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Research Article /Araştırma

The effects of post-earthquake trauma on sexual lives of married workers aged between 18 and 49

Deprem sonrası travmanın 18-49 yaş evli kadın sağlık personelinde cinsel yaşam üzerine etkisi

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ABSTRACT

Aim: This study aims to determine how post-earthquake trauma affects the sexual lives of married female workers working in a public hospital in eastern Turkey.

Materials-Methods: This study was designed using a cross-sectional design type. The population of this research consists of married female healthcare personnel between the ages of 18-49 working in a public hospital in eastern Turkey. No sampling was done and an attempt was made to reach the entire universe.

Results: 206 married female health personnel participated in the research and 75% of the population was reached. 34.0% of the participants were between the ages of 26-30, 54.4% were nurses, 79.6% had a bachelor's or associate's degree, 66.0% had a spouse who had a bachelor's or associate's degree, 35.4% had been married for up to 5 years, and % It was determined that 45.1% of the participants had medium economic level perception. It was determined that 59.2% of the participants had sexual activity 1-2 times a week, but this situation decreased in 62.1%. A statistically significant difference was found when comparing the Post-Earthquake Trauma Level Determination Scale and its subscale scores ($p<0.05$).

Conclusions: It has been determined that natural disasters such as earthquakes have negative effects on sexual life. Providing psychological support to female healthcare personnel to overcome the negative impacts of anxiety and fear caused by earthquakes can be beneficial in managing stress and anxiety.

ÖZ

Amaç: Bu çalışma, Türkiye'nin doğusunda bir devlet hastanesinde çalışan evli kadın sağlık çalışanlarının deprem sonrası travmanın cinsel yaşamlarını nasıl etkilediğini belirlemeyi amaçlamaktadır.

Gereç-Yöntem: Bu çalışma kesitsel tasarım tipi kullanılarak tasarlanmıştır. Veriler literatür doğrultusunda hazırlanmış olan Tanımlayıcı Bilgi Formu ve Deprem Sonrası Travma Düzeyini Belirleme Ölçeği (DSTDBÖ) kullanılarak toplanmıştır

Bulgular: Araştırmaya 206 evli kadın sağlık personeli katılmış olup evrenin %75'ine ulaşılmıştır. Katılımcıların %34.0'ünün 26-30 yaş aralığında olduğu, %54.4'ünün hemşire, %79.6'sının lisans-önlisans mezunu, olduğu %66.0'sının eşinin lisans-önlisans mezunu olduğu, %35.4'ünün 5 yıla kadar evli olduğu ve %45.1'inin ekonomik düzey algısının orta olduğu saptandı. Katılımcıların %59.2'sinin haftada 1-2 kez cinsel aktivitesinin olduğu ancak %62.1'inde ise bu durumun azalma gösterdiği saptandı. Deprem Sonrası Travma Düzeyini Belirleme Ölçeği ve alt ölçek puanlarının karşılaştırılmasında istatistiksel olarak anlamlı farklılık bulunmuştur ($p<0.05$).

Sonuç: Deprem gibi doğal afetlerin cinsel yaşam üzerinde olumsuz etkileri olduğu belirlenmiştir. Depremin neden olduğu kaygı ve korkunun cinsel yaşam üzerindeki olumsuz etkilerinden kurtulmak için kadın sağlık personeline psikolojik destek sağlanması stres ve kaygı yönetiminde faydalı olabilmektedir.

ARTICLE INFO/MAKALE BİLGİSİ

Key Words: Disaster of the century, sexual behaviors, post-earthquake trauma, stress.

Anahtar Kelimeler: Yüzyılın felaketi, cinsel davranışlar, deprem sonrası travma, stres.

