Assessing the Perceived Serious Needs of People Affected by the Kahramanmaraş Earthquake in Türkiye
Türkiye'de Kahramanmaraş Depreminden Etkilenen İnsanların Algılanan Ciddi İhtiyaçlarının Değerlendirilmesi

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Öne Çıkanlar / Highlights

- The main perceived needs of earthquake survivors in Türkiye were identified as coping with distress, the way of aid, and income
- Utilized the Humanitarian Emergency Settings Perceived Needs Scale (HESPER) to assess post-earthquake needs for the first time in Türkiye.

- Türkiye'de depremden etkilenen bireyler tarafından algılanan temel ihtiyaçlar; sıkıntılarla başa çıkma, yardım yolu ve gelir olarak belirlenmiştir.
- Türkiye'de ilk kez deprem sonrası ihtiyaçları değerlendirmek için İnsani Acil Durum Ortamlarında Algılanan İhtiyaçlar Ölçeği (HESPER) kullanılmıştır.

Abstract

After an earthquake, evaluating human needs, protecting lives, optimizing resource distribution, and ensuring a well-coordinated and effective intervention for natural disaster emergencies are crucial. On February 6, 2023, Türkiye was struck by two major earthquakes with magnitudes of 7.8 and 7.6. The aim of this study is to identify the perceived vital needs of individuals affected by the earthquake in Türkiye using the Humanitarian Emergency Settings Perceived Needs Scale (HESPER). This descriptive, cross-sectional study is part of the QuakeCare Project, which was conducted in collaboration with Yenimahalle Municipality and Hacettepe University to assess the perceived health needs of individuals affected by the Kahramanmaraş earthquake. The study was completed with 245 individuals affected by the earthquake. In the early post-earthquake phase, coping with distress, access to aid, and income or livelihood were identified as the three most reported needs by the affected individuals. The study emphasized the importance of humanitarian organizations, governments, and NGOs targeting affected regions and delivering assistance promptly.

Özet

Deprem sonrası insan ihtiyaçlarının değerlendirilmesi, yaşamların korunması, kaynak dağılımının optimize edilmesi ve doğal afet acil durumlarına iyi koordine edilmiş ve etkili bir müdahale sağlanması için çok önemlidir. Türkiye, 6 Şubat 2023 tarihinde büyüklükleri 7,8 ve 7,6 olan iki önemli depremle sarsılmıştır. Bu çalışmanın amacı, Türkiye'de İnsani Acil Durum Ortamlarında Algılanan İhtiyaçlar Ölçeğini (HESPER) kullanarak depremden etkilenen insanlar tarafından algılanan hayati ihtiyaçları belirlemektir. Bu tanımlayıcı ve kesitsel çalışma, QuakeCare Projesi'nin bir parçasıdır. The QuakeCare, Türkiye'de Kahramanmaraş Depreminden Etkilenen İnsanların Algılanan Sağlık İhtiyaçlarının Değerlendirilmesi amacı ile Yenimahalle Belediyesi ve Hacettepe Üniversitesi iş birliği ile yürütülen bir projedir. Bu çalışma depremden etkilenen 245 kişi ile tamamlanmıştır. Araştırmada deprem sonrası erken

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dönemde; sıkıntıyla başa çıkma, yardım yolu ve gelir veya geçim kaynağı depremden etkilenen bireyler tarafından en sık bildirilen üç ihtiyaç olarak tanımlamıştır. Araştırmada yardım kuruluşları, hükümetler ve STK'ların etkilenen bölgeleri hedef alması ve bu bölgelere hızlı bir şekilde yardım ulaştırmasının önemi vurgulanmıştır.

