

Older Adults and Natural Disasters

Lessons Learned From Hurricanes Katrina and Rita

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People are living longer today than ever before. By the year 2030, one fifth of the U.S. population is expected to be 65 years of age and older. Persons 85 years of age and older, often called the "oldest-old," are of particular concern, because they comprise the fastest growing segment of the population with the greatest health care needs (U.S. Department of Health and Human Services, Administration on Aging, 2007). The growing proportion of older adults in today's society brings many issues and challenges for individuals, families, and society as a whole, which may become magnified in times of crisis. When a natural disaster strikes, concerns about the safety and practical needs of older people may become particularly acute among family members and senior service providers.

In this chapter, we explore the impact of Hurricanes Katrina and Rita on older adults, defined here as people age 65 years and older. Our guiding assumption is that these disasters revealed both strengths and weaknesses at an individual level (i.e., human responses to a significant environmental stressor) as well as at a societal level (i.e., community preparedness and disaster recovery).

CHAPTER HIGHLIGHTS

- + Provides insight into psychological reactions to disaster and suggests directions for planning and preparedness related to serving an older population;
- + Examines commendable responses to the storms, including the notable efforts made by schools and universities, faith-based organizations, and the goodwill of the people of South Louisiana and the nation;
- + Examines problematic storm responses that led to evacuation dilemmas in which older people were adversely affected (e.g., the St. Rita's Nursing Home tragedy);
- + Addresses four points of practical consideration for crisis counselors and social planners related to older adults in a disaster context, which include (a) the heterogeneity of older adults, (b) the role of pre-existing mental conditions on postdisaster reactions, (c) the role of prior hurricane experience and resilience in a natural disaster, and (d) the long-range effects of Hurricanes Katrina and Rita on an aging population; and
- + Discusses implications for advocacy, disaster planning, and preparedness for seniors, including consideration of policy initiatives to protect those whose destiny is often dependent on others.

OLDER ADULTS AND DISASTER: THE KATRINA AND RITA IMPACT

On the morning of August 29, 2005, Hurricane Katrina made landfall in the Gulf Coast region, which includes Mississippi and the lower Plaquemines and Orleans parishes in South Louisiana. Community destruction was widespread and loss of life was considerable, with an estimated death toll of 1,577 people in Louisiana (Sharkey, 2006). Death reports still remain controversial as to when the count ended and what was directly and indirectly caused by the storm. For example, people who died after relocating to a nursing home may not have had their death attributed to the hurricanes. On September 24, 2005, less than a month after Katrina, Hurricane Rita made landfall, primarily affecting Calcasieu, Cameron, and Vermilion parishes on the western side of Louisiana. Rita, also a destructive Category 3 hurricane at landfall, directly caused seven fatalities with property damage estimated at \$11.3 billion (National Hurricane Center, 2007), and indirect consequences of the disaster are still undetermined. With toxic waters remaining, newly homeless people dispersed all over the country, and officials still collecting and counting the dead, Hurricane Katrina all but eclipsed Hurricane Rita. The disproportionate coverage of Hurricane Katrina left Hurricane Rita an afterthought and led to the coining of the term *Rita Amnesia* (Hancock, 2006).

In retrospect, we know there were both notable and detrimental responses to Hurricanes Katrina and Rita, and sometimes the two are not mutually exclusive. For example, the weather advisory was successful in providing longer and more accurate warnings of specific

wind mileage and the prospective devastating consequences of a Category 5 storm more than 56 hours in advance, yet officials took longer than usual to call a mandatory evacuation. Still, many households, hospitals, and nursing facilities made plans well in advance of the epic storm to shelter the most vulnerable people. In the following paragraphs, we consider the extraordinary efforts of many individuals and organizations in the aftermath of the hurricanes. We also cast a spotlight on those dark events in which errors in judgment and unfortunate responses took a disproportionate and, in some cases, devastating toll on elderly persons.

Commendable Responses and Successful Outcomes

As Margaret Mead stated, it is more often the efforts of a small group of dedicated individuals that changes the world for the better (Aycinena, 2003) than attempted large-scale efforts caught in bureaucratic tape. Several responses after Hurricane Katrina follow this adage. In the next section, we describe select examples of those who gave of their own heart and time, assisting with the recovery and aftermath response of Hurricanes Katrina and Rita.

