
36. Reid WM, Ruzycki S, Haney ML, *et al*: Disaster mental health training in Florida and the response to the 2004 hurricanes. *J Public Health Manag Pract* 2005;Suppl:s57–s62.