Long Term Recovery for Older Adults: 
A Preliminary Case Study of the 2013 Colorado Floods

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ABSTRACT
This paper explores disaster recovery among senior citizens following the September 2013 Colorado floods. This research examines the recovery process at both the organizational and individual levels, incorporating perspectives on senior serving organizations, seniors living within institutional settings, and seniors living independently. At the organizational level, findings highlight the importance of capacity for independent disaster response, client relations, and extension of plans beyond the response phase. At the individual level, findings suggest that forced relocation, closure of essential services, and weakening of social ties are key stressors for seniors that can pose significant obstacles for recovery. However, findings also suggest that seniors may benefit from efforts to support continued access to social networks, involvement in disaster response activities, and coping mechanisms that support psychological resilience in the face of significant losses.

Introduction
In mid September 2013 a major flood event swept across Northern Colorado, the result of prolonged, historic rainfall supplanting record-breaking heat. The floods caused over $2 billion in damage across the state, displaced 18,000 residents, and severed mountain communities from external access (FEMA 2013). Of the 10 fatalities resulting from this disaster half were persons aged 60 and older, despite the fact that people in this age group comprised less than 12% of the population within the affected counties. Empirical research on older adults in disaster settings indicates that outcomes such as this are not the products of chance. Seniors are often disproportionately vulnerable to extreme events, a fact that may account for their overrepresentation among casualties resulting from recent large-scale disasters (Glass 2006; Sharkey 2007; Fink 2013). Understanding of the issues that contribute to differential vulnerability within this population is essential for efforts to better address needs. Below I briefly discuss factors that result in amplified disaster vulnerability among some seniors and share findings from ongoing research that explores the experiences of community elders and seniors serving organizations using the 2013 Colorado floods as a case study.

Seniors and Disaster Vulnerability
The number of elders in the United States is growing rapidly. Currently, one in every eight people, or 13.7% of the population, is aged 65 years or older. With the aging

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of the baby boom generation, this group is projected to double to nearly 20 million by the year 2040 (Administration on Aging 2013). In the face of escalating disaster losses, growth in the aging population will lead to increased exposure of older adults to environmental hazards. There is a growing need to better understand factors unique to elders across the disaster lifecycle in order to reduce losses within this population.

Recent literature pertaining to aging and disasters has highlighted this population’s disproportionate vulnerability and the consequences resulting from failure to incorporate their unique needs into disaster planning. For example, seniors represented around 70% of the casualties resulting from hurricane Katrina in New Orleans, despite constituting only 12% of the city’s population (Glass 2006, Sharkey 2007). Older adults were also significantly overrepresented among those who perished as a result of the 1995 Chicago heat wave, with persons over 65 years of age constituting 73% of casualties (Klinenberg 2002).

Seniors often face health conditions that can place them at greater risk than younger people in the context of a disaster. Compromised immune systems may leave seniors more vulnerable to the physical effects of stress and exposure to adverse weather conditions or chemical agents. Chronic medical conditions may lead to illness or death if left untreated due to insufficient supplies or when routine medical procedures are unavailable in times of emergency. Physical disability may obstruct receipt of warning messages, increase the amount of time and equipment needed for evacuation, or hinder the ability to relocate from dangerous areas in the event of a sudden-onset threat (Johnson et al. 2006). Challenges also manifest for seniors within institutional settings, even when disaster preparation and response activities are implemented (Latidka et al. 2009).

However, some research has indicated that seniors may be better equipped than their younger counterparts to offset negative outcomes resulting from disaster losses and even traumatic disaster experiences (Norris and Murrell 1988; Kohn et al. 2005; Brown 2007; Adams 2011). Furthermore, given the significant diversity within older adult populations, less is known about how characteristics at the individual, organizational, or community levels interact to influence disaster outcomes. These issues highlight the need for additional research to tease out conditions that affect disaster vulnerability and resilience within aging populations.

Methods
Informal data collection began three weeks after the onset of flooding in Boulder County, at the end of September 2013. Meetings were arranged with administrators at local senior service provision organizations to discuss immediate flood impacts in the region and gain entrée within the local senior service community. Beginning in December 2013, in person, one-on-one interviews were conducted with community elders and employees at various levels within senior-serving organizations (SSOs) in Boulder County. Data collection is ongoing at the time of this writing.

