ORIGINAL RESEARCH ORİJİNAL ARAŞTIRMA

Determining the Relationship Between Earthquake Trauma Level and Self-Care Behaviors in Heart Failure Patients Living in the Earthquake Region Study: A Descriptive Study

Deprem Bölgesinde Yaşayan Kalp Yetmezliği Hastalarında Deprem Travma Düzeyi ile Öz Bakım Davranışları Arasındaki İlişkinin Belirlenmesi: Tanımlayıcı Çalışma

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ABSTRACT Objective: This study was conducted descriptively to determine the relationship between earthquake trauma level and self-care behaviors in heart failure (HF) patients living in an earthquake zone. **Material and Methods:** The study included 126 heart failure patients who applied to the cardiology clinic of Adıyaman University Training and Research Hospital between August 20 and December 27, 2023, who were not in stage 4 according to the New York Heart Association classification, were receiving outpatient treatment, and volunteered for the study. The data were collected using the "Person Identification Form", "Post-Earthquake Trauma Level Determination Scale (PETLDS)", and "European HF Self-Care Behavior Scale-9". In the statistical analysis of the data, number, percentage and mean, Kolmogorov-Smirnov normality test result, student t-test in independent groups, one-way analysis of variance, Mann-Whitney U, Kruskal-Wallis and Spearman correlation tests were used. In addition, multiple regression analysis was applied in the analysis. **Results:** It was determined that there was a weak positive significant relationship between the post-earthquake trauma score and the Self-Care Scale score (p<0.05). It was found that as the mean post-earthquake trauma score increased, the Mean Self-Care Scale score also increased (p<0.05). As a result of the regression analysis, it was determined that earthquake-related situations had a 28.7% effect on PETLDS mean scores (R²=0.287, p<0.001). Current residence the earthquake was found to have a positive effect on the PETLDS mean scores (B=0.290; p<0.001). **Conclusion:** It is recommended to provide psychosocial support to reduce the trauma levels of HF patients who survived the earthquake, to increase the self-awareness of individuals so that they can use self-care behaviors positively, and to provide training in this direction.

Keywords: Earthquake; psychological trauma; heart failure; self care

ÖZET Amaç: Bu araştırma, deprem bölgesinde yaşayan kalp yetmezliği hastalarında deprem travma düzeyi ile öz bakım davranışları arasındaki ilişkinin belirlenmesi amacıyla tanımlayıcı olarak yapıldı. **Gereç ve Yöntemler:** Araştırmaya, 20 Ağustos-27 Aralık 2023 tarihleri arasında Adıyaman Üniversitesi Eğitim ve Araştırma Hastanesi kardiyoloji kliniğine başvuran, New York Kalp Derneği (the New York Heart Association) sınıflamasına göre 4. evrede olmayan, ayaktan tedavi gören ve araştırmaya gönüllü olan 126 kalp yetersizliği hastası dâhil edildi. Araştırmanın verileri; "Kişi Tanımlama Formu", "Deprem Sonrası Travma Düzeyi Belirleme Ölçeği [Post-Earthquake Trauma Level Determination Scale (PETLDS)]" ve "Avrupa Kalp Yetmezliği Öz Bakım Davranış Ölçeği-9" kullanılarak toplandı. Verilerin istatistiksel analizinde sayı, yüzde ve ortalama, Kolmogorov-Smirnov normallik testi sonucu bağımsız gruplarda öğrenci t-testi, tek yönlü varyans analizi, Mann-Whitney U, Kruskal-Wallis ve Spearman korelasyon testleri kullanıldı. Ayrıca analizde çoklu regresyon analizi uygulandı. **Bulgular:** Deprem sonrası travma puanı ortalaması ile Öz Bakım Ölçeği puanı ortalaması arasında zayıf pozitif anlamlı ilişki olduğu belirlendi (p<0,05). Deprem sonrası travma puanı ortalaması arttıkça Öz Bakım Ölçeği puanı ortalamasının da arttığı bulundu (p<0,05). Regresyon analizi sonucunda depremle ilişkili durumların PETLDS ortalama puanları üzerinde %28,7'lik bir etkiye sahip olduğu belirlendi (R²=0,287, p<0,001). Depremin yaşandığı mevcut ikametgâhın PETLDS ortalama puanları üzerinde olumlu bir etkiye sahip olduğu bulundu (B=0,290; p<0,001). **Sonuç:** Depremden sağ kurtulan kalp yetmezliği hastalarının travma düzeylerini azaltmak için psikososyal destek sağlamak, bireylerin öz bakım davranışlarını olumlu yönde kullanabilmeleri için öz farkındalıklarını artırmak ve bu yönde eğitim verilmesi önerilir.