University and faith-based organizations. Extraordinary response efforts occurred on university campuses, schools, and churches statewide. Private and public partnerships were established with Louisiana State University (LSU) in Baton Rouge, where the largest disaster field hospital in U.S. history was housed to treat and triage more than 20,000 people (Bacher, Devlin, Calongne, Duplechain, & Pertuit, 2005). In spite of a massive influx of people who lost everything, volunteers remained optimistic and dedicated. In fact, the mantra in the Pete Maravich Center, an acute field hospital on the grounds of LSU that triaged some 15,000 evacuees and treated 6,000 others, was simply "get it done" (Bacher et al., 2005, p. xiii). Next door to the acute facility, LSU housed a Special Needs Shelter, an 800-bed field nursing home that was open for 5 weeks. In the LSU field hospitals, 3,000 students, staff, and community members provided services for days and weeks after the wake of the storm. Medical and human service professionals, along with community volunteers, picked up the pieces often barricaded by the federal government. Physicians, nurses, and mental health professionals flew in from all over the country into storm-ravaged areas as well to provide direct hands-on care, many on their own dime. Angel Flight, a volunteer organization comprised of pilots who help in times of need, provided its own fuel and airplanes for emergency travel of special needs residents from the Maddox Fieldhouse on the LSU campus. This was especially helpful, as the large airlines were not providing free travel in days and weeks following Hurricane Katrina (Allen, 2007). Volunteers, including social workers and psychologists, were some of the unsung heroes of the devastation as they stepped in to respond to the unprecedented mental health, physical, and case management needs in the aftermath of the disaster.

Southern University, a largely African American university in north Baton Rouge, also took a primary role in providing shelter and medical services for the evacuees in the F. G. Clark Activity Center (Southern University, 2005). Administrators, faculty, and staff associated with Southern University's Agricultural Research Extension Center developed a disaster response plan with immediate and long-term responses to those directly affected by Hurricane Katrina. Their disaster response plan included family assistance with immediate

food, shelter, and clothing needs; community renewal and restoration through assistance to local officials; and community resource and economic development through job training opportunities. Agriculture extension agents provided disaster relief and immediate assistance in the shelters, working to aid displaced families to relocate, find loved ones, and navigate the system (Williams, 2007).

The immediate and widespread responses of area churches and faith-based organizations also made a positive contribution. Baton Rouge has a vital and active church community with more than 600 churches in the Greater Baton Rouge area. In a recent study, Cain and Barthelémy (2008) found that 75% of the religious community supported relief efforts, primarily through establishment of shelters—some that operated for as long as 2 months after the hurricanes—as well as financial support, case management, linkage to benefits and services, and help finding loved ones and securing housing. Faith-based responses were cited as superior to federal and coordinated agency response such as the Federal Emergency Management Agency (FEMA), the Red Cross, and the Salvation Army (Cain & Barthelémy, 2008).

Many churches provided shelters to the more able-bodied evacuees and aided in coordination and referrals for those needing more extensive help. People used their own time, power, resources, and care to counter one of the worst catastrophes in U.S. history. There are countless stories about how regular citizens commandeered buses and boats to save hundreds of people in the floodwaters. Also, the National Guard provided heroic support in times of horror, lifting 1,200 distraught and disoriented residents—many of them older persons—out of their homes.

National and international attention focused on the plight of the thousands of Katrina evacuees. A lesser known fact is that many of them faced the separation or loss of beloved pets, an integral part of their lives for numerous individuals and families. In this context, another success story is how LSU provided an animal shelter providing care to more than 2,300 pets of evacuees. A record 2,000 animals were reunited with their owners (Bacher et al., 2005). The shelter was a massive effort of the LSU School of Veterinary Medicine and the Agricultural Center, the Louisiana Veterinary Medical Association, the Louisiana Department of Agriculture and Forestry, the Louisiana Society for the Prevention of Cruelty to Animals, and the Louisiana Animal Control Association.

Those who stayed and cared. First responders, along with countless other well-meaning citizens, did whatever they could, despite much hardship, to save others. In some cases, caregivers had to make a choice between caring for their own family or providing care for those they were responsible for at work. Many caregivers devoted tremendous energy, dedication, and love to those whom they helped relocate before the storm and the devastating flooding. Ironically, those medical personnel, law enforcement officers, and local officials who were required to stay in flooded New Orleans to maintain stability even in the throes of disaster often faced the harshest judgment from the public. Health care professionals who continued to provide care in the sweltering heat with little support were later interrogated, arrested, and faced with criminal charges. For example, Dr. Anna Pou and two nurses who provided palliative care and treatment to patients in Memorial Medical Center in New Orleans were accused of killing four critically ill patients by giving them lethal doses of pain-killing drugs to ease their suffering (known as “mercy killing”), but a grand jury failed to indict them on criminal charges related to the patients’ deaths (Foster, 2007).

