



The Earthquakes in Turkey and Syria Remind Us That Long-Term Care Residents and Older Adults Are Most Affected by Natural Disasters

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INTRODUCTION

Earthquakes are one of the most powerful and devastating natural catastrophes, capable of destroying or damaging buildings and infrastructure in seconds and affecting all members of society. Nearly 750 000 people died worldwide from earthquakes between 1998 and 2017, accounting for more than half of all deaths from natural disasters (World Health Organization, 2023).

Earthquakes are induced by the rupture of fault lines caused by the abrupt release of stored energy (National Research Council, 2003, p. 12). Fault lines arise when rocks in the stony sphere break under

high-pressure circumstances such as tension and compression. Accurate earthquake prediction and control will considerably lessen the loss of lives and property (National Research Council, 2003). Multiple earthquake experiences are known to affect people's opinions of it (McClure et al., 2016). It is crucial to consider how these experiences affect people and whether they are prepared for them. Preparing for earthquakes, including modifying the residence and location, is essential to minimize the damage they cause (Spittal et al., 2006). Additionally, for earthquake response, public involvement in disaster preparedness is essential (Pearce, 2003).

Türkiye and Syria Earthquake

Earthquakes continue all over the World. Two major earthquakes with magnitudes of Mw 7.7 and Mw 7.6 were registered on February 6th, 2023, centered around two districts of Kahramanmaraş, at 04:17 (Pazarcık) and 13:24 (Elbistan) local time (AFAD Deprem Dairesi Başkanlığı, 2023a). The epicenter of the 7.7 magnitude quake was located at a depth of 8.6 km, while the 7.6 magnitude quake happened at a depth of 7 km (AFAD Deprem Dairesi Başkanlığı, 2023a). The earthquake was felt in Cyprus, Lebanon, Iraq, Iran, and Syria, but it is commonly referred to as the Türkiye and Syria earthquake since Türkiye and Syria sustained the most damage.

In the 15 days after the earthquake, there were a total of 7,184 aftershocks in Türkiye (AFAD Deprem Dairesi Başkanlığı, 2023b). The earthquake caused significant destruction in both Türkiye and Syria. The first earthquake struck at midnight, jolting people out of their deep sleep, and was followed by another quake of the same magnitude the following lunchtime, greatly increasing the number of damaged buildings and casualties. After the earthquakes, there was a mass exodus to neighboring cities because many lost loved ones, and those who survived were left without shelter, food, or water in an unforgiving environment. Despite state institutions' efforts and non-governmental organizations' efforts, particularly AFAD, the earthquake's losses and devastation

increased daily. The number of people killed in earthquakes is 50.096, and the number of people wounded is 107.204 as of March 20th, 2023 (Yılmaz, 2023). Over 6,000 people were killed and 12,000 injured in Syria due to the earthquake (UNICEF, 2023). Recent devastating earthquakes in Turkey and Syria, one after the other, reminded experts of the long-term, devastating consequences an earthquake may have on the frail and vulnerable. The earthquake region's poorest and most vulnerable residents were probably hit the hardest by the earthquake. It is reasonable to assume that those in the disadvantaged group are more likely to remain in the earthquake debris and lose their lives than others and are in the riskier group. However, the author of this article has not yet come across a statement stating how many of the people who died in the earthquake were children, how many were older adults, how many were sick and bedridden, and how many were disabled. Even if an earthquake does not directly damage one, the experience of living through one may significantly impact one's life, especially for the disabled, young children, inpatients, and older adults. Therefore, it is noted that recovery from this devastating earthquake might take a long time (Villasana, 2023).

This article focuses on the experiences of older adults or those in need of long-term care prior to, during, and after the earthquake, as well as the approaches that care for older adults or those in need of long-

term care in earthquake and treatment studies, as well as earthquake prevention studies, due to its scope.

Impact of Earthquakes on Older Adults

Physical frailty, mobility issues, and chronic health problems make older adults especially susceptible to the hazards presented by earthquakes. The interruption of care services and medication access can have a negative impact on older adults' health. It is crucial to have emergency plans that prioritize older adults' needs, such as ensuring access to medical care and medication. Additionally, community outreach programs can help provide support and resources for older adults during and after an earthquake.