To date, 21 interviews have been completed, including 13 SSO administrators and employees and nine residents of a retirement community. Data were collected over a nine-month period following the disaster. Preliminary themes are discussed below.
Findings

Organizational Level
At the organizational level, voluntary staff presence and pre-existing relationships between staff and clients were found to have had significant positive effects on initial disaster response and disaster recovery activities. By contrast, challenges arose from the need to manage an influx of external responders and funds in addition to other response and recovery activities.

At three facilities, staff and/or regular volunteers helped to respond to flooding. For example, one retirement community experienced unexpected, rapid-onset flooding requiring evacuation of a residential building during the disaster. As first responders were unable to provide support, staff had to conduct the evacuation independently. This was done successfully with no injuries or deaths among the senior population. Staff members later attributed the success of this largely unpracticed evacuation to the fact that workers had voluntarily remained on-site at the facility outside regular working hours in case they were needed.

Another organization providing regular services to seniors within the county was shuttered by the flood event due to impassable roads. However, workers who were able to get to the facility or access it remotely remained on-site or on-call to assist with calling residents, monitoring conditions, conducting local evacuations, and otherwise resuming services as conditions changed. At each of these facilities, staff dedicated countless hours toward ensuring that operations could be resumed as quickly as possible.

Emergency response and recovery operations were also facilitated by the existence of established relationships between facility staff and clients. In the case of evacuation, this involved tracking down vulnerable clients to ensure their safety and provide transport as needed. After the disaster, the continued involvement of staff resulted in salvaging of clients’ belongings and outreach to clients’ families, among other activities. Staff at these three organizations knew their residents by names, locations, and faces, and attributed the cooperation and trust they received from residents to these pre-existing relationships.

Management of Resources
After a high-profile disaster event, volunteers and supplies can quickly overwhelm affected areas, and this case study is no exception. An influx of people and resources in Boulder County lead to new challenges, from security concerns to effective task management. Administrators at some organizations shared their concerns that increased attention and funds would dry up as the story faded from news circuit, but that clients’ needs for assistance would continue or even become amplified as their own resources dwindled over the months following the disaster.

Individual Level
Seniors who were affected by flooding experienced challenges with new environments, disruption of social networks, and loss of cherished possessions. Among those who were forced to relocate, some found their new surroundings disorienting, and a few attributed
falls and injuries they or others had sustained directly to their lack of familiarity with these new physical spaces. Unplanned relocation had left them little time to anticipate and adjust to these changes.

Others expressed discontentment due to culture shock in their new social environments, and disruption of daily routines and social networks left some seniors feeling isolated. While many individuals downplayed their own woes in recognition that others had experienced greater losses, these discomforts nonetheless served as chronic stressors.

Despite these challenges, many of the seniors interviewed observed that their situations were bound to improve. Several noted that they could have been “much worse off.” Some volunteered to assist others in their communities to the extent that they were able, whether through social outreach or skills-based activities. These individuals generally expressed satisfaction with having been able to contribute to their communities.

Unique Challenges for Seniors Living Independently
Staff at senior serving organizations in the county also shared insights about challenges that affected seniors living in non-institutional settings. The disaster posed obstacles for seniors struggling to maintain an independent lifestyle. This problem was particularly significant for low-income residents and those limitations who depended on support from community organizations. Disruptions to services utilized by seniors highlighted the importance of some of these programs as important lifelines. In some cases, closures led to increased social isolation and strain on limited budgets, cases exacerbating other flood-related stressors.

Conclusions
The findings above highlight the importance of pre-existing relationships within and between organizations that already support seniors as essential to effective disaster response and recovery. Care must be taken to provide staff with the support and incentives needed to familiarize themselves with their client base and develop the trust if they are to understand and effectively respond to the needs of this population. Furthermore, greater attention must be paid to the challenges that seniors experience in the aftermath of disasters in addition to the support needed in the initial stages of an event.

The findings presented in this paper are preliminary in nature. The larger study that is currently underway will produce further investigation into the themes discussed in the previous sections. This initial analysis of the data indicates that seniors in Boulder County, Colorado are experiencing many of the obstacles common to their peers in other disaster settings. However, it also reveals that the recovery process is more complex than has been suggested by prior literature, and suggests mechanisms through which social vulnerability may be addressed.
References


