Disaster Preparedness: Developing Sustainable Communities for Older Adults and Other Vulnerable Populations

Erika Symonette[1]

Impact of Natural Disasters in the United States

Since 1980, the average annual number of natural disasters has more than tripled (National Oceanic and Atmospheric Administration [NOAA], 2011). In 2011, an estimated 650 people were killed by devastating hurricanes, floods, tornadoes, wildfires, and winter storms. Wildfires, drought, and extreme heat destroyed livestock, crops, and structures across the southern plains and southwest regions of the United States. In addition, an estimated $50 billion in property was destroyed by these natural disasters (NOAA, 2011). Yet, hydrological hazards in the United States continue to have an astounding impact on communities. In 2011, Hurricane Irene battered the northeastern seaboard. A reported 55 people died, 9 million people were without electricity, and mandatory evacuation orders were issued to 2.3 million residents (NOAA, 2011).

Even more, in 2012, Hurricane Sandy pummeled the mid-Atlantic and northeastern United States. In particular, New York City and the surrounding boroughs were inundated with storm surge several feet high, massive flooding, and destructive waves (Blake, Kimberlain, Berg, Cangialosi, & Beven, 2012). In addition, Hurricane Sandy significantly impacted several Caribbean countries, located in the Atlantic basin. In total, across the Atlantic basin, Hurricane Sandy directly related to approximately 147 deaths, with 72 of the casualties occurring in the United States (Blake et al., 2012).

Indirectly Hurricane Sandy contributed to 87 fatalities in the United States. On account of power outages and winter weather, the cause of 50 of these fatalities were hypothermia, elderly residents falling in the dark, and carbon monoxide poisoning from hazardous cooking equipment and generators. Attributed to removing uprooted trees during the cleanup effort and motor vehicle accidents were the remaining fatalities. Further, in New York the storm surge destroyed approximately 305,000 homes. Damaged by extensive flooding were hospitals, schools, the subway system, and commercial buildings. Public and private industries suffered substantial economic ruin resulting in $19 billion of loss property (Blake et al., 2012).

Undoubtedly, Hurricane Katrina generated astounding attention to natural disasters in the United States. Researchers not only examined the cataclysmic atmospheric conditions that occurred during

[1] esym128@hotmail.com

Hurricane Katrina, but also how people were drastically affected by the powerful hurricane (Leong, Airriess, Wei, Chia-Chen, & Keith, 2007; Messias & Lacy, 2007; NOAA, 2005; Zoraster, 2010). An estimated 1,330 people killed were by the brutal weather conditions spawned by Hurricane Katrina (Burton, 2010; Wilson, 2006). Failed levees in New Orleans and record storm surge in the coastal communities of Pass Christian and Biloxi, Mississippi, caused an accumulative $80 billion in destroyed property across the Gulf Coast displacing over a million residents (Burton, 2010).

Consequently, disproportionately affected by the devastation associated with Hurricane Katrina were older adults. Before Hurricane Katrina, elders 60 and older comprised 15% of the population in New Orleans; however, 74% of the dead were 60 years old or older. Nearly, half were older than 75 years of age (Glass, 2006).

Older Americans and Disaster Preparedness

Current data indicates the United States is rapidly aging. Elderly Americans are living longer due to advancements in medical technology, preventive health care, and a growing emphasis on gerontological health. The Administration on Aging estimates by the year 2020, 55 million people living in the United States will be 65 years of age or older. Parallel to this significant increase among the older adult population, natural disasters are more prevalent. Consequently, adversely affected by these disasters and exposure to social vulnerabilities during the disaster cycle are the elderly (NOAA, 2005).

Contemporary literature continues to investigate the disaster preparedness levels of older adults residing in the United States. Al-rousan, Rubenstein, and Wallace (2014) examined secondary data provided by the Health and Retirement Study (HRS), a biennial survey designed to track developing trends among adults 50 and older. Primarily, the survey items focus on work force participation, retirement, health behaviors, social attitudes, and socioeconomic status. Updated with targeted modules randomly administered to a subgroup within the sample population, in order to capture current perceptions of adults 50 and older, is the biennial survey.

