Exploring the Experiences of People with Disabilities in Post-Disaster Sheltering

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Abstract

Disasters adversely impact society on social, psychological, mental, and spiritual levels. One of the most urgent needs in the aftermath of a disaster is shelter. This includes tents, which serve as emergency shelters; containers, which function as temporary shelters; and permanent housing provided during the reconstruction phase. The temporary sheltering process presents diverse experiences for individuals affected by disasters. For persons with disabilities, this process requires particular attention in terms of design and implementation, as it directly affects their ability to access basic needs and maintain well-being. The February 6, 2023 Kahramanmaraş earthquakes in Türkiye underscored the critical importance of inclusive sheltering practices, highlighting the need to re-evaluate existing approaches concerning individuals with disabilities. This study focuses on the experiences of persons with disabilities, a particularly vulnerable group, during the temporary sheltering phase. Initially, national and international post-disaster shelter guidelines and documents addressing the needs of individuals with disabilities were reviewed. This review was supported by systematic data collection at both the national and international levels. Subsequently, the temporary sheltering experiences of persons with disabilities following the Kahramanmaraş earthquakes were analyzed. The findings include an evaluation of the temporary shelter units provided in the disaster's aftermath, assessed from the perspective of individuals with disabilities, along with recommendations proposed by the researcher. Among these, it is emphasized that shelter designs should be revised to accommodate various disability types (e.g., visual, physical, cognitive, auditory). Additionally, the accessibility and usability of social activity areas—such as those found in container cities—should be re-examined. The data indicate that disaster preparedness planning must give specific consideration to the needs of individuals with disabilities to ensure inclusive and equitable shelter solutions.

Keywords: *Disaster, post disaster shelter, disabilities, 2023 Kahramanmaraş earthquakes*

1. Introduction

Disasters are sudden and unexpected events that can lead to significant loss of life and large-scale destruction. Although the primary emphasis in the disaster management literature and among relevant institutions is on strengthening pre-disaster preparedness processes, the most common practice once a disaster occurs is intervention and recovery efforts focused on the reconstruction of destroyed structures [1]. In this process, different types are preferred to provide shelter, which is one of the basic needs of disaster-affected individuals. Quarantelli [2], who presented the fundamental approach to shelter, categorized post-disaster shelter into four stages: emergency shelter, temporary shelter, temporary housing and permanent housing. In the disaster management process, temporary shelter solutions play a crucial role from the disaster to the establishment of permanent settlements. These shelter units should not only be evaluated for their temporary nature, but also be designed and implemented to meet the needs of all disaster disaster-affected groups, considering their potential long-term use. At this point, it is of great importance to address post-disaster shelter solutions with an inclusive approach so that the needs of vulnerable groups –especially individuals with disabilities– are not ignored.

The United Nations (UN) defines disability as the interaction between individuals with long-term physical, mental, intellectual, or sensory impairments and various barriers in the social environment that prevent individuals from participating fully and effectively in society on an equal basis with others. Studies of disasters and emergencies in recent years have shown that individuals with disabilities are disproportionately affected by almost all types of disasters and emergency situations [3]. Individuals with disabilities are disproportionately affected by disasters due to their mental, physical, or socioeconomic conditions compared to non-disabled individuals. In particular, a combination of factors such as individual limitations, environmental constraints, or inadequate support systems makes it difficult for individuals with disabilities to respond effectively to disasters. Moreover, many individuals with disabilities lack the opportunity to express their needs or participate in decision-making mechanisms within disaster management process [4]. In addition, individuals with disabilities have specific needs such as accessibility, specialized equipment, safe storage of medications, and support from qualified healthcare personnel. However, temporary shelters are often not designed with these needs in mind and do not include structural or service-oriented arrangements for these requirements [5]. In this context, recent studies emphasize that post-disaster temporary shelter units should be evaluated not only in terms of their physical structures but also but also with multidimensional criteria such as accessibility, security, sustainability, and inclusiveness in line with user needs. For example, Abanoz and Vural [6] examined the deficiencies of designated temporary shelter areas for potential disaster scenarios in the provinces comprising the Eastern Black Sea Region and recommended their re-planning in accordance with relevant standards. Yolaçtı and Gülten [7] evaluated the adaptability of post-disaster temporary shelter units to seasonal transitions and developed a sustainable and economical approach to improve thermal comfort conditions, based on both Turkish and international examples. Günaydın and Şahin [8] analyzed post-disaster emergency assembly areas in the city of Malatya in their study; performed the capacity analysis of the areas with the spatial syntax method and determined the most suitable assembly areas in the system in this direction. Based on the findings, they addressed issues and proposed solutions related to transportation, noise, orientation, and circulation. Süzer and Yamaçlı [9] comparatively conducted the temporary shelter models used after the 1999 Marmara and 2023 Kahramanmaraş earthquakes; they proposed a temporary housing design that has sustainable qualities in economic, social and environmental dimensions. Özmen and colleagues