Nursing home administrators and staff who cared for the growing number of admissions to nursing facilities in times of crisis are to be commended for working marathon-length days and handling burgeoning caseloads. The following describes a typical scenario:

Thirty persons all at once entered the facility. Caregivers, mostly women, were lifting residents and getting them situated. We also had a couple of Jane Does; one woman (who had previously suffered a stroke) could not verbalize well. One day, the survivor uttered her family member's first name. We finally found this survivor's family, weeks after Katrina. . . . It was amazing to see people who were essentially bed-bound make a 10-hour trip on a school bus. (a social worker at the Louisiana Nursing Home Association Annual Meeting, May 3, 2006)

Nursing home residents arrived at shelters exhausted, dehydrated and hungry, and at times disoriented.

Although it is often easier to recount stories of horror, it is comforting to remember that many individuals were responsible for saving others and helping despite a fragmented system and a slow institutional response by organizations and agencies mandated to supporting the well-being of those affected by disasters. A month after Hurricane Rita, local asset building and social action were called into play, and it is safe to say that the local can-do attitude of volunteers and regular citizens made substantial contributions in the disaster response.

Problematic Responses and Negative Outcomes

Extreme weather changes may adversely affect seniors who have limited income and other limitations such as restricted driving, sight, hearing, and mobility (Hutchins & Norris, 1989). Disaster response to the elderly must take into account these and other age-related limitations and needs, such as an older person's chronic and acute physical conditions, medications, and changes in health stability brought on by unexpected emergencies. Even those who were functioning independently prior to the hurricanes of 2005 may have experienced a decline brought on by the extent of the disasters and forced relocation (Sanders, Bowie, & Bowie, 2003). In this section, we focus on problematic storm responses that led to negative outcomes for older persons. With the hope that catastrophic personal loss and suffering can be avoided or minimized through careful planning and resource management in future storms, we examine how older adults responded to storm warnings and evacuations as well as the effects of storm-related relocation on them.

Evacuation dilemmas and tragic happenings. The conditions of devastation for those who remained in the affected areas during the post-impact period were horrific. Within a day after Hurricane Katrina, the Superdome, a huge sports and entertainment arena, took in 9,000 homeless evacuees. Conditions in the disorganized and neglected Superdome were substandard, without working toilets and other supplies, including water for drinking or bathing, yet for some people, it was all there was. On the second day following the disaster, a reported 20,000 residents were in the Superdome and were required to evacuate under an order by Louisiana Governor Kathleen Blanco. Reports of crime and bedlam across the city were widespread—some realities worse than the rumors—but others, such as people

with substance addictions forced out of their homes without proper support, were in impossible and grave situations for themselves and those around them (Horne, 2006). Looting and theft became widespread throughout a city that seemed all but forgotten. Perhaps chaos arose as a response to the lack of support and feeling of desperation. Reports of looting not only included regular citizens but also those charged with recovery efforts.

Some of the hardest stories relate to the most vulnerable older persons who were under the care of people who lacked or did not follow protocol, or perhaps found themselves in impossible situations in the eleventh hour. Many elderly adults were left in hospitals and nursing facilities with limited staff and relief efforts. The Associated Press (2005) reported that more than 215 bodies were recovered from hospitals and nursing homes in Hurricane Katrina's aftermath. Some died during or before the August 29th storm, or drowned in the rushing floodwaters that ensued, or perished in 100-degree heat following the disasters. Others died in transit or while waiting. The St. Rita's Nursing Home tragedy is another story of insurmountable horror and loss in which 35 residents drowned in the rising floodwaters because the facility did not evacuate prior to the storm. Among the survivors included Salvador and Mabel Mangano, the two operator-administrators who opted to stay in the facility and who were found after the flooding, paddling offsite in a boat, leaving the dead at the nursing home (Kern, 2007b). The Manganos faced criminal charges of negligent homicide related to the deaths of 35 residents and 24 counts of cruelty to the infirm for those who survived. Their ill-fated decision to shelter in place was thought at the time to be less risky than to move frail residents in a lengthy evacuation. Defense lawyers argued that there was no state or local mandatory evacuation order and the facility would have been fine had the levee protection system surrounding St. Bernard Parish not failed. Two years later, the Manganos were acquitted of these charges by a six-member jury in West Feliciana Parish (Kern, 2007a).