In 2010, disaster preparedness items were included in the HRS survey. In the HRS Disaster Preparation Module, a total of 1,304 older adults participated in the survey. Disaster preparedness questions focused on survey respondents' having household emergency plans, access to a battery-operated radio, and a three-day supply of water, food, and medication. Respondents answered questions about their awareness of community programs that offered disaster readiness assistance, evacuation plans, knowledge of emergency shelters, and physical impairments that might impede disaster preparedness activities.

Results from the disaster readiness survey items revealed low levels of disaster preparedness behavior in the sample population. Only 23.6% of older adults reported having an emergency plan; while

10.1% reported being in a disaster registry database should they need help, and 43.2% were aware of a local community shelter, in case of evacuation. Reported by 24.8% of the respondents was not having access to a car during an emergency. Nearly two thirds of the sample population reported never attending any disaster readiness programs in their local community and over one third did not have basic disaster readiness supplies in case of an emergency (Al-rousan et al., 2014).

This current literature supports the importance of effective emergency planning in older populations. This information is necessary to develop strategic and sustainable community-based interventions that encourage local collaboration and inclusion of vulnerable populations.

Developing Sustainable Communities

A subtle shift has occurred in disaster preparedness literature. Social scientists are examining the construct of sustainability as it applies to natural disasters and the evolving role of emergency preparedness in this shifting paradigm. What is familiar and anticipated during a major natural disaster such as a winter storm, wildfire, hurricane, or flood is the expected devastation of vulnerable neighborhoods, populations, and the delayed insufficient recovery efforts. Recent disaster preparedness research recognizes the urgency to study disaster preparedness through a different lens, one which sustainability is shaping this new perspective.

Sustainability in disaster preparedness literature may be defined as social capital, social cohesion, or community resilience. Taken together, these concepts accurately describe sustainability: productive use without depletion or destruction. Reininger et al. (2013) interprets social capital as linking people to efficient collaborative human networks and tangible reusable resources (Reininger et al., 2013). Greene, Paranjothy, and Palmer (2015) study on flood exposure and social cohesion explored the mental, emotional, and social aspects of human behavior that extends far beyond the functionality of physical infrastructure, local municipalities and organizations during frequent and reoccurring disasters. Social cohesion is influenced by meso-theories that examine micro, (individual) meso, (small groups) and macro (broader society) systems to further understand the complexities and importance of continued psychosocial health during disasters (Greene, Paranjothy, & Palmer, 2015).

Hurricane Katrina provided a clear example of how a natural disaster impacted marginalized communities and vulnerable people. Temporarily housed at the Reliant Astrodome Complex (RAC) in Houston, Texas, frail older adults were quickly over shadowed by the 23,000 adults and children displaced by Hurricane Katrina and relocated to the RAC. Although medical services, resource and referral information, and social service benefits were readily available to citizens who were evacuated to the RAC; frail elders were unable to access these services due to limited mobility, cognitive and sensory impairment, poor health, and trauma

associated with the relocation. Sixty percent of New Orleans' residents evacuated to the RAC were frail elderly and disabled adults (Baylor College of Medicine and the American Medical Association, 2006). Hurricane Katrina and other large scale environmental hazards revealed the inadequacies in federal, state, and local infrastructures. As a result, disaster preparedness, response, and recovery efforts were compromised (Wells et al., 2013).

The framework for community resilience is the community partner participatory research model. Community resilience exceeds the definition of self-efficacy in the context of individual and family emergency planning and recognizes the ability of communities to mitigate, prepare, and recover from natural disasters. Conceptualized within the framework of a community systems model, community resilience emphasizes strengths and appropriately utilizes resources of disenfranchised populations and marginalized neighborhoods. The goal is social justice, equity, and community empowerment. Vulnerabilities are assessed with the aim of developing strategic, applicable, and culturally aware program interventions (Plough et al., 2013).