1. INTRODUCTION

According to the United Nations Office for Disaster Risk Reduction (UNDRR, 2022), disasters triggered by natural hazards are estimated to affect 218 million people worldwide and claim more than 65,000 lives each year. However, when this global death toll is considered in the context of the more than 50,000 people who died on February 6 earthquake in Türkiye alone, it explains why the earthquake was one of the deadliest natural hazards in history (United Nations Office for the Coordination of Humanitarian Affairs [OCHA], 2023). Türkiye is a country that sits at the two main fault lines, namely the East Anatolian and the North Anatolian, making it the most seismically active region in the world. On February 6, 2023, Türkiye was struck by two significant earthquakes, measuring 7.8 and 7.6 in magnitude and a total of 11,020 aftershocks occurred (AFAD, 2023). These earthquakes resulted in extensive devastation and marked the deadliest earthquakes in the European region in more than a century in terms of the number of casualties (UNDP, 2023; Republic of Türkiye Strategy and Budget Office, 2023). According to the Ministry of Interior of the Republic of Türkiye Disaster and Emergency Management Authority (AFAD, 2023), 45.089 people lost their lives and 1.971.589 people evacuated from the affected 11 provinces.

When multiple cities are affected, it requires a coordinated humanitarian response to provide aid and support to a larger number of people, making it a matter of great importance. Lack of access to necessary support or resources, both before and after natural hazards, contributes to mortality rates, increases natural hazards-related diseases, and makes people more vulnerable. Especially post-earthquake, adequate support is necessary to reduce mortality and morbidity, and recovery must be needs-based (Chan, 2008). In today's world, research underlines the importance of safe drinking water, sanitation, and hygiene which are vital for human health and well-being and are disrupted by earthquakes spreading microorganisms and causing an increase in diseases such as cholera, dysentery, hepatitis A, typhoid, and polio, which are among the most common diseases that can result in death if no measures are taken (Angelakis et al., 2023; Mishra & Acharya, 2019; Odimayomi et al., 2021). Additionally, according to Kirsch et al. (2012), action or hazards plans for earthquake-affected people living in the earthquake zone should be based on an understanding of people's actual needs and take into account the importance of consultation with local communities and relief organizations. In the qualitative study conducted six months after the earthquake with vulnerable groups (women, children, the elderly, and the disabled) in Iran, the psychological needs of people revealed that feelings of anxiety and worry were observed in all four vulnerable groups, and fear, overexcitement, avoidance, and disturbing thoughts were observed in all groups except the older people, as well as educational failure, loneliness, and isolation problems in children (Forouzan et al., 2013). Furthermore, Emily Y. Chan (Chan, 2008) who was involved in relief efforts following the earthquake in Sichuan Province, China, which killed 70,000 people, reported on the short-term needs of people underlined the lack of preparedness and training of medical personnel to meet the challenges of a triggered by natural hazards in a high-risk geographic area, which can be an important lesson for future policy development (Chan, 2008). Consequently, related to people's current circumstances, needs are influenced by psychological distress, lack of security, and experiencing psychosocial or physical needs such as trauma, loss, food, education, health care, or sanitation (World Health Organization & King's College London, 2011).

From this point of view, after the Kahramanmaraş-centered earthquake, 9.1 million people have been directly affected (OCHA, 2023), but to the best of our knowledge, there has been no previous study conducted to identify the perceived serious needs of earthquake affected-people in Türkiye making it a priority to conduct the current research, which aimed to examine the perceived needs of people displaced by earthquakes using The Humanitarian Emergency Settings Perceived Needs Scale (HESPER) in Türkiye.

2.METHOD

2.1. Study Design and Participant Selection
This descriptive and cross-sectional study was conducted in collaboration with Yenimahalle Municipality in Ankara. After the earthquake, Ankara, which is the capital of Türkiye, was designated by the state as one of the safe zones for individuals affected by the earthquake. The inclusion criteria were as follows: (1) earthquake-affected people, (2) who were displaced to Ankara because of the earthquake, (3) who were older than 18 years, and (4) who voluntarily agreed to participate in the study. The exclusion criterion was as follows: (1) non-Turkish citizens affected by the earthquake. According to WHO and King's College London (2011), the largest and most conservative sample size for HESPER surveys is usually obtained with a 10% precision level, 5% error risk, and an assumed prevalence of 50%. The minimum sample size for this study was determined based on an assumed prevalence of 50%, an 85% confidence interval with a critical value (Z) of 1.44, and a precision level of 0.05. Using the standard formula for sample size calculation, this resulted in a minimum required sample size of 207 respondents. (World Health Organization & King's College London, 2011). A total of 245 earthquake survivors participated in the study. Primary data was gathered directly from earthquake affected people through phone calling. The interviews lasted between 10 to 15 min.