In retrospect, transportation planning may have been the single-most important factor in terms of getting people to safety. Pre-flood plans were secured through facility-arranged services by van, bus, and ambulance companies. Nursing homes are not unfamiliar with disaster planning, as it is a required part of their ongoing secured policies regulated by the licensing agency. One of the less familiar stories was the manner in which a facility transported the residents. Because there were few caregivers, despite the policy that certified nursing assistants and other medical personnel were required to be on buses providing transport to frail and medically compromised residents, the staff instead followed a school bus in their car. The bus, of course, was not equipped with toileting facilities for the residents, who were reportedly tied to the seats to make them stay in place (L. Sadden, personal communication, November 6, 2005). Another tragedy occurred after Hurricane Rita, when residents from Brighton Garden Home for the Aged in Texas were on a bus that caught fire. Their oxygen tanks exploded and killed 23 of the residents (Gross, Griffin, Wilder, & Lyles, 2005; Horne, 2006).

Older adults and storm warnings. Older persons may heed warnings differently than their younger counterparts. For instance, they may struggle with determining a best course of action in a crisis, compounded by confusion, added challenges of not being able to stand in line for prolonged periods, or muscular and mobility limitations in regard to taking the stairs or walking (Hutchins & Norris, 1989). Age alone is not a predictor of warning compliance

(Perry & Lindell, 1997). Compliance and ability, however, may be among two challenges for older persons because of possible physical and cognitive limitations that may interfere with successful evacuation. In Hutchins and Norris's (1989) study, more than half of community-dwelling older adults had some kind of physical limitation that required assistance if a disaster were to occur. Many seniors rely on transportation from others. Due to the late call for a mandatory evacuation in New Orleans, many did not have enough time to plan and were left to fend for themselves. In addition, many were not practical and compared the coming storm to other storms they had managed to survive (e.g., Hurricane Camille in 1965). Also, those older adults in the institutional settings that were not relocated before the storm had little in the way of options unless their families picked them up. However, mounting physical challenges limited even this option. When under the care of 24-hour skilled nursing services, one expects housing and nursing needs to be met, even when crises occur. Unfortunately, because of poor planning among a few nursing homes, many older adults had to stay in the Superdome in New Orleans or relocate to makeshift shelters across state lines.

Those most at risk had health care needs compounded by transportation barriers. Bob Johannessen, Louisiana Department of Health and Hospitals spokesman, expressed, "The elderly were much more likely to be in hospitals and nursing homes as well as possibly homebound and not able to access transportation in order to evacuate from the storm" (Associated Press, 2005, n.p.). But nothing came close to the horror of the ill-planned "Dome" following Katrina, where bathroom facilities were lacking, water and food scarce, and safety was a constant concern.

How do we know that older persons were at a disproportionate level of risk? One way is to examine reports of those who perished. Sixty-six percent of all citizens who died were over the age of 65 (Sharkey, 2006). In addition, many older survivors in need of housing and physical or mental health care were faced with their worst nightmare. They were separated from loved ones for an extended time, and one of the most pressing issues aside from essential care needs was locating loved ones of evacuated citizens. Many people who were living independently for years were virtually forced to relocate to nursing homes overnight.

Older adults, post-disaster relocation, and temporary housing. Transitions and relocation can be stressful for almost anyone under normal circumstances but especially for frail elderly adults who may have diminished control over their relocation (Oswald & Rowles, 2006). When elders are plucked from known support systems and familiar surroundings, a host of adverse psychological hardships hit, such as increased depression, pain, further impaired functioning, and a decline in perception of health, as well as increased isolation (Gallagher & Walker, 1990; Grant, Skinkie, & Lipps, 1992, as cited in Sanders et al., 2003). The urgency of relocating, or forced relocation as it is referred in the literature, requires multiple levels of readjustment for older persons. Maintaining a sense of routine and control over life choices was impossible; survival was the routine.