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Introduction

Considering the definition provided by the Disaster and Emergency Management Authority a disaster encompasses the consequences that arise with the event itself (1). Several factors are considered to determine the severity and magnitude of a disaster after events such as disasters. These factors include the number of injured and deceased individuals, levels of damage to structures, and economic and social impacts (2). The levels of societal impact originating from natural disasters vary depending on societal roles. Women, men, children, and elderly individuals exhibit different responses after natural disasters. It is known that women are particularly more affected by disaster events when compared to other members of society due to factors related to gender roles, such as lower levels of education, behaviors originating from upbringing since childhood, and skills acquired throughout their lifetimes. The behaviors acquired as a result of upbringing and the achievements made throughout their lives negatively affect women's ability to exhibit safe behavior during disaster periods (3). Due to societal gender roles, women are generally more vulnerable and defenseless during disaster periods (4). Following a disaster, women face challenges in accessing reproductive health services and materials, as well as maintaining their basic needs such as access to clean water, adequate nutrition, clothing, shelter, and security. This situation leads to an increase in infectious diseases, a higher risk of early childbirth and miscarriage among pregnant women, and a greater risk of disease due to problems finding sanitary pads and maintaining hygiene during menstruation. Moreover, women may face issues such as violence, harassment, rape, adolescent marriage, unwanted pregnancies, and being forced into sex work after a disaster (5,6). Such negative situations create intense psychosocial stress in women and may lead to behaviors such as shock, anxiety, and sleep disturbances (7).

Sexuality is an important aspect of life for all individuals, starting in the intrapartum period and continuing throughout life, encompassing both sexual pleasure and reproduction (8). Sexuality plays a significant role in sustaining human life and also contributes to improving individuals' quality of life (9). As stated by the World Health Organization, sexual health does not solely mean the absence of disease, disability, and functional disorders. Instead, it emphasizes the comprehensive consideration of sexual life from physical, mental, emotional, and social aspects to enable individuals to positively develop their personalities, communication skills, and loving relationships (10). Sexuality can be influenced by many systems and situations. They include factors such as the endocrine system, neurological events, vascular structure, age, chronic diseases, cultural factors, stress, trauma, and upbringing style (11). Studies carried out worldwide after natural disasters showed a high likelihood of mental health problems such as post-traumatic stress disorder and depression among disaster survivors (12). For example, a study carried out after the major earthquake in Japan revealed that 28% of women experienced psychological distress (13). Additionally, a meta-analysis examining issues observed among women after earthquakes found rates of post-traumatic stress disorder ranging between 53.4% and 60.3% (14). Sexuality, which is shaped within the interaction of psychological, social, and biological variables, can lose its functionality in case of a negativity in any of these factors (15). Furthermore, previous studies in the literature were limited due to difficulties in reaching women in earthquake-affected areas after earthquakes, reluctance to report due to the sensitive nature of the subject, and limitations in accessing accurate data. Due to its geographical location and economic situation, Turkey is affected by earthquakes the most among natural disasters.

This study was planned to contribute to post-disaster management plans by evaluating the impact of post-earthquake trauma on the sexual lives of married female health workers aged between 18 and 49 years.

Material-Methods

Study Objective and Design

This study was designed by using a cross-sectional design to determine the impact of earthquake fear on sexual health among married female healthcare workers aged between 18 and 49 years and working in a state hospital in eastern Turkey.

Study Universe and Sample

The universe of this study consisted of married female healthcare personnel aged between 18 and 49 years and working in a state hospital in eastern Turkey no sampling was performed, and the aim was to reach a total of 275 married female healthcare personnel aged 18-45 in the entire population. Data for the study were collected through face-to-face surveys conducted with married female healthcare personnel aged between 18 and 49 years and working in a state hospital in eastern Turkey from 20 November to 10 December 2023. A total of 206 married female healthcare workers aged between 18 and 49 years, who volunteered to participate, completed the survey, and 75% of the population was reached.