2.2. The instrument: Humanitarian Emergency Settings Perceived Needs (HESPER)
The HESPER Scale was developed by World Health Organization & King's College London (2011) to assess the perceived physical, social, and psychological needs of the general adult population in humanitarian settings. The HESPER consists of 26 items whether a certain need is perceived as a "serious problem" or not. All items also provide a brief description of the item, for example 'Drinking water: "Do you have a serious problem because you do not have enough water that is safe for drinking or cooking?" (World Health Organization & King's College London, 2011). Three ratings are available for each of the items: (1) "yes, a serious problem"; (2) "no, no serious problem"; and (3) "don't know/don't want to say/not applicable." After reporting their needs, the instrument also allows study participants to identify their three most prioritized perceived needs. A total sum score can be calculated by adding up the total number of "serious problem" ratings. Within the scope of The QuakeCare Project, The HESPER was adapted, and its psychometric properties were examined. The HESPER has a Cronbach's alpha was 0.961 in Jordan, and 0.773 in Nepal. Inter-rater reliability was 0.998 in Jordan, 0.986 in Haiti, and 0.995 in Nepal. Cronbach's alpha values were found to be 0.99 in this study.

2.3. Ethical considerations
The Ethical Approval was obtained from the Ethics Research Committee of a public University. The researchers explained the purpose of the study, the confidentiality of the data, the voluntary nature of participation, and their freedom to discontinue the interview or withdraw from the study at any time without reason. Informed consent was obtained from each study participant before conducting the interview survey. Written permission to use HESPER was obtained from WHO.

2.4. Data Analysis
Data from the survey was recorded into an Excel format by the researchers and then imported into the statistical program SPSS (IBM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp). The initial step involved a thorough examination of the data to identify and eliminate any duplicates, while instances of missing data resulting from dropouts were subsequently recorded. Descriptive statistics were utilized to examine demographic data and analyze the evaluation questions.

3. FINDINGS

A total of 245 participants were interviewed. All participants in the study were aged over 18, with the oldest participant being 77 years old, and 57.9 % of them were women. 58.4% of individuals were employed, 62.4 % were married, and 11.0 % lacked formal education. Tragically, a majority of participants experienced familial losses, with 20.0% losing a first-degree family member and 65.7 % losing a second-degree family member due to the earthquake, while 34.5 % endured severe damage to

their residences. Among the participants, 12.6% experienced the earthquake in Adana, 15.2% in Gaziantep, 11.5% in Osmaniye, 22.6% in Hatay, 5.3% in Adıyaman, and 6.2% in Malatya and 26.6 % in Kahramanmaraş. Furthermore, the motivations behind relocating to Ankara were multifaceted. Specifically, 39.5 % relocated due to house damage, 35.1 % due to house collapse, and 25.4 % in pursuit of employment opportunities. The characteristics of the study participants are shown in Table 1.

***Table 1.** Demographic characteristics of study participants (n=245)*

Characteristics	n (%)
Sex	
Women	142 (57.9)
Men	103 (42.1)
Age	
18-34	127 (51.8)
35-77	118 (48.2)
Employment status	
Employed	148 (60.4)
Not employed	97 (39.6)
Marital status	
Married	153 (62.4)
Unmarried	92 (37.6)
Literacy Status	
Illiterate/ No formal education	27 (11.0)
Literate	218 (89.0)
Family member loss in earthquake	
Yes, a first-degree family member	49 (20.0)
Yes, a second-degree family member	161 (65.7)
No loss	35 (14.3)
Earthquake damage status of the house	
No damage	70 (28.5)
Minor damage	58 (23.6)
Moderate damage	33 (13.4)
Severe damage	84 (34.5)
Reason for coming to Ankara	
House being damaged	97 (39.5)
House being collapsed	86 (35.1)
Finding a job	62 (25.4)
Social security	
Available	198 (80.8)
Not available	47 (19.2)

Moreover, Table 2 shows the frequency with which each of the 26 HESPER areas were rated as one of participants' most serious problems.