[10] focused on temporary shelter designs for student-centered, possible disaster scenarios within the scope of the building studio; they offered suggestions for post-disaster reconstruction and emergency planning.

There are various studies in the literature on the issue of shelter in relation to people with disabilities. Ünal and Akın [11], in their study analyzing the accessibility of temporary shelter units for individuals with disabilities, revealed that these units are not sufficiently suitable for orthopedically disabled users. Türk [12], on the other hand, proposes a disaster management system specifically designed for individuals with disabilities and their families. This system is examined in the context of earthquakes, emphasizing the need to develop disability-sensitive strategies for all phases of disaster management. Bilik and Akdağ [13], in their field study after the 2011 Van Earthquake, examined disabled children and their families; they revealed that inadequate housing conditions, especially in container cities, were not suitable for children with special needs. Elisala et al. [14] examined the disaster preparedness levels and perceptions of people with disabilities in Tuvalu. They highlighted the necessity for governments and non-governmental organizations to develop specific strategies for people with disabilities within disaster management processes. Likewise Villeneuve and colleagues [15] highlighted the importance of establishing national-level standards in Australia to enhance the participation of people with disabilities in Disaster Risk Reduction (DRR) processes and to improve their access to support mechanisms.Their study offers a comprehensive analysis of the multidimensional relationships among the factors that increase the vulnerability of people with disabilities and their support networks during disasters, presenting an integrated perspective on these interconnected dynamics.

In this context, the existing literature highlights the structural, environmental, and administrative challenges faced by individuals with disabilities in disaster management processes. However, in Turkey, it is seen that field-based analyses on the experiences of disabled individuals in temporary shelters constructed especially after the February 6, 2023 earthquakes are limited. This study evaluates the spatial accessibility, daily life experiences, and access to services of individuals with disabilities in temporary shelters that have been in use for a year by observing them on-site. Thus, it is aimed to develop suggestions to increase inclusiveness in post-disaster temporary shelter processes.

2. Methodology

In order to examine the situation of persons with disabilities in the field of post-disaster sheltering, the Kahramanmaraş-centered earthquakes that occurred in Turkey on February 6, 2023 were addressed. On this date, at 04:17 a.m. local time, a Mw 7.7 earthquake occurred in the Pazarcık district of Kahramanmaraş, followed by another major earthquake of Mw 7.6 in the Elbistan district at 1:24 p.m. the same day [16]. Both earthquakes were recorded as one of the most devastating disasters in the history of Turkey, not only in terms of their magnitudes, but also in terms of the extent of the area they affected and the level of destruction they created [17].

The earthquakes directly affected a total of 11 provinces, primarily Kahramanmaraş, Hatay, Adıyaman, Gaziantep, Malatya, Kilis, Diyarbakır, Adana, Osmaniye, Şanlıurfa and Elazığ (Fig 1). In these regions, many buildings were destroyed, infrastructure services were damaged, and millions of people were faced with the need for shelter [16]. According to official data, more than 50,000 people lost their lives, and over 100,000 were injured. In addition, tens of thousands of houses were completely destroyed or severely damaged [18]. This situation resulted in a multidimensional humanitarian crisis, involving not only physical destruction but also profound social and psychological impacts.