Anahtar Kelimeler: Deprem; psikolojik travma; kalp yetmezliği; öz bakım

Heart failure (HF) is a chronic disease with multifactorial etiologies. It usually occurs as a result of dysfunctions in the myocardium, main artery, and valve system of the heart, causing changes in cardiac output and negatively affecting vital organs, and can be fatal.[1] Cardiovascular disease-related deaths are the leading cause of death in our country, accounting for 33.4% of all deaths. According to the World Health Organization report, heart diseases are responsible for 16% of all deaths worldwide, and it is estimated that they will be responsible for the deaths of 22.2 million people by 2030.[2,3]

Self-care involves the ongoing participation in behaviors necessary to protect and maintain one's own health and is closely related to the management of symptoms.[4,5] Except during attack periods, treatment and care in HF are mostly provided under the individual's own control and self-care. One of the factors affecting disease self-care is psychological effects.[4] As is known, natural disasters, especially earthquakes, are frightening, severe, and uncontrollable traumatic events.[6,7] Earthquakes affect individuals psychosocially, economically and physically depending on their intensity, size, destruction and losses.[7] The loss of life and dramatic scenes caused by earthquakes cause negative emotions such as fear, anxiety and helplessness in people who experience the earthquake. Such traumatic emotions negatively affect human psychology and trigger the body's stress mechanism. Due to the effect of hormones secreted in stress on the veins, it causes devastating effects in individuals with cardiovascular system diseases. The devastating effect of earthquakes, especially in patients with heart failure, causes the effects of the disease to progress negatively in these individuals.[6] Two earthquakes measuring 7.7 and 7.6 on the Richter scale occurred in Türkiye, causing great destruction in 11 provinces in the region, and more than 50,000 people lost their lives. According to the released data, about 14 million people have been affected by this disaster.[8] Those with chronic diseases are the most affected group in terms of self-care sustainability behaviors during and after the earthquake. Therefore, it is important to start interventions as soon as possible to protect and maintain health after the earthquake, reduce the level of earth-quake trauma and increase self-care behaviors. For this reason, nurses who work one-on-one with heart patients affected by the earthquake have great duties and responsibilities. As a result of our literature review, no study was found that examined the effect of the level of trauma after the earthquake on self-care behaviors in HF patients who were victims of the earthquake. Therefore, this study was planned as a descriptive study to determine the relationship between earthquake trauma level and self-care behaviors in HF patients living in the earthquake region and to contribute to future studies.

Research Questions:

1. Do the sociodemographic characteristics of HF patients have an impact on the earthquake trauma level and self care behaviors of earthquake victims?

2. Do earthquake-related characteristics of HF patients have an impact on earthquake trauma level and self care behaviors?

3. Does the level of earthquake trauma have an effect on self care behaviors in earthquake victims with heart failure?

▎ MATERIAL AND METHODS

TYPE OF RESEARCH, POPULATION AND SAMPLE

In this cross-sectional research, the minimum number required to find a statistically significant effect size of p=0.36 in the correlation between earthquake trauma level and self care behaviors in HF patients was determined as 55 (α=0,05; 1-β=0,80).[4] Power analysed in G*Power 3.9.1 (Heinrich-Heine-University, Dusseldorf, Germany) software.