***Table 2.** Number of participants who rated each of the HESPER Scale's problem areas as serious problem, no serious problem or does not know (i.e., not applicable, or answer declined) (n=245). Areas are ranked and listed in descending order of serious problem ratings*

HESPER item	Serious problem n (%)	No serious problem n (%)	Does not know / not applicable / declines to answer n (%)
1. Distress	206 (84.1)	27 (11.0)	12 (4.9)
2. The way aid is provided	170 (69.4)	75 (30.6)	0 (0.0)
3. Income or livelihood	164 (67.0)	81 (33.0)	0 (0.0)
4. Moving between places	158 (64.4)	87 (35.6)	0 (0.0)
5. Law and justice in your community	143 (58.3)	102 (41.7)	0 (0.0)
6. Information	137 (56.0)	108 (44.0)	0 (0.0)

7.	Place to live in	106 (43.3)	139 (56.7)	0 (0.0)
8.	Care for family members	104 (42.4)	109 (44.5)	32 (13.1)
9.	Being displaced from home	95 (38.8)	140 (57.1)	10 (4.1)
10.	Support from others	84 (34.3)	151 (61.6)	10 (4.1)
11.	Health care	78 (31.9)	160 (65.3)	7 (2.8)
12.	Care for people in your community who are on their own	72 (29.4)	173 (70.6)	0 (0.0)
13.	Keeping clean	75 (30.6)	164 (66.9)	6 (2.5)
14.	Physical health	72 (29.3)	173 (70.7)	0 (0.0)
15.	Separation from family members	73 (29.8)	161 (65.7)	11 (4.5)
16.	Safety	72 (29.4)	165 (67.3)	8 (3.3)
17.	Education for your children	67 (27.3)	157 (64.1)	21 (8.6)
18.	Drinking water	69 (28.2)	164 (67.0)	12 (4.8)
19.	Toilets	64 (26.1)	177 (72.2)	4 (1.7)
20.	Respect	56 (22.9)	189 (77.1)	0 (0.0)
21.	Too much free time	61 (24.9)	168 (68.6)	16 (6.5)
22.	Alcohol or drug use in your community	57 (23.2)	173 (70.6)	15 (6.2)
23.	Mental illness in your community	54 (22.0)	186 (76.0)	5 (2.0)
24.	Clothes, shoes, bedding or blankets	42 (17.1)	203 (82.9)	0 (0.0)
25.	Food	39 (15.9)	187 (76.3)	19 (7.8)
26.	Safety or protection from violence for women in your community	36 (14.7)	189 (77.1)	20 (8.2)

In Table 2, participants' responses underscore significant concerns within the surveyed population. "Distress" emerged as the foremost issue, with 84.1 % of respondents identifying it as the top-rated serious problem. Close behind, "The way aid is provide" was highlighted as a major concern for 69.4 % of participants. Additionally, "Income or livelihood" emerged as a significant worry for 67.0% of respondents, underscoring the economic challenges faced by a considerable portion of the population.

3.DISCUSSION

Conducting human needs assessments after an earthquake is crucial for saving lives, optimizing resource allocation, and facilitating a coordinated and effective response to a disaster triggered by natural hazards. It ensures that the most vulnerable are not left behind and sets the foundation for long-term recovery efforts. In this section, authors discuss the top three perceived needs *distress, the way aid is provided and income or livelihood* of earthquake-affected people.