In addition, age-related factors make it challenging to prepare for earthquakes (Tuohy et al., 2014). Physical limitations may make it difficult for older adults and long-term care residents to take critical actions during an earthquake, particularly for earthquake safety initiatives. As a result of physical limitations, older persons may be more concerned about the magnitude and length of the earthquake than younger people. Furthermore, older adults with spouses may have life-safety issues during and after the earthquake because of their and their wives' movement constraints. Similarly, because of their restricted mobility, those needing long-term care rely on others to preserve their lives during

an earthquake. The extra stress and worry may be excruciating for people with chronic illnesses or mental health issues.

Due to age-related decreases in physical and mental health, older adults are typically particularly susceptible to natural catastrophes. They may be economically or socially marginalized, or they may be living alone. When taken together, these variables may put older people at a higher risk of experiencing psychological distress in the aftermath of a tragedy than younger ones. Here, physical health effects and psychological health effects are described.

Physical Health Effects

Injuries and Health Issues

Older adults have experienced injuries ranging from minor cuts and bruises to more severe injuries such as broken bones or head trauma after earthquakes. After an injury sustained due to an earthquake, it is essential to provide older people with timely medical attention and care tailored to their specific needs. Concerns about the health of older adults have been raised in the aftermath of earthquakes (Shenk et al., 2010). Besides, it was mentioned that people of a certain age were included in the risk groups regarding mortality (Hu et al., 2022). 7.6% of older adults, compared to 19.7% of the community sample, suffered acute kidney injuries after the Wenchuan earthquake (Zhang et al., 2012). Similarly, there were elevated health problems in the cardiovascular and

gastrointestinal systems after the Croatia earthquakes (Kušević et al., 2021). Also, physical and psychological health issues have been related. For instance, older adults who experienced bone fractures after earthquakes in Japan reported posttraumatic stress disorder (Hayashi et al., 2021). These studies highlight the importance of considering vulnerable older adults' specific needs in disaster preparedness and response plans. Adequate medical care and support should be provided to prevent and address potential health complications.

Loss of Home

Displacement can have serious consequences for a person's physical and mental health, and older adults are especially susceptible because of the central role their home plays in their lives. In other words, homebound older people face unique challenges (Dostal, 2015). Therefore, there must be an effort to supply trustworthy and safe housing options. The need for safe and accessible housing for older adults and the physically impaired is universal. Baseline data on the number of older people who are disabled or require specialized equipment is essential for those responsible for planning and preparing evacuations and temporary shelters during a natural disaster (McGuire et al., 2007). As a result, providing comprehensive data on older adults with multiple impairments is critical.

Disruption of Routines

Disruption of routines can significantly impact the well-being of older adults with multiple impairments and may lead to increased confusion, anxiety, and social isolation. Therefore, it is important to consider ways to maintain or adapt routines in order to support their overall health and quality of life. To example daily lives, functional behaviors (such as sharing, praying, and dealing with activities) and dysfunctional behaviors (such as loss of motivation, sharing, and activity) were observed in older adults who had experienced an earthquake in Iran in a qualitative study (Ahmadi et al., 2018). The study highlights the importance of providing support and resources for older adults in times of crisis, as disruptions to their routines can have significant impacts on their well-being. Additionally, interventions aimed at promoting functional behaviors and addressing dysfunctional behaviors may be beneficial for older adults in disaster-prone areas. Besides, families can help older adults promote daily routines after earthquakes (Shenk et al., 2010). After an earthquake, it may be possible to reestablish new daily routines with the assistance of members of one's own family, even if one is unable to access any potential resources. This highlights the importance of strong family support systems in natural disasters, as they can play a crucial role in facilitating recovery. Additionally, it emphasizes the need for families to be prepared and equipped with the necessary knowledge and resources to

assist their older adult members in such situations.

Psychological Health Effects

An earthquake may irreparably damage an older adult's mental health if he or she has spent years saving for a better life, laboring to create or maintain a comfortable living environment, forging strong social ties, and amassing a multitude of memories, all of which were obliterated in an instant. Losing personal belongings, social networks, and familiar surroundings can cause helplessness and hopelessness. Furthermore, the trauma of experiencing a natural disaster can exacerbate existing mental health conditions or lead to the development of new ones.