The universe of the study consisted of patients with HF who applied to the Cardiology Outpatient Clinic of Harran University Training and Research Hospital between 20 August-27 December 2023. To be included, patients had to be free of cognitive impairment, willing to communicate, not in stage 4 according to the New York Heart Association (NHYA) classification, treated as outpatients and consent to participate. Exclusion criteria for the study were determined as having cognitive impairment, not being willing to communicate, being in stage 4 according to the NHYA classification, and not consenting to par-

ticipation. The research was conducted on 126 patients via face-to-face interviews, each lasting 25-30 minutes.

DATA COLLECTION TOOLS

Data of the Research: The data were collected using the "Patient Diagnosis Form", "Post-Earthquake Trauma Level Determination Scale (PETLDS)", and "European HF Self-Care Behavior Scale-9 (EHFScBS-9)".

Personal Identification Form: Created in light of the literature, this form includes sociodemographic characteristics of the patients (age, gender, marital status, education level, occupation, income level), disease-related characteristics (smoking, duration of disease, going to check-ups, and receiving education about the disease), and characteristics related to the earthquake (where the earthquake occurred, being trapped under rubble, losing a relative, current residence, and difficulties experienced with the disease during the earthquake).[9,10] It consists of 20 questions in total.

Post-Earthquake Trauma Level Determination Scale: Developed by Tanhan and Kyri in 2013, this scale has 20 items and uses a 5-point Likert format. Likert statements are graded from "I completely disagree" to "I completely agree". The 11th-12th items in the scale are reversed and scored. The scale ranges from 20 to 100. A score of 52.385±5.051 indicates traumatic experiences. Higher scores show greater impact from earthquakes.[6] The scale had a Cronbach alpha of 0.87; the present study's alpha was 0.93.

European HF Self-Care Behavior Scale-9: Jaarsma et al. developed the 12-item EHFScBS-9, which was later reduced to 9 items.[11] In 2017, Yıldız and Erci evaluated the scale's reliability and validity. The scale has 9 items and employs a 5-point Likert scale. Items are rated from 1 (complete disagreement) to 5 (complete agreement). The lowest score is 9, and the highest is 45. Higher scores indicate better self-care.[12] The Cronbach's alpha coefficient was 0.82 in this study and 0.83.

EVALUATION OF DATA

SPSS 22 (IBM, USA) package program was used. Descriptive statistics such as mean, standard deviation, number and percentage were used in the analysis of the data. Kolmogorov-Smirnov test was used to test the suitability for normal distribution in the study. Student t-test, one-way analysis of variance were used for normally distributed data as a result of this test, and Mann-Whitney U, Kruskal-Wallis and Spearman correlation tests were used for non-normally distributed data. "Post hoc" tests included The Tukey's honestly significant difference test (Tukey's HSD) and Tamhane's T2 tests. Multiple regression analysis was performed to examine the effect of earthquake-related conditions on PETLDS mean scores.

ETHICAL ASPECT OF RESEARCH

The research was conducted in accordance with the ethical standards set forth by the Harran University Clinical Research Ethics Committee (date: July 24, 2023; no: 2023/13/04) and the Harran University Hospital (permission number E-66063783-622.99-242567). Patients were informed and gave their consent. They then responded to survey questions. The research was conducted in accordance with the Declaration of Helsinki, and participant confidentiality was safeguarded.

▌ RESULTS

SOCIODEMOGRAPHIC CHARACTERISTICS OF THE PARTICIPANTS AND EXAMINATION OF THESE CHARACTERISTICS WITH SCALE SCORE

It was determined that 44.4% of participants had a disease diagnosis period of 1-5 years, 70.6% of participants had another chronic disease, 81.7% underwent regular check-ups, and 55.6% lacked disease education. The mean total score for PETLDS was 56.04±17.18, while for EHFScBS-9 it was 26.86±7.87. The PETLDS score of participants who had completed primary school, had low income levels, attended regular check-ups, and received training was high (p<0.05). The EHFScBS-9 score of participants who received information was higher (p<0.05) (Table 1).When we look at the patients' education status regarding their disease, it was seen that the mean scores obtained from both scales were sta-

TABLE 1: Sociodemographic characteristics of the patients and examination of these characteristics with scale score averages