Relocation for those who had lost their housing meant living in the outskirts of Baton Rouge in the largest FEMA village in the state, Renaissance Village. However, placing people in temporary housing structures such as FEMA trailers has been problematic, especially for older adults. FEMA trailers, in comparison to permanent structures, are precarious and pose a risk during storms. Safety issues are an added hazard. After about 1 year of occupancy, several trailers were discovered to have the same locks (MSNBC,

2006). The materials used in the building materials are biohazardous for humans and the formaldehyde levels are unsafe (Burdeau, 2007). In addition, when power is knocked out in the summer months, which is not uncommon in Louisiana, trailers can easily reach temperatures well over 95 degrees, proving deadly to those most vulnerable, such as older residents. The blur of white, nondescript, and boxlike structures sheltering hundreds of people in crisis with minimal access to transportation and support services left elderly residents in a dangerous situation.

Older adults and nursing home relocation. Whether the devastation of Hurricanes Katrina and Rita led to premature placements in nursing homes is unanswerable. Nursing homes are rarely the desired setting for older people, yet in many cases there were few options other than a nursing home for dislocated older persons with medical needs. Whether the nursing home industry helped or exploited older survivors of the 2005 hurricanes is debatable; options were minimal and nursing home care was a dire necessity for some individuals.

There was little question about the sudden increased occupancy in areas unaffected by the storm where survivors were ultimately relocated. It has been difficult to acquire solid data on relocation statistics for older survivors. A typical facility may have had a pre-storm occupancy rate of 65%. Months following Hurricanes Katrina and Rita, this jumped to a 96% occupancy rate.

Sadly, there were few alternatives to caring for others, and even Governor Blanco noted embarrassment and shame in how slowly state authorities evacuated elderly residents from nursing homes and hospitals. The disasters essentially caused one of the largest influxes of residents into nursing homes virtually overnight; they included individuals who were relocated from other inoperable facilities and those who were living independently in their own homes at the time of the storm. Louisiana thus has the highest nursing home use rate in the nation (GOVERNING, 2004). A contributing factor is that Louisiana directs the majority of its Medicaid budget into institutional settings rather than home-based and community-based services. In fact, \$4 out of every \$5 goes toward nursing home care, and only \$1 out of \$5 goes toward community-based services (Stanford University, Center for Deliberative Democracy, 2005). Whether physically and/or mentally compromised elders will ever return to their home is yet to be seen. The massive devastation and the flimsy policy responses, together with diminished organizational support in the most storm-affected areas, make a best-case scenario outcome unlikely.

OLDER ADULTS AND NATURAL DISASTERS: IMPLICATIONS FOR CRISIS COUNSELORS

Historically, older people have been considered an at-risk group in times of intense stress or uncertainty. The elderly may be more vulnerable to the consequences of natural disasters than other age groups because they may be less likely to receive warnings, less willing to evacuate, and thus more likely to experience disruption and disturbance in their lives after a disaster and less likely to survive (see Cherry, Galea, & Silva, 2008). Other researchers doubt whether older adults are more vulnerable to disasters than other age

groups (e.g., Phifer, Kaniasty, & Norris, 1988). Understanding the emergent needs and issues associated with an aging population in times of disaster is vitally important for crisis counselors as well as federal, state, and local officials who are responsible for ensuring the safety and well-being of all citizens in the aftermath of hurricanes and other catastrophic natural disasters.

Although natural disasters differ by type and impact, there are several fundamental aspects in disaster science related to older persons. Considering all that we have learned and continue to process related to these epic storms, there are lessons and practical considerations pertaining to older persons that must be borne in mind. The next section describes four points that counselors and others who may interact with older adults in a disaster context should recognize and appreciate to provide optimal assistance during a crisis.

(1) Heterogeneity of the Older Adult Population

National demographic trends have drawn increased attention to the challenges associated with meeting the complex needs of an aging population. What may be less well known is the striking heterogeneity of the senior population. The majority of those age 65 years and older are relatively healthy and live independently in the community. The probability of an illness or chronic condition that leads to disability, immobility, or chronic pain increases with age, possibly reducing one's ability to exert control over everyday activities and future events. When disaster strikes, community-dwelling older persons are less likely to access formal care and financial support compared to other age groups. They may also be slower to respond to disaster than their younger counterparts (Perry & Lindell, 1997).

In the wake of Hurricanes Katrina and Rita, we know that older people faced disproportionate hardship and challenges due to multiple factors of vulnerability. For instance, reluctance in leaving, lack of transportation, limitations in mobility, and limited resources were a problem for some. For others, physical health needs, such as respiratory and heart conditions, or mental health issues created undue hardship. For reasons such as these, older adults are often considered a special risk group for post-disaster distress (Massey, 1997), although research yields a complicated picture of disaster impact on elderly persons. Some researchers have found a significant impact of natural disasters on older adults' physical health (Phifer et al., 1988) and psychological symptoms (Phifer, 1990; Phifer & Norris, 1989). Others have argued that older adults may be less vulnerable and better able to cope with stressful situations compared to their younger counterparts (Tracy & Galea, 2006). These contrasting viewpoints underscore the heterogeneity of older people, a factor that should not be overlooked by crisis counselors and in future hurricane planning and preparation.