Experiencing an earthquake may lead to a variety of issues, including adjustment problems (Annear et al., 2013; Joffe et al., 2013; Shenk et al., 2010), anxiety (Adams-Hutcheson, 2017), emotional stress (Rushton et al., 2021), uncertainty about the future (Salim & Darmayanti, 2021), psychological distress (Karanci et al., 1999), depression (Kilic & Ulusoy, 2003; Sasaki et al., 2019; Watanabe et al., 2004), suicide (Guo et al., 2018), somatic complaints (Carmassi et al., 2020), insomnia, and Posttraumatic Stress Disorder (PTSD) (Adams-Hutcheson, 2017). It is important to note that the severity and duration of these mental and emotional health effects may vary depending on factors such as the individual's prior mental health status, level of exposure to the earthquake, and

availability of social support. For instance, social support received before the earthquake was reported to be a protective factor for depression evaluated after the earthquake and Tsunami in older Japanese adults (Sasaki et al., 2019).

Seeking professional help and engaging in self-care practices can be beneficial in managing these effects. It is also important to recognize that these effects may not be immediate and can manifest months or even years after the earthquake. Therefore, it is crucial to continue monitoring and addressing any long-term mental and emotional health concerns.

PTSD Among Older Adults of Earthquake Survivors

Due to relocation and lifestyle changes after a catastrophe, older persons may also suffer a shift in their sense of self. This shift might turn into PTSD reactions. Because infrastructure disruption makes it harder for older people to access crucial support systems such as healthcare and emergency services, older adults experience despair, helplessness, and anxiety as a consequence of feeling powerless in the face of such calamities. Even if individuals prepare, such as building earthquake-resistant buildings and infrastructure, they may be helpless in the event of an earthquake since they have no control over the timing or magnitude of the disaster. Those old and overwhelmed by their sensitivity to earthquakes as horrific events may find it more difficult

to overcome their sadness.

Several factors have influenced the PTSD reactions of older individuals. Physical disabilities and PTSD have been reported to be correlated in older adults (Hayashi et al., 2021). Similarly, physical illnesses and family members' lack of social support have been associated with PTSD in older adults (Li et al., 2020). These findings highlight the importance of considering physical health and social support when assessing and treating PTSD in older adults. Healthcare providers should take a holistic approach to care to address this population's physical and mental health needs.

Losing family members or acquaintances during an earthquake can also result in social isolation for older adults (Li et al., 2020). A sense of social isolation can contribute to developing PTSD and depression symptoms or exacerbate existing symptoms. Those older people who lost loved ones in the quake or whose caretakers relocated to other areas to rebuild their lives may feel even more alone and abandoned. Risk factors for PTSD are a research subject that mental health practitioners are interested in exploring in different studies. To begin, a study conducted two years after the 2008 Wenchuan-China Earthquake, which killed nearly 90,000 people, uncovered traumatic experiences such as witnessing someone seriously injured, severe damage to the home, and severe injury to close relatives (Yin et al., 2019).

Reasons Why Some Survivors Might Get Posttraumatic Stress Disorder

After experiencing an earthquake, older persons are more prone to develop PTSD. Understanding the signs and symptoms of PTSD is vital for family members and caregivers to help older persons who may be suffering from the illness.

Memory and Attention Issues

Following an earthquake, older adults may have trouble remembering facts and concentrating. Cognitive decline in old age contributes to these memory issues (Böttche et al., 2012). This issue may linger even after the first shock of an earthquake has subsided. Having memory gaps affects older individuals more negatively. These gaps are also seen in trauma-related memory (American Psychiatric Association, 2000). It is noted that the treatment of trauma in older adults incorporate the recall of traumatic incident into a cohesive life story to integrate (Böttche et al., 2012). Also, interventions for memory recall are recommended for people with dementia who experienced an earthquake. These findings suggest that integrating traumatic events into a person's life story may be beneficial for older adults with a trauma history, and those with dementia who experienced a natural disaster may benefit from memory recall interventions. However, further research is needed to explore the effectiveness of these interventions in different populations and contexts.