Procedures

Study data were collected through face-to-face interviews with married female healthcare workers aged between 18 and 49 years and working in a state hospital in the eastern region from 20 November to 10 December 2023. A data collection form consisting of two sections was designed to collect the data for this study. The first section of the form included socio-demographic data of the participants (age, gender, marital status, etc.) and questions related to sexual life (frequency of sexual activity, desire, changes in sexual activity after the earthquake, etc.) consisting of 14 questions developed by the researcher in line with the literature (16,17). Secondly, the Post-Earthquake Trauma Level Determination Scale (PETLDS), validated and reliable, developed by Tanhan and Kayri (18).

1. Post-Earthquake Trauma Level Determination Scale (PETLDS)

Tanhan and Kayri developed this scale in order to determine the level of trauma following an earthquake (18). The scale consists of 20 items rated on a five-point Likert scale. Likert-scale expressions range between "strongly disagree" and "strongly agree." The lowest possible score is 20 and the highest score is 100. Higher scores indicate an increase in the level of individuals' earthquake-related distress. The internal consistency reliability coefficient (Cronbach's alpha) of the scale was reported to be 0.87 (18). In this study, Cronbach's alpha was found to be $\alpha=0.931$. A reliability coefficient between $0.7\leq\alpha\leq0.9$ indicates good reliability, whereas $\alpha>0.9$ indicates excellent reliability (19).

Data Analysis

The study data were analyzed by using Statistical Package for Social Sciences (SPSS) 25.0 software. Descriptive statistics such as mean (M) and standard deviation (SD) were used for continuous variables, whereas frequency (n) and percentage (%) were used for categorical variables. The normality assumption of dependent continuous variables was assessed by using the Kolmogorov-Smirnov normality test, skewness-kurtosis values, histogram, and Normal *Q-Q Plot* graphs. Since the PETLDS exhibited normal distribution, the Independent Samples t-test was used for comparisons between two groups, and the One-way ANOVA test was used for comparisons involving three or more groups. The chi-square test was employed to examine the relationship between categorical variables. A significance level of $p<0.05$ was considered statistically significant for all tests.

Study Ethics

Before beginning the research, written permissions were obtained from the X University's Health Sciences Scientific Research and Publication Ethics Board (date of 21.03.202 and reference number of E-46040105-044-101796) and X Provincial Health Directorate (Document Date and

Number: 20.11.2023-E-227801785). Moreover, following the principles of the Helsinki Declaration, informed consent was obtained from married female healthcare workers through an online 'Informed Voluntary Consent Form'.

Inclusion criteria from the research

- To be between the ages of 18 and 45.
- To be married.
- To be willing to participate in the study

Exclusion criteria from the study

- Not answering all of the survey questions

Table 1. Comparison of participants mean scores on PETLDS and subdimensions by their sociodemographic characteristics (n=206)