(2) Role of Pre-Existing Mental Conditions

Physical and psychological distress may occur in the post-disaster period for victims and non-victims alike, although few who experience a disaster develop a psychological disorder. For those who have experienced disaster-related losses, psychological symptoms are likely, but such reactions typically do not mark the beginning of clinical disorder (Phifer, 1990; Phifer & Norris, 1989). Rather, those who suffer from existing mental health

symptoms, such as trait anxiety, generalized anxiety disorder, and depression, may be more vulnerable to adverse psychological sequelae in the post-disaster period than those without pre-existing conditions. For example, Weems, Piña, et al. (2007) found that negative affect states present before Hurricane Katrina predicted symptoms of posttraumatic stress and general anxiety among children and youth in the greater New Orleans area. For older adults, the presence of depressive symptoms prior to a stressful event may also contribute to subsequent depression symptoms (Kraaij, Pruyboom, & Garnefski, 2002). In addition, persons with a history of posttraumatic stress disorder, depression, anxiety disorders, and substance abuse disorders are more vulnerable to new trauma due to their latent emotionality and inability to handle the considerable demand that follows a natural disaster (Franklin, Young, & Zimmerman, 2002).

Substantial differences are seen in personal responses to stressful events such as natural disasters. Psychological vulnerability after stressful life events varies widely, although greater risk is noted for certain sociodemographic groups (e.g., women; unmarried people; those with lower education, lower income, or lower occupational status; Thoits, 1982). Thompson, Norris, and Hanacek (1993) remind us that people who live through natural disasters bring along their personal histories, including social support resources and coping skills and abilities. These individual characteristics, coupled with disaster-related burdens unique to the person and his or her situation, may ultimately determine who will be the most or least vulnerable to adverse disaster effects. The effects of a natural disaster, then, should be evaluated in the context of the life course of the individual (Norris & Murrell, 1988).

Approximately 15% to 25% of older adults in the general population are thought to have symptoms of mental health problems. Available data underestimate the mental health of older people because they tend to avoid using mental health services (Oriol, 1999). Under stressful situations such as natural disasters, there are many factors to consider that may affect mental health outcomes for older persons. For example, older persons often experience greater declines in physical health, decreased functional capacity, declines in sensory abilities, and fewer social and economic resources compared to younger people (Massey, 1997; Oriol, 1999; Phifer, 1990). The occurrence of a natural disaster such as Hurricane Katrina has an unquestionably detrimental effect on social ties and support systems, disrupting access to friends, family, and community (Weems, Watts, et al., 2007). For people of all ages, pre-existing major depressive disorder is generally thought to double the risk for developing posttraumatic stress disorder after exposure to a traumatic event (Breslau, Davis, Andreski, Peterson, & Schultz, 1997).

For older persons suffering from poor mental health, a natural disaster may worsen their condition, while physical health problems are exacerbated by changes in social functioning and disruption in care-seeking behaviors (Tracy & Galea, 2006). Careful consideration of a person's psychological state prior to a disaster is necessary for an accurate assessment of mental health in the post-disaster period. One of the poignant lessons learned from Hurricanes Katrina and Rita concerns special needs evacuees suffering from mental illness. Many did not have medical records or access to prescriptions after evacuating their homes, which further complicated assessment and treatment. In addition, those who were confused and disoriented after the storm were not able to remember the medications they were taking. Discussions on electronically registering special needs citizens' medications

have occurred in the elderly service network. However, challenges in the cost, portability, updates, and organization have handicapped progress in this area of disaster preparation.