	X±SD	Maximum	Minimum		
Age (year)	59.47±13.87	88	20		
Characteristic	**n (%)**	**PETLDS X±SD**	**p test value**	**EHFScBS-9 X±SD**	**p test value**
Age groups					
18-35	8 (6.3)	50.50±9.87		26.25±6.08	
36-49	17 (13.5)	62.17±18.25	p=0.321	29.58±8.81	p=0.307
50-65	47 (37.3)	55.91±17.57	KW=3.498	27.70±8.08	KW=3.610
65 above	54 (42.9)	55.03±17.25		25.37±7.46	
Gender					
Women	63 (50.0)	58.15±16.64	p=0.158	26.17±8.01	p=0.329
Men	63 (50.0)	53.84±17.45	t=-1.421	27.55±7.72	U=0.977
Marital status					
Married	94 (74.6)	55.18±17.82	p=0.318	26.28±7.46	p=0.199
Single	32 (25.4)	58.40±14.86	t=-1.006	28.56±8.87	t=-1.302
Education					
İlliterate[a]	33 (26.2)	51.27±16.67[a]		25.03±7.53	
Literate[b]	32 (25.4)	54.62±18.07[b]	**p=0.049**	24.78±7.36	
Primary education[c]	22 (17.5)	65.31±15.95[c]	**KW=9.541**	29.09±7.81	p=0.069
Secondary education[d]	25 (19.8)	55.68±16.47[d]	**c>a,b,d,e**	27.68±8.37	KW=8.690
University and above[e]	14 (11.1)	54.83±16.22[e]		30.58±7.56	
Occupation					
Officer	10 (7.9)	55.00±15.68		27.40±7.02	
Employee	11 (8.7)	56.27±16.78		27.90±7.02	
Retired	21 (16.7)	60.95±14.24	p=0.227	28.09±9.36	
Self-employment	16 (12.7)	49.31±20.66	F=1.407	27.56±8.84	p=0.814 F=0.746
Housewife	46 (36.5)	58.50±18.17		26.21±7.94	
I Have No Job	22 (17.5)	51.22±14.27		25.77±6.15	
Income-expenditure status					
Income>expense[a]	9 (7.1)	48.44±15.41[a]	**p=0.046 KW=6.142**	27.66±7.68	
Income=expense[b]	62 (49.2)	53.69±16.77[b]	**c>a,b**	27.35±7.68	p=0.556
Income<expense[c]	55 (43.7)	59.83±17.18[c]	**b>a**	26.18±8.19	F=0.943
Smoking status					
Yes	42 (33.4)	55.19±17.89		27.95±8.07	
No	58 (46.0)	55.93±16.45	p=0.869	25.62±7.70	p=0.298
I quit	26 (20.6)	57.46±17.90	F=0.869	27.88±7.80	F=1.152
Duration of disease					
1-5/years	56 (44.4)	58.07±16.65		27.51±7.85	
6-10/years	36 (28.6)	52.27±18.81	p=0.281	25.61±7.51	p=0.517
10/years and above	34 (27.0)	56.52±15.83	F=1.182	27.11±8.32	F=0.663
Other chronic disease					
Yes	89 (70.6)	57.50±17.07	p=0.127	27.10±8.00	p=0.594
No	37 (29.4)	52.37±16.93	t=1.544	26.93±7.60	t=0.531
Going for disease control					
Yes	103 (81.7)	57.43±17.43	**p=0.021**	27.07±8.15	p=0.690
No	23 (18.3)	49.56±13.41	**U=2.392**	25.91±6.48	U=-0.398
Have you received education about your disease?					
Yes	56 (44.4)	63.42±15.94	**p=0.000**	28.62±8.32	**p=0.027**
No	70 (55.6)	50.05±15.74	**t=4.703**	25.45±7.20	**t=2.247**
From whom did you receive training?					
Physician	28 (50.0)	59.67±14.17	p=0.078	27.75±8.11	p=0.437
Nurse	28 (50.0)	67.17±16.96	t=1.795	29.50±8.58	t=0.784
Scale total score means X±SD	126 (100,00)	56,04±17,18		26,86±7,87	