Following the earthquake, sheltering processes for disaster-affected individuals were initiated. In order to meet the urgent housing needs, temporary container settlements were constructed throughout the earthquake-affected region. Within these temporary shelter areas, established in the aftermath of the disaster, the unique challenges faced by various vulnerable groups — particularly persons with disabilities — have become a critical area of assessment in terms of the inclusiveness of disaster management. To analyze the suitability of the designed and implemented shelter units for persons with disabilities, a field study was conducted in container settlements in Kahramanmaraş. The study employed on-site observation techniques to examine the shelter units. Data were documented through photographs, and the compliance of the units with standards recommended for persons with disabilities was evaluated in the analysis section.

Fig. 1. The cities affected by the earthquake on the map of Türkiye

3. Analysis and Findings

The adequacy of temporary shelter units in terms of accessibility was evaluated based on the specific needs of persons with disabilities, and examples of appropriate and inappropriate practices were analyzed through field observations. This analysis reveals the physical and functional barriers faced by persons with disabilities in post-disaster temporary living environments and assesses the level of inclusiveness in the current shelter systems.

3.1. Examples of Inappropriate Practices:

In the analysis study, two remarkable examples are included in order to make a more general assessment within the scope of inappropriate examples and to illustrate common problems in the field. These examples were selected to represent the spatial challenges encountered by users of different disability groups. Thus, it was aimed to evaluate temporary shelter areas in terms of accessibility based on situations where the needs specific to the disability status are not addressed.

Fig. 2. The interior view of the shelter unit (Photographed by the author)

Fig. 3. The interior view of the shelter unit (Photographed by the author)

In this context, when the general design features of temporary shelter units are examined, it was determined that they generally have a very limited area of 21 m² on average, since they are built to meet the need for rapid settlement after a disaster (Fig. 2). This spatial constraint forces users to meet their shelter needs under minimal comfort conditions and with limited means. Field observations and inspections clearly indicate that these standard units were not planned with any special arrangements for users with physical disabilities. In particular, in a typical temporary shelter unit consisting of one living area, one sleeping area and one wet area, the minimum turning diameter and maneuvering area required for the disabled individual to move independently cannot be provided (Fig. 3).

Door widths, furniture layout and wet area arrangements do not meet accessibility criteria. This situation makes it difficult for individuals with disabilities to independently perform their daily living activities (e.g. cooking with a wheelchair, reaching the bed, passing through the door), and in some cases, it even completely prevents them. However, even if they are temporary, such living units should be designed with an approach that respects the fundamental living rights of disadvantaged individuals in the post-disaster period. As seen in the current example, the spatial needs of persons with disabilities were not taken into consideration during the design process, which deepened the inequalities in the area.

The placement of structural elements in temporary shelter units is an important determinant of user safety and accessibility. In the second example, the shelter unit where a visually impaired individual lives is examined. In the examined example, there is a carrier pole placed in the center of the living space (Fig 4). Such a placement creates a situation that prevents visually impaired individuals from moving independently and safely. The positioning of the column on the circulation line is problematic in terms of spatial integrity and orientation. In living spaces designed for visually impaired individuals, it is essential to prevent obstacles that may pose a risk of collision and tripping. In this case, the central location of the structural element constitutes a direct physical threat to user mobility. The need for users to take personal precautions to reduce the risks arising from the structural element in question reveals that the current design has deficiencies in terms of accessibility and safety and that these deficiencies are being addressed through user initiative. However, such temporary solutions do not replace a safe and inclusive spatial design; they cause the risk to continue. This example demonstrates that not only physical but also perceptual accessibility criteria should be taken into consideration in temporary shelter areas. Providing uninterrupted and open circulation areas, especially for individuals with visual impairments, considered as one of the basic components of life safety.

In addition, the entrance arrangements of temporary shelter units should be designed to provide accessible and safe access for all users. However, in the example examined, it is seen that a temporary wooden pallet is placed instead of a ramp at the entrance of the shelter unit. Such an application prevents access for many users, especially wheelchair users and individuals with walking difficulties, and creates a serious safety risk.