Community resilience supports sustainable commerce, viable collaborative networks, transfer of ideas and dialogue, cultural respect, and healthy citizens. Social scientists have determined these characteristics with trusted political leadership and social solidarity sustain community resilience beyond the disaster. Within the community, collaborative partnerships are an important component of community resilience. Community-based organizations, private sector industry, local government, universities, and faith-based organizations can work together to increase community engagement and empowerment (Plough et al., 2013).

Mentioned earlier, the older adults relocated to the RAC were found to be suffering from dehydration, delirium, and limited mobility. However, health care professionals recognized the depressed condition of the frail older adults who were unintentionally neglected. Gerontological social workers, geriatric nurses, and gerontologist associated with Baylor College of Medicine Geriatric Program at the Harris County Hospital District formed an alliance with the Texas Department of Family and Protective Services to provide medical care and advocacy services for the older residents. A team of Baylor geriatric health professionals and adult protective service workers accurately assessed the immediate needs of the older residents temporarily housed at the RAC. A health assessment and social service tool was developed to provide appropriate interventions. This coordinated response aligns with the goals of community resilience and empowering vulnerable populations (Baylor College of Medicine and the American Medical Association, 2006).

In marginalized neighborhoods, faith-based organizations are significant resources for information dissemination, food and clothing assistance, financial help, and health care services (Plough et al., 2013). According to Graddy (2006), faith-based organizations may be better equipped to deliver a specific

type of assistance to individuals in need compared to other service providers. Numerous studies have identified the church as a significant fixture in many communities. Churches are a readily available community resource providing a building, an existing volunteer network, and established partnerships in the community. Churches with committed community relationships are positioned strategically to acknowledge and address the disparities within vulnerable populations. Likewise, faith-based organizations depend on dedicated volunteers that have the ability to offer more services or allocate additional attention to clients compared to other service providers (Graddy, 2006; Griener, 2000).

Hurricane Katrina increased the involvement of faith-based organizations in gulf coast communities. In New Orleans churches were vital conduits in supporting response and recovery efforts in vulnerable neighborhoods. DeVore (2007) quotes an editorial from the August 2006 edition of the *New Orleans Times-Picayune*: "Faith-based organizations and churches have been a godsend for the metro area . . . showing an ability to organize, mobilize and get things done that has frequently eclipsed the public sector" (p. 762). Historically the African American church has been a primary center of social, spiritual, and political life for African Americans. Hatch and Derthick (1992) emphasize that for over 200 years the Black church has helped African Americans to cope with harsh social conditions (DeVore, 2007; Hatch & Derthick, 1992).

The community resilience framework supports the use of local leadership to establish emergency planning interventions from within informal social support networks such as churches, community-based organizations, health departments, fire departments, and senior centers. The roles informal social support networks already assume in marginalized communities validate this concept. Community resilience supports what has already been establish in most neighborhoods. Informal social support networks readily can be adjusted to initiate and support emergency planning interventions and strategies. Neighbors can form disaster preparedness groups whose targeted focus is to promote critical awareness, resilience, and protective behavior skills. These empowering activities would decrease dependency on federal and state municipalities and strengthen community involvement and responsibility – especially in the elderly and vulnerable populations.

This formula is already in practice when neighbors and friends open their doors to take in a less fortunate member of the community, cook a meal when someone is sick, and provide transportation to the doctor. These established community networks can positively influence emergency planning among older adults and marginalized neighborhoods with the purpose of saving lives during times of disaster. Participating in disaster preparedness interventions and adapting protective behaviors may help minimize feelings of perceived discrimination and empower populations on the fringes of society, especially when affected by a natural disaster. These tools are necessary to

develop strategic and sustainable community-based interventions that encourage local collaboration and inclusion of vulnerable populations.