SD: Standard deviation; PETLDS: Post-Earthquake Trauma Level Determination Scale; EHFScBS-9; European Heart Failure Self-Care Behavior Scale-9; KW: Kruskal-Wallis test; t: Student t-test; U: Manny-Whitney U test; F: Analysis of variance test
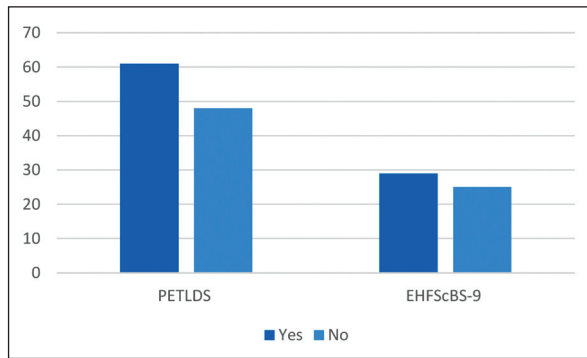
FIGURE 1: Comparison of mean scale scores of patients according to their education status about their disease

PETLDS: Post-Earthquake Trauma Level Determination Scale; EHFScBS-9; European Heart Failure Self-Care Behavior Scale-9

tistically higher than those who did not receive education (p<0.05) (Figure 1).

EVALUATION OF THE SITUATIONS EXPERIENCED BY PATIENTS REGARDING THEIR LIVES AFTER THE EARTHQUAKE

It was determined that 87.3% of the participants were at home during the earthquake, 10.3% were trapped under debris, and 50.8% had difficulty in receiving health care after the earthquake.

The PETLDS scores found to be higher for participants who experienced the earthquake outside their homes, were trapped under rubble, lost a 1st-degree relative and staying at a relative's house or container right now (p<0.05). It was observed that the trauma level of those currently living outside their own homes and the EHFScBS-9 scores of those living in a container outside their home were significantly higher than the other groups (p<0.05) (Table 2). Regarding

TABLE 2: Evaluation of the situations experienced by patients regarding their lives after the earthquake					
	n (%)	PETLDS X±SD	p test value	EHFScBS-9 X±SD	p test value
Where did you experience the earthquake?					
At home	110 (87.3)	54.40±17.34	**p=0.006**	26.55±7.64	p=0.211
Out of home	16 (12.7)	66.93±10.85	**U=-2.749**	29.00±9.26	t=-1.265
Have you been trapped under debris?					
Yes	13 (10.3)	73.84±11.17	**p=0.000**	29.53±9.22	p=0.281
No	113 (89.7)	53.94±16.51	**t=5.738**	26.55±7.68	t=1.121
Loss in earthquake					
No I didn't[e]	45 (35.7)	45.28±14.55[a]	**p=0.000 F=19.348**	27.00±7.85	
1st degree close[b]	6 (4.8)	77.83±11.46[b]	**b>a,c,d**	33.50±11.11	p=0.180
2nd degree close	53 (42.1)	64.13±14.18[c]	**c>d, d>a**	26.01±7.93	F=1.656
Neighbor, friend[c]	22 (17.5)	52.36±14.46[d]		26.81±6.47	
Where are you staying right now?					
In my house[a]	79 (62.7)	50.39±15.56	**p=0.000 F=13.652**	25.20±7.58[a]	**p=0.000**
At a relative's house[b]	11 (8.7)	65.36±18.68	**b>a**	23.54±6.26[b]	**F=10.425**
Container[c]	35 (28.6)	65.44±14.73	**c>a**	31.52±7.05[c]	**c>a,b**
Difficulty measuring blood pressure after the earthquake					
Yes	53 (42.1)	54.50±17.16	p=0.252	27.27±7.84	p=0.43
No	73 (57.9)	58.05±17.01	t=-1.152	26.30±7.94	KW=-0.777
Difficulty in adapting to diet after the earthquake					
Yes	54 (42.9)	57.12±15.81	p=0.524	25.48±7.82	p=0.088
No	72 (57.1)	55.15±18.10	t=0.652	27.90±7.95	t=1.722
Difficulty in complying with medication after the earthquake					
Yes	61 (48.4)	57.03±16.62	p=0.513	27.49±7.87	p=0.358
No	65 (51.6)	55.03±17.65	t=0.656	26.19±7.87	t=0.923
Difficulty in obtaining health care after the earthquake					
Yes	93 (50.8)	57,60±17,4	p=0.088	26,74±8,18	p=0.769
No	33 (49.2)	51,66±15,89	t=-1.717	27,21±7,02	t=0.294