(3) Role of Prior Storm Experience and Psychological Resilience

Cherry et al. (2008) have made the point that natural disasters provide a context for examining adaptation and resilience after a significant environmental stressor and may provide new insights into successful aging. It stands to reason that older adults who live in the Gulf Coast region may have considerable prior experience with hurricanes, floods, and storms. Other potentially relevant lifetime experiences, such as military combat or other personal hardships, may also provide a backdrop for older people when dealing with current challenges in the wake of disaster. Previous hurricanes and storms, coupled with other unique life experiences, may serve a protective function for older adults, insulating them from psychological distress and strong emotional reactions to subsequent natural disasters. This positive view of prior storm experience finds its conceptual roots in Eysenck's (1983) inoculation hypothesis, which purports that stress exposure actually increases people's ability to tolerate future stresses. Thus, older people are thought to fare better than one might expect and be more resilient in the event of a future disaster as a result of their earlier flood and hurricane experiences. Some studies have found that past experiences are protective factors among older people by reducing stress following a similar disaster later in life (Ferraro, 2003; Knight, Gatz, Heller, & Bengtson, 2000).

Findings showing adaptation and resilience among older adults in the post-disaster period lend support to the inoculation perspective (Norris & Murrell, 1988). Moreover, such findings imply that those who may meet the criteria for successful aging continue to thrive despite the obstacles, hurdles, and adversity they may have to overcome in the post-disaster recovery period. According to Phifer (1990), several factors may account for the relative resilience of older adults. Older people may have a higher incidence of past resolved stressful experiences, so in a general sense, they are "experienced" victims (Norris & Murrell, 1988). Older people may have rich histories of coping with prior crises that lessen the impact of an immediate disaster. They may also experience fewer life changes within a given time interval compared to younger adults, resulting in a lower incidence of unresolved stressful experiences in their daily lives. For younger adults, the simultaneous occurrence of other life stressors and/or crises may exacerbate the impact of a given crisis, leaving them overwhelmed and vulnerable to the adverse effects of a natural disaster.

From a practical vantage point, those resilient older persons who adapt and cope successfully in the wake of a natural disaster may be in a unique position to offer assistance. For instance, they could be a valuable resource for post-disaster victim advocacy and other less physically strenuous disaster relief efforts in communities that have suffered natural disasters (Norris & Murrell, 1988; Thompson et al., 1993). Moving from a vision of older people as victims to those with remarkable resilience and lessons to teach younger generations may be the way to learn productive aging and unlearn ageism. Remembering those older persons in the community who have the capacity and interest to be part of the solution is a critical piece of the puzzle for local and state officials who are responsible for disaster planning and preparedness efforts. Morrow (1999) has made the point that just

because persons may have been viewed as vulnerable or disenfranchised in the past does not suggest that they are unwilling to be part of the process. She illuminates women as those who often provide ongoing care but are excluded in formal disaster planning, management, response, and leadership. Much could be said about older people, as they may serve essential roles in responding to disasters in terms of experience and support. In the shelters, it was common to see older people, neighbors, and families supporting each other in the aftermath of disaster. An older man disclosed to a first responder that his 90-year-old tenant urged him to get to the second floor of the apartment and to be airlifted with her out of the window. He said without her help, he would not be alive (Allen, 2007).

(4) Uncertain Long-Range Effects on the Aging Population

We are still witnessing the effects of the hurricanes of 2005 and will continue to do so for some time. Kilijanek and Drabek (1979) note that loss can be particularly hard for older persons, particularly those who are frail and impoverished as they face compounded losses; loss of sentimental items is found to result in "heightened sense of deprivation for older as compared to younger victims" (p. 556). These researchers paint a particularly bleak picture that one of the "detrimental consequence[s] of disaster is impaired physical functioning" (p. 555). Older persons may also experience what the authors refer to as a "pattern of neglect," whereby older victims are less likely than younger victims to receive formal and informal support. Nearly 20% of sampled participants received no support from nine potential resources (family, friends, religious organizations, American Red Cross, Salvation Army, other voluntary organizations, governmental agencies, strangers, and employers).

Disaster literature cites the impact and definition of recovery in the way in which the system returns to normalcy or a state of equilibrium after disasters (Friesema, Caporaso, Goldstein, Lineberry, & McCleary, 1979). Such equilibrium usually depends on geographic regions, status of unemployment, economic growth or decline, health, and hospitalization rates. Normalcy is compromised when many are not able to return to their original homes. The aftermath effect may make a temporary situation permanent (Friesema et al., 1979). Such a state is evident at this juncture in New Orleans, by the reality of more than 40,000 citizens continuing to reside in FEMA trailers 3 years after the storm.