References

Al-rousan, T. M., Rubenstein, L. M., & Wallace, R. B. (2014). Preparedness for natural disasters among older US adults: A nationwide survey. *American Journal of Public Health, 104*(3), 506-511.

Baylor College of Medicine and the American Medical Association. (2006). *Recommendations for best practices in the management of elderly disaster victims*. Retrieved from http://www.bcm.edu/pdf/bestpractices.pdf

Blake, E. S., Kimberlain, T. B., Berg, R. J., Cangialosi, J. P., & Beven, J. L. (2012). *Tropical cyclone report Hurricane Sandy*. Retrieved from www.nhc.noaa.gov/data/tcrAL182012_Sandy .pdf

Burton, C. G. (2010). Social vulnerability and hurricane impact modeling. *Natural Hazards Review*, 11(2), 58-68.

DeVore, D. E. (2007). Water in sacred places: Rebuilding New Orleans Black churches as sites of community empowerment. *Journal of American History, 94*(3), 762-769.

Glass, T. A. (2006). Disasters and older adults: Bringing a policy into the light. *Public Policy & Aging Report, 16*(2), 1-7.

Graddy, E. (2006). How do they fit? Assessing the role of faith-based organizations in social service provision. *Journal of Religion and Spirituality in Social Work, 25*(3/4), 129-150.

Greene, G., Paranjothy, S., & Palmer, S. R. (2015). Resilience and vulnerability to the psychological harm from flooding: The role of social cohesion. *American Journal of Public Health*, 105(9), 1792-1795.

Griener, G. (2000). Charitable choice and welfare reform: Collaboration between state and local governments and faith-based organizations. *Welfare Information Network Issue Notes, 4* (12).

Hatch, J., & Derthick, S. (1992). Empowering Black churches for health promotion. *Health Values, 16*(5), 3-11.

Leong, K. J., Airriess, C. A., Wei, L., Chia-Chen Chen, A., & Keith, V. M. (2007). Resilient history and the rebuilding of a community: The Vietnamese American community in New Orleans East. *Journal of American History*, 94(3), 770-779.

Messias, D. K. H., & Lacy, E. (2007). Katrina-related health concerns of Latino survivors and evacuees. *Journal of Health Care for the Poor and Underserved*, 18(2), 443-464.

National Oceanic and Atmospheric Administration. (2005). *Hurricane Katrina*. Retrieved from http://www.ncdc.noaa.gov/special-reports/katrina.html

National Oceanic and Atmospheric Administration. (2011). 2011: *A year of extremes*. Retrieved from http://www.nws.noaa.gov/com/weatherreadynation/files/2011Extreme Weather_factsheet.pdf

Plough, A., Fielding, J. E., Chandra, A., Williams, M., Eisenman, D., Wells, K. B., . . . Law, G. Y. (2013). Building community disaster resilience: Perspectives from a large urban county department of public health. *American Journal of Public Health, 103*(7), 1190-1197.

Reininger, B. M., Rahbar, M. H., Lee, M., Chen, Z., Alam, S. R., Pope, J., & Adams, B. (2013). Social capital and disaster preparedness

among low income Mexican Americans in a disaster prone area. *Social Science & Medicine*, 83, 50-60.

Wells, K. B., Tang, J., Lizaola, E., Jones, F., Brown, A., Stayton, A., Williams, M. (2013). Applying community engagement to disaster planning: Developing the vision and design for the Los Angeles county community disaster resilience initiative. *American Journal of Public Health, 103*(7), 1172-1180.

Wilson, N. (2006). Hurricane Katrina: Unequal opportunity disaster. *Public Policy & Aging Report*, 16(2), 8-13.

Zoraster, R. M. (2010). Vulnerable populations: Hurricane Katrina as a case study. *Prehospital and Disaster Medicine*, 25(1), 74-78.