In this study, during the early post-earthquake period, the perceived needs of earthquake-affected individuals were primarily associated with coping with distress, the way of aid, and income or livelihood. Previous scoping review found that psychosocial needs, such as distress, separation from loved ones, or care for family members, were more frequently reported as the top three needs (Hugelius, 2022). The extent of stress often depends on various factors, including the scale of the earthquake, the level of damage, the effectiveness of response and relief efforts, and the psychological resilience of the individuals affected (Brooks et al., 2020; Xi et al., 2020). In this study, it could be attributed to several

reasons, including the possibility that psychosocial needs were more prevalent and emphasized among the study participants. In our study, most participants shared that they had lost family members, friends, and neighbors. Moreover, an earthquake's broader impact on multiple cities can indeed lead to more stress among the affected population; the earthquake had a broader impact across 11 provinces with a total population of 15.6 million in Türkiye. It's reasonable to assume that the broader the impact, the greater the potential for stress among those affected. Persistence and exacerbation of psychological distress symptoms, as well as the potential progression of existing mental health issues following earthquakes, underline the urgent need for mental health interventions and psychosocial support activities (Ahmed at al., 2023; Kurt et al., 2023).

Managing humanitarian aid and donations among the affected people is considered as one of the most important problems after disasters triggered by natural hazards. "In this study, individuals affected by the earthquake expressed their concerns over the insufficient aid they received. Previous study aimed to evaluate the challenges and barriers of humanitarian aid management in the 2017 Kermanshah Earthquake, found that participants were suffering from lack of knowledge, confused due to the lack of information about the way they should deliver the aid and were not informed of where to refer for receiving the aids (Safarpour et al., 2020).

Similarly, one of the biggest issues after the Haitian earthquake was the inability of response teams and organizations to coordinate, particularly in crucial areas like search and rescue, needs assessment, and basic service delivery (Salam & Khan, 2020). In the earthquake's immediate aftermath, medical responders had difficulty reaching the affected areas due to damaged road infrastructure, severe weather conditions and heavy traffic generated by civilians (Yılmaz et al., 2023). Furthermore, the civilian population may have utilized their own resources to deliver help in good faith, thus increasing road congestion and contributing to unequal distribution of relief goods (Şenol Balaban et al., 2024; TMMOB, 2023).

Income or livelihood is one of the most frequently perceived serious needs of earthquake-affected people in this study. Furthermore, the United Nations Development Programme (UNDP, 2023) reports that six months after the earthquake in Turkey, more than 2.6 million people are still living in temporary shelters such as tents and containers that provide only basic services. (UNDP, 2023). According to a research performed by TPO Nepal and the American Red Cross (2017), 73.2% of respondents from earthquake-affected communities in Rasuwa, Nuwakot, and Makwanpur identified income and livelihoods as their top needs.). Azhar et al. (2021) found that after the severe floods, people in Hafizabad, Pakistan, were most concerned about losing their sources of income and livelihood.A systematic review examining the long-term economic and psychological impacts of disasters on affected populations specifically notes how disruptions to income and livelihoods contribute to long-term stress and anxiety (Lock et al., 2012)

4.LIMITATION

This study has a few limitations. First, the results may have limited generalizability due to the non-representative sample; therefore, the results may not be generalized to all earthquake-affected people. Second, the data were collected six months after the earthquake so considering results should pay attention to the possibility of changing needs over time. Third, qualitative data is needed to complement the quantitative data obtained.

5.CONCLUSION

In order to maximize the benefit to a larger population within humanitarian sectors, it is crucial to perform thorough and systematic assessments of the existing needs. This was the first study, the perceived needs of earthquake-affected people by using HESPER in Türkiye. The HESPER is a valuable tool for conducting needs assessments for earthquake in Türkiye. Moreover, this assessment identified during the early post-earthquake period, coping with distress, the way of aid, and income or livelihood as the three most commonly reported needs. Based on these results, prioritizing mental health needs assessments and psychological support for earthquake-affected people is recommended. Inadequate aid

is a serious problem for earthquake-affected people, so relief agencies, governments, NGOs must target appropriately and quickly deliver to affected areas. Income and adequate resources are related to distress, the initial scope of resource planning and allocation should encompass the entire region impacted by the earthquake including both affected and relatively unaffected areas. Subsequently, a stronger focus on resource allocation should be directed towards the more heavily affected areas and those with lower income levels, with sustained effort

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