PETLDS: Post-Earthquake Trauma Level Determination Scale; SD: Standard deviation; EHFScBS-9; European Heart Failure Self-Care Behavior Scale-9; U: Manny-Whitney U test; t: Student t-test; F: Analysis of variance test; KW: Kruskal-Wallis test
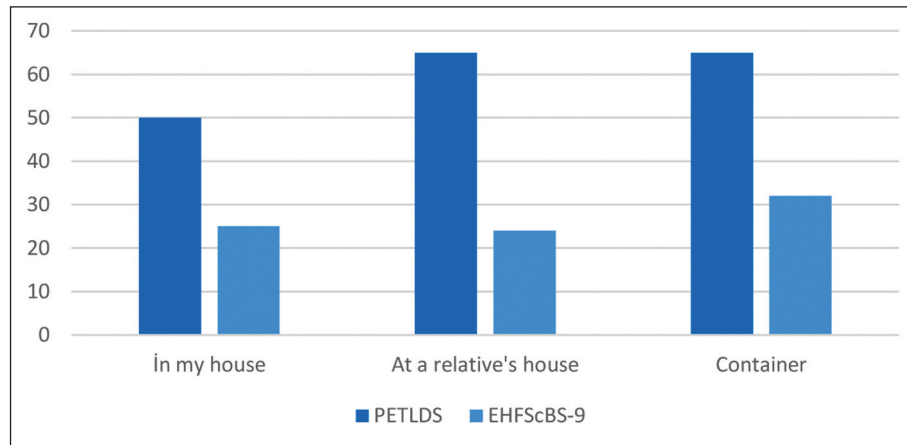
FIGURE 2: Comparison of the average scores of the patients on the scales according to where they lived after the earthquake
PETLDS: Post-Earthquake Trauma Level Determination Scale; EHFScBS-9; European Heart Failure Self-Care Behavior Scale-9

TABLE 3: The relationship between participants' trauma levels and self care behaviors average scores after the earthquake	
Scales	**PETLDS**
EHFScBS-9	p=0.001
	r=0.290

PETLDS: Post-Earthquake Trauma Level Determination Scale; EHFScBS-9; European Heart Failure Self-Care Behavior Scale-9

THE RELATIONSHIP BETWEEN PARTICIPANTS' TRAUMA LEVELS AND SELF CARE BEHAVIORS AVERAGE SCORES AFTER THE EARTHQUAKE

It was determined that there was a weak positive significant relationship between of the PETLDS score and the EHFScBS-9 score ($p<0.05$). It was determined that as the PETLDS score average increased, the EHFScBS-9 average score also increased ($p<0.05$) (Table 3).

REGRESSION ANALYSIS OF SCALE AVERAGE SCORES

In multiple linear regression analysis, a model was created in line with the purpose of the research and the effects of earthquake-related situations on

the place where the patients lived after the earthquake, it was found that the mean scores of both scales of those living in containers were statistically higher than those staying at home ($p<0.05$) (Figure 2).

TABLE 4: Regression analysis between participants' situations related to earthquake and PETLDS				
	PETLDS			
Situations related to earthquake	**B**	**SD**	**t value**	**p value**
Constant	3.171	0.503	6.301	<0.001
The place where the earthquake occurred	2.744	2.034	-0.213	0.180
Status of being buried under debris due to earthquakes	-13.602	4.238	-3.209	<0.05
Status of losing relatives in the earthquake	3.948	1.082	0.279	<0.001
Current residence	3.360	0.989	3.397	<0.05
R^2=0.304 F=13.088 p<0.001				

PETLDS: Post-Earthquake Trauma Level Determination Scale; SD: Standard deviation

PETLDS mean scores were evaluated. PETLDS mean scores were taken as dependent variables. The place where the earthquake occurred, being buried under debris due to the earthquake, losing relatives in the earthquake and current residence status were taken as independent variables with statistical significance. As a result of the regression analysis, it was determined that earthquake-related situations had a 30.4% effect on PETLDS mean scores ($R^2=0.304$, $p<0.001$). Status of losing relatives in the earthquake was found to have a positive effect on the PETLDS mean scores (B=3,948; $p<0.001$) (Table 4).