Although national and international accessibility standards clearly define criteria regarding ramp slope and width, these standards were not followed in this case. The use of inadequate materials and temporary solutions indicate a significant problem that violates the right of disabled individuals to independent access in post-disaster shelter areas.

Moreover, the shelter unit being placed directly on hard surface causes problems in terms of ground continuity and levelness. The lack of permanent structural elements such as ramps to facilitate passage requires users to seek assistance when entering and exiting their homes. This situation shows that post-disaster temporary shelters are planned in a manner that violates the principle of inclusiveness and that the basic movement of disabled individuals is ignored. Thus, this example reveals a spatial arrangement that does not meet accessibility requirements and poses serious risks to user safety and independence. Temporary shelters should be designed in line with accessibility principles, even if their duration of use is limited, and fair usage conditions should be provided for all user groups.

Fig. 4. Living space of a visually impaired individual

3.2. Examples of Appropriate Practices:

The relevant image presents an example where the principle of accessibility was taken into account in temporary shelter units established after a disaster. There are ramps with a slope suitable for standards and double-sided railings at the entrances of the shelter units; this supports independent access for individuals with limited mobility (Fig 5). This example demonstrates that accessibility in temporary shelter areas can be achieved and implemented through appropriate design decisions. However, it has been learned that these shelter units are provided by an international organization and are not made accessible to users despite being in the area. This situation reveals that although the physical accessibility is provided, actual access is not possible. The presence of a proper design becomes functionally ineffective in terms of accessibility if it is not made available for use.

Fig. 5. Shelter units specifically designed for individuals with disabilities

The common use area in the image shows a library unit established by the Turkish Red Crescent in the container city. The reinforced concrete ramp at the entrance of the structure complies with accessibility criteria in terms of width, slope and railing systems (Fig. 6). A continuous transition path is provided from the start of the ramp to the building, with no obstacles posed by curb stones or surface levels. The ramp, which bridges the elevation difference between the pedestrian path and the structure, is structurally stable, grounded, and has a safe slope. It is important for the participation of disabled individuals in social life that social and common use areas in shelters are as accessible as individual sheltering units. As in this example, accessibility is provided not only in individual sheltering but also in commonly used spaces such as libraries, health units and social centers, indicating inclusive spatial planning approach.

Fig. 6. Accessible library for individuals with disabilities

4. Conclusion

This study is based on field observations conducted to reveal the current state of accessibility for individuals with disabilities in temporary shelter areas established in disaster zones following the February 6, 2023 earthquakes. As examples, shelter units inhabited by individuals with visual impairments and physical disabilities were examined. Interventions made to existing sheltering units to create a more livable environment were included. Additionally, suitable examples within the container city were also examined on-site. The observations revealed that some shelter units included basic accessibility elements such as ramps, railings, and access symbols, thereby offering a more accessible physical environment for individuals with limited mobility. In particular, it was noted that examples provided by international organizations and some NGOs approached accessibility from a more holistic perspective.

However, accessibility was not systematically addressed in most cases, and user access was attempted through temporary solutions (e.g., entrances constructed with pallets). The use of tape or similar methods by users to minimize structural elements that pose a structural risk to the visually impaired demonstrates the inadequacy of spatial arrangements. Furthermore, the fact that some physically accessible units were locked and not made available to users emphasizes that accessibility must encompass not only

physical presence but also a ensured to be usable.

These findings, accessibility should be considered a fundamental design principle in the planning of post-disaster temporary shelter areas, and applied holistically, not only in individual housing units but also in shared common spaces. In addition to physical arrangements, consideration of accessibility features such as guidance, information, and threshold leveling is crucial for individuals with disabilities to live independently and safely. In conclusion, physical accessibility for people with disabilities in post-disaster temporary shelter practices is still implemented in non-standardized, fragmented, and inconsistent ways. However, good examples observed in the field demonstrate that accessibility is achievable both technically and socially. These cases highlight the need for accessibility-focused and participatory shelter planning to ensure broader implementation of inclusive practices.

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