Variable		Behavior problems	Emotive limitation	Affective	Cognitive structuring	Sleep problems	PETLDS
	n (%)	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
Age Groups							
18-25 years[1]	8 (3.9)	10.00±3.85	12.63±5.97	10.88±3.40	14.25±4.83	8.25±3.92	56.00±20.49
26-30 years[2]	70 (34)	10.04±3.44	15.13±5.08	12.97±3.02	14.91±3.46	8.44±3.40	61.5±14.85
31-35 years[3]	55 (26.7)	9.84±3.08	13.44±5.03	11.84±2.99	13.96±3.61	8.38±2.93	57.45±14.75
36-40 years[4]	42 (20.4)	10.05±3.14	14.24±4.47	13.17±2.72	16.07±2.89	9.40±2.87	62.93±12.73
41-49 years[5]	31 (15)	8.23±3.60	13.16±4.84	11.94±3.60	13.84±3.98	7.97±3.79	55.13±16.74
F		1.806	1.470	2.379	**2.733**	1.040	1.893
p		0.119	0.213	0.053	**0.030**	0.388	0.113
Post hoc							
Profession							
Nurse	112 (54.4)	9.52±3.09	13.68±4.39	11.99±3.02	14.53±3.51	8.6±3.13	58.31±13.54
Midwife	46 (22.3)	10.72±3.69	15.46±4.98	13.15±2.87	15.33±3.19	8.76±3.1	63.41±15.40
Health technician	34 (16.5)	9.26±3.39	14.47±5.98	13.53±3.19	15.21±3.70	8.32±3.6	60.79±16.66
Other	14 (6.8)	9.07±3.89	12.14±5.93	11.50±3.50	12.93±4.76	7.93±4.2	53.57±19.75
F		1.898	2.238	**3.531**	1.936	0.293	2.100
p		0.131	0.085	**0.016**	0.125	0.831	0.101
Post hoc							
Educational Level							
Secondary School[1]	12 (5.8)	7.25±2.14	12.08±3.96	9.58±2.68	13.67±3.68	7.17±3.88	49.75±13.00
Undergraduate – Vocational School[2]	164 (79.6)	9.84±3.40	14.20±4.96	12.65±2.98	14.70±3.63	8.57±3.24	59.96±15.15
Postgraduate[3]	30 (14.6)	10.00±3.18	14.40±5.32	12.63±3.42	15.17±3.38	8.93±3.10	61.13±14.53
F		**3.549**	1.074	**5.770**	0.746	1.293	2.807
P		**0.031**	0.344	**0.004**	0.475	0.277	0.063
Post hoc		2>1	-	2-3>1	-	-	-

Mean: *Mean*, **SD:** *Standard deviation*, **F:** *One-way variance analysis (One-way ANOVA)*, [1-2-3-4-5]: *Difference between the groups*

PETLDS: *Post-Earthquake Trauma Level Determination Scale*

Table 1 Comparison of participants mean scores on PETLDS and subdimensions by their sociodemographic characteristics (n=206) (contd.)

Variable		Behavior problems	Emotive limitation	Affective	Cognitive structuring	Sleep problems	PETLDS
	n (%)	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
Spousal educational level		8.64±3.38	12.61±4.64	11.82±2.97	13.64±3.92	7.93±3.53	54.64±14.66
Secondary School	28 (13.6)	9.76±3.33	14.57±5.10	12.40±3.10	14.88±3.49	8.60±3.22	60.21±15.27
Undergraduate – Vocational School	136 (66)	10.26±3.34	13.57±4.58	13.14±3.14	14.88±3.67	8.79±3.25	60.64±14.49
Postgraduate	42 (20.4)	2.022	2.143	1.646	1.431	0.628	1.732
F		0.135	0.120	0.195	0.242	0.535	0.179
p		-	-	-	-	-	-
Duration of marriage							
Up to 5 years	73 (35.4)	10.33±3.41	14.77±5.04	12.79±3.16	14.89±3.46	8.52±3.34	61.30±15.15
6-10 years	57 (27.7)	9.77±2.93	14.11±5.18	12.12±3.04	14.74±3.78	8.40±3.06	59.14±14.81
11-15 years	38 (18.4)	9.29±3.74	12.95±4.50	12.39±2.89	14.03±3.37	8.42±3.28	57.08±14.59
16 years and longer	38 (18.4)	8.87±3.32	13.97±4.92	12.45±3.35	15.00±3.83	8.92±3.49	59.21±16.02
F		1.852	1.131	0.508	0.600	0.221	0.685
p		0.139	0.338	0.677	0.616	0.882	0.562
Income level							
Poor[1]	82 (39.8)	9.94±3.50	14.66±4.89	13.02±2.95	15.20±3.47	8.66±3.48	61.48±15.15
Moderate[2]	93 (45.1)	9.66±3.14	14.01±4.96	12.32±2.90	14.76±3.51	8.70±2.97	59.45±14.33
Good[3]	31 (15)	9.29±3.65	12.90±5.13	11.45±3.81	13.26±3.89	7.77±3.50	54.68±16.47
F		0.443	1.438	**3.145**	**3.362**	1.018	2.316
p		0.643	0.240	**0.045**	**0.037**	0.363	0.101