DISCUSSION

EXAMINATION OF PARTICIPANTS' SOCIODEMOGRAPHIC CHARACTERISTICS THROUGH SCALE SCORE AVERAGES

Earthquakes cause sudden damage and serious consequences. Due to aftershock-related chronic effects, earthquakes have a unique place among natural disasters.[6] Therefore Earthquakes are major stressors for heart patients. After earthquakes, people with arrhythmias or heart failure may have worsened symptoms lasting up to six months.[13] After natural disasters, studies report a notable increase in both the incidence and mortality rates of cardiovascular diseases such as heart failure, stress cardiomyopathy, myocardial infarction, hypertension, and various arrhythmias.[14,15]

EXAMINATION OF PARTICIPANTS' POST-EARTHQUAKE TRAUMA LEVELS

Witnessing a natural disaster profoundly affects individuals, causing anxiety and stress. While initially normal, these reactions can evolve into serious mental health issues if prolonged.[16] Large-scale disasters, displacement, limited access to necessities, and temporary housing increase mental stress. Post-earthquake mental health is influenced by displacement, housing type, number of relocations, and time in temporary shelters.[17] Kukihara et al. reported depression and PTSD in those placed in temporary housing, with PTSD present in 53.5% and significant symptoms in 33.2%.[18] Similarly, Yabe et al. found mental health issues in 43.2% and social disability in 25% of participants.[19]

Karabacak Çelik found a post-earthquake trauma score of 71.47±16.61, while Tüccar and Yavuz reported an average of 2.95±0.73, associating higher trauma levels with being female, aged 30-40, severe home damage, and bereavement.[7,20] In our study, the trauma score was 56.04±17.18, above the threshold of 52.385±5.051, aligning with the literature. Tanhan and Kayri reported a mean score of 48.435±14.814 after the 2011 Van earthquake.[6] The proximity of the disaster likely influenced higher trauma levels. Exposure to trauma, living condition changes, witnessing death, and stress may be more severe in both healthy individuals and those with cardiovascular disease. Early data collection, six months post-earthquake, and ongoing visual reminders may also contribute to higher trauma levels.

Our study found significant differences in PETLDS scores based on education, income, medical check-ups, illness education, earthquake location, being trapped, bereavement, and current residence. Kun et al. observed higher PTSD in those with no income, property loss, or family deaths.[21] Onese et al. linked female gender, property loss, poverty, and medication use to PTSD.[22] Nobakht et al. identified socio-demographics such as female gender and higher education as risk factors.[23] Valladares-Garrido et al. found higher PTSD in low-income groups.[16] Zhang et al. reported stress disorder symptoms in 84.8% of survivors, associating PTSD with home loss, being trapped, bereavement, and injuries.[24] Nakaya et al. found higher psychological distress in those without future housing plans.[25]

Differences were also noted: Thapa et al. found higher PTSD risk in those under 30 and unmarried, with women more prone to anxiety and depression.[26] Mondragón et al. reported PTSD and depression more in women and those over 40.[27] Baral and Bhagawati found higher PTSD risk in women, elderly, illiterates, and the injured.[28] Guo et al. associated PTSD and depression with female gender, age 35-55, family injuries, and low social support.[29] In our study, although higher PTSD scores were observed in women, ages 36-49, and unmarried individuals, these were not statistically significant. Lower education was linked to higher trauma, but literature findings on education vary. Shelter problems, unsuitable liv-

ing conditions, communal life difficulties, and basic needs scarcity contribute to trauma, especially in those with heart failure. In patriarchal societies, women's roles in home care may add stress. However, the instinct for survival after highly destructive earthquakes may explain similar PTSD rates across genders.