One of the long-standing arguments that remains is whether Hurricane Katrina was a natural or man-made disaster. Science and experience tells us that it was both. Due to the poor maintenance of levee systems as well as delays and barriers in responding, the response to a massive catastrophic event was weakened. Zakour and Harrell (2003) raise dimensions of environmental disadvantages of lower income people in urban settings. Those who live in older, urban areas with declining physical infrastructures such as cheaper rents are stratified by income and class (Zakour & Harrell, 2003). Vulnerability is constructed not only by chance but also by social construction and economic circumstances of life (Morrow, 1999). Certain groups of people will always be disproportionately at higher risk. These include but are not limited to the poor, elderly, disabled, ethnic minorities, single parents—people living in high-risk areas with mounting environmental threats. As Poulshock and Cohen (1975) suggested, "the study of a population group and the community it lives in under stress of a natural disaster yields significant insights into the behavior of that population group under more normal circumstances" (p. 360).

PRACTICAL IMPLICATIONS

- Older adults comprise a vulnerable population, and efforts should be made to ensure their safety in disasters.
- Sustainable disaster planning involves a collaboration between both local and federal government agencies.
- Community agencies and local individuals should be an integral part of disaster planning.
- It is necessary to develop a registry of special needs patients to plan evacuations and transfers to special needs shelters.

CONCLUSION AND FUTURE DIRECTIONS

Although disasters may be caused by natural events, the preparation and responses to disasters are based on human efforts. With older people soon to account for one fifth of the total population in the United States, planning for the care and support of older persons is an absolute necessity. From a global perspective, convergent evidence arises from other natural disasters to underscore the vulnerability of the elderly in large-scale emergency situations. For example, older adults were more likely to die in the 2003 heat waves in Europe, and older persons in Indonesia were also less likely to survive the Indian Ocean tsunami of 2004 (World Health Organization, 2007). These death statistics, together with other public health indicators, highlight the need for policies to ensure the safety and well-being of elderly persons and other vulnerable groups following a disaster.

Sustainable disaster plans require involvement at the local as well as federal level (Morrow, 1999), yet planning for disasters in high-risk areas of Louisiana remains very formative. Khanna (2006) further indicates that nursing home evacuation plans, although required and executed as part of standing policy, are often loosely followed, based on a handshake or a verbal agreement than on formalized, implemented, and practiced policy. One of the lessons learned and reviewed in this chapter has been the essential role that local citizens and organizations played in rescue efforts and meeting the immediate needs of first responders and evacuees. Hurricanes Katrina and Rita have shown us that local individuals and communities rose to meet an unprecedented challenge and emerged as clear heroes. Thus, an integral part of disaster planning is the involvement of local individuals and community organizations. In short, advocacy is called for through educational campaigns about risks related to older persons whereby citizens take on an active role for mutual support. In addition, as discussed in this chapter's section on problematic responses and negative outcomes, it is necessary for hurricane- and disaster-prone areas to develop a registry of special needs patients to better plan safe and supportive evacuations and transfers to special needs shelters. Some regions in Florida have required efforts coordinated by the state's Agencies on Aging. In Louisiana, no such coordination exists to date (Poiley, 2007).

Because older people may either delay action to evacuate based on existing patterns of neglect and reluctance to use formal services, extra vigilance is needed to assess the

location of older persons in the communities. Securing consensual organizational responses and networking between what has often been referenced to as "separate silos of human service delivery" will better serve those in need after a disaster. However, we must also consider predisposing medical, physical, and cognitive conditions that may shape recovery from disaster. It is clearly a priority to formulate better plans for people residing in institutions, such as hospitals, nursing homes, and structured living arrangements (e.g., assisted living communities and homes for the aged). Working to maximize independence and get support well in advance of a storm is essential.

Following Hurricane Andrew, Silverman and Weston (1995) urged that any comprehensive disaster plan must include attention to the special care of older and frailer members in the community. Also, for the elderly who may be hard to reach, special outreach activities should continue well after the disaster has ended. Disasters are likely to occur in the future, but they do not have to be deadly for older members of society if we plan appropriately. It is time for society to reconsider the ways of treating the elderly and the support provided for their care. It is important to develop strict policies on their standard of care in disaster situations by clear planning and relocation strategies.

In closing, the 2005 hurricanes opened the eyes of Americans to the consequences of poor disaster planning in relation to the needs of older persons affected by a natural disaster. From the reality and risk of relocating citizens in buses that were not safe enough to transport them over long, poorly planned routes, to the unparalleled tragedy of St. Rita's Nursing Home, the concerns about poor planning and disaster management far outweigh any useful efforts that were made. Still, it is important to remember the countless stories of survival and humanitarian efforts in which people put the needs of others before their own.

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