Avoidance Behaviors and Emotional Numbness

Avoidance behaviors, in other words avoiding persons or locations linked with the quake, are also typical among older individuals who have been affected by a natural catastrophe. People older than 67 years old were most likely to show avoidance symptoms, which were seen in 39% of those people (Rutherford et al., 2021). They may also exhibit emotional numbness, such as not caring about anything or feeling disconnected from their own feelings. In a longitudinal study, older adults reported less distress than others, and the oldest old reported lower levels of earthquake-related rumination (Knight et al., 2000). These signs and symptoms should not be disregarded since they may have major ramifications for a person's mental health if left untreated for too long. Therefore, it is important to continue conducting longitudinal studies on older adults to better understand their mental health changes and provide appropriate interventions. Additionally, these findings highlight the need for targeted support for individuals who have experienced traumatic events such as earthquakes.

FUTURE DIRECTIONS AND RECOMMENDATIONS

Building a strong support system to heal the effects of a traumatic experience and observing persons who overcome trauma and establish a

new life assist older adults in overcoming trauma effects. Therefore, it is crucial to provide targeted support for individuals who have experienced traumatic events such as earthquakes, especially older adults, to help them build a strong support system and establish a new life after the traumatic experience. This can significantly contribute to their overall well-being and recovery. Recognizing PTSD in older adults might be challenging since it is an emotional reaction to a terrible incident. Teaching caregivers and family members about PTSD may be helpful because they can help those in their care recognize the signs and symptoms of the disease. Additionally, providing older adults access to mental health services and support groups can aid their well-being and recovery from PTSD. It is important to address PTSD in older adults to ensure they receive the necessary care and support for their mental health.

The psychological consequences of earthquakes may exacerbate the symptoms of preexisting mental health issues in older people. Fortunately, precautions may be taken to keep older people safe in the case of an earthquake: Recommendations for earthquake preparation are included in Table-1.

In the aftermath of a tragedy, some older may be more resilient than others, but those who are already vulnerable (such as those with past illnesses or who live alone and are socially isolated) may have a far

more difficult time recovering. It is crucial to provide older people with access to mental health resources and support systems to aid in their recovery. This includes therapy, counseling, and social programs encouraging connection and community.

Table-1. Earthquake Preparedness in Older Adults

- (1) Learning about the likelihood of an earthquake in the region, making necessary precautions, and deciding what to do if an earthquake occurs in the living area,
- (2) Putting together an emergency kit with food, water, flashlights, and batteries,
- (3) Discussing with loved ones what to do in the event of an earthquake,
- (4) Having access to an open forum where people may express their experiences, anxieties, and worries in the aftermath of an earthquake,
- (5) Providing emotional and financial assistance after an earthquake,
- (6) Helping older adults find counseling, mental health support, and crisis intervention teams so they may get the emotional help they need to get through this difficult period,
- (7) Teaching older adults about earthquake safety and how to prepare for future catastrophes will make them more resilient should another disaster strike.

CONCLUSION

It is easy to overlook how devastating an earthquake may be emotionally for older adults. Unsurprisingly, older persons have difficulty recovering after an earthquake due to a lack of resources, poor physical and mental health, and social and economic difficulties. Long-term impacts of sensory overload, physical repercussions of the earthquake, and disturbance of daily life might manifest as PTSD and depression in the

older adult population. Recognizing the psychological consequences of an earthquake on older people and providing the appropriate assistance and tools to help in the healing process may be challenging but essential. Earthquake preparedness of older adults is essential to be ready for future events (Tuohy et al., 2014). It is important to understand the emotional toll an earthquake has on older adults so that we may better support them throughout recovery.

The greatest distinguishing trait of earthquakes is that, unlike other natural catastrophes such as floods, storms, and volcanic eruptions, they are difficult to anticipate (if not impossible) and hard to avoid with present scientific knowledge. Although scientific forecasts indicate that the earthquake will occur over a lengthy period of time, the precise moment of the earthquake is unknown. Because earthquakes may occur at any moment, it is critical to design adequate response plans to decrease the number of injuries and fatalities. On the other hand, it is feasible to construct evacuation and security facilities that will mitigate the consequences of the earthquake and develop cities into safer places. Therefore, focusing on physical preparations and mental and emotional preparedness is important to minimize an earthquake's impact. This can include practicing drills, having emergency supplies on hand, and seeking support from mental health professionals. Furthermore, it is noted that effective

and prompt psychological therapies immediately after the earthquake are useful in terms of mitigating the earthquake's impacts (Wang et al., 2000).

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