EXAMINATION OF SELF CARE BEHAVIORS IN PARTICIPANTS WITH HEART FAILURE

Earthquakes can have long-term effects on those with cardiovascular disease. Stress can increase inflammation and raise blood pressure. It can hinder access to healthcare and medications, hinder healthy eating, and lead to loss of medical records or transportation issues. All of these factors contribute to worsening symptoms in patients.[13,30]

In a study by Kökçü and Tiryaki, the total score for self-care behaviors was 33.14±9.41.[9] In a study by Baba Sarı and Özdelikara, it was found to be 31.2±5.6, and the patients' self-care behaviors were reported to be at an adequate level. This study identified significant differences based on gender and marital status, and individuals living alone had higher self-care scores.[4]

Sedlar et al. reported that heart failure patients had good self-care behaviors, but difficulties were experienced, particularly in areas such as coping strategies (88%) and comorbidities (81%).[31] The EHFScBS-9 score of 26.86±7.87 found in our study also indicates that the patients' self-care behaviors were at an adequate level, and this result is consistent with the literature. In the literature, Gallagher et al. and Akbıyık et al. reported that heart failure self-care behavior scores were low.[32] The literature has reported significant differences in self-care behavior scores based on occupation, marital status, and reason for not working.[8] Assen Seid et al. reported that only 22.3% of heart failure patients adhered well to self-care recommendations, while 74.8% had poor disease knowledge and self-care management.[33] Similarly, Aghajanloo et al. found deficiencies in patients' personal care, care management, and self-confidence.[34] However, the results of our study differ from these findings. Statistically significant differences were

found in participants' EHFScBS-9 scores based on their disease education and residence. This suggests that our study produces results that differ from other studies in the literature. Our study identified significant differences in trauma levels and self-care status based on residence. Those in temporary housing were found to have higher trauma levels but also better self-care skills. Our study identified a weak positive correlation between post-earthquake trauma level and self-care scores. This finding is consistent with findings reported by Nadrian et al., which demonstrated the mediating role of cognitive factors (knowledge level, perceived barriers) in the trauma-self-care relationship.[35] The literature review indicates that self-care skills in heart failure patients are typically at a moderate-to-high level. This finding demonstrates that our study is consistent with the literature. The moderate-to-high self-care level among heart failure patients in the earthquake zone can be explained by the influence of multiple factors, such as psychological well-being, housing conditions, and motivation for life. These results support the fact that heart failure is a chronic disease requiring multidimensional symptom management and the importance of a holistic care approach. It is believed that training provided by healthcare professionals (nurses, doctors) and psychosocial support teams, particularly in the post-earthquake period, may have contributed to these positive outcomes.

CONCLUSION

In patients with heart failure, it was determined that the PETLDS score and the EHFScBS-9 score were high. A weak positive significant relationship was found between the PETLDS score and the EHFScBS-9 score. It was observed that as the PETLDS score increased, the EHFScBS-9 score also increased.

Heart failure is a medical condition that profoundly affects individuals' lives, necessitating ongoing medical treatment. Self-care behaviors in the management of the disease are a crucial parameter that positively influences the clinical course of the illness. Trauma in these patients, such as fear, anxiety, and increased cardiac workload, can exacerbate the severity of the disease, leading to negative outcomes.

In this context, providing psychological support to patients is essential. The destruction caused by earthquakes can create difficulties in individuals' daily routines and treatment habits, affecting patients' self-care and contributing to the occurrence of negative symptoms. To prevent this, rapid identification of individuals with the relevant disease in earthquake-prone areas is essential, and suitable environmental conditions must be established. To reduce the trauma levels of surviving heart failure patients after an earthquake, it is crucial to provide psychological and social support, promote self-awareness for positive self-care behaviors, and offer education in this regard.

The earthquake in Turkey had a devastating impact on 11 provinces. Our study was conducted in one of the cities most affected by the earthquake. The most significant limitation of the study is that it could not cover all heart failure patients in the provinces affected by the earthquake. Another limitation of the study is that it was conducted by looking at people with high, low and moderate levels of PTSD symptoms together.

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