Mean: *Mean*, **SD:** *Standard deviation*, **F:** *One-way variance analysis (One-way ANOVA)*, [1-2-3-4-5]: *Difference between the groups*

PETLDS: *Post-Earthquake Trauma Level Determination Scale*

RESULTS

When examining the age groups, it was found that 34.0% of the participants were in the 26-30 age range. It was determined that 54.4% of women were nurses, 79.6% had from bachelor's or associate degree, and 66.0% of their spouses had bachelor's or associate degrees. Among married female healthcare personnel, 35.4% had been married for up to 5 years, and 45.1% perceived their income level as moderate (**Table 1**). Comparing the mean scores of groups on PETLDS and its subdimensions by participants' sociodemographic characteristics, statistically significant differences were found in the mean scores of groups on the Cognitive Structuring subdimension by the age group, on the Affective subdimension by the occupation variable, on the Behavioral Problems and Affective subdimensions by the education level variable, and the Affective and Cognitive Structuring subdimensions by the income level variable (p=0.030; p=0.016;

Table 2. Comparison of participants mean scores on PETLDS and subdimensions by their opinions on sexual intercourse (n=206)

Variable		Behavior problems	Emotive limitation	Affective	Cognitive structuring	Sleep problems	PETLDS
	n(%)	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
Sexual intercourse frequency							
1-2 per week[1]	122 (59.2)	9.70±3.31	13.88±4.82	12.52±2.99	14.66±3.68	8.34±3.21	59.09±14.68
3-4 per week[2]	22 (10.7)	9.18±3.10	13.59±5.21	12.18±2.97	14.59±3.16	7.82±2.79	57.36±13.20
Once every 15 days[3]	36 (17.5)	10.75±2.95	15.42±4.66	13.00±2.86	15.69±3.38	9.92±2.71	64.78±13.72
Once every month[4]	15 (7.3)	8.20±2.93	13.13±5.53	10.33±2.35	12.80±2.93	7.27±3.47	51.73±14.01
Never[5]	11 (5.3)	9.64±5.24	14.64±6.36	13.73±4.96	14.82±4.33	9.55±4.80	62.36±23.40
χ^2. F		1.789	0.924	**11.060***	1.774	**11.965***	2.390
p		0.132	0.451	**0.026**	0.135	**0.018**	0.052
		-	-	3>4	-	3>2-4	-
Status of sexual intercourse frequency							
Decreased	128 (62.1)	10.59±3.19	15.01±4.86	12.80±2.91	15.27±3.26	9.14±3.06	62.82±13.96
Not changed	78 (37.9)	8.27±3.13	12.62±4.81	11.92±3.34	13.78±3.93	7.56±3.37	54.15±15.41
T		**5.110**	**3.440**	**1.991**	**2.942**	**3.452**	**4.155**
P		**<0.001**	**0.001**	**0.048**	**0.004**	**0.001**	**<0.001**
I think that sexuality is a part of life							
Yes	194 (94.2)	9.68±3.37	13.99±4.88	12.43±3.05	14.67±3.63	8.44±3.25	59.21±15.00
No	12 (5.8)	10.33±3.14	15.92±6.14	13.17±3.93	15.33±3.06	10.17±3.13	64.92±16.08
T		-0.658	-1.306	-0.799	-0.619	-1.785	-1.274
P		0.511	0.193	0.425	0.536	0.076	0.204
I fear that there will be an earthquake during the sexual intercourse							
Yes	174 (84.5)	10.14±3.28	14.49±4.81	12.79±3.01	15.17±3.49	8.97±3.17	61.56±14.50
No	32 (15.5)	7.41±2.83	11.97±5.32	10.75±3.07	12.19±3.13	6.25±2.81	48.56±13.57
t		**4.420**	**2.682**	**3.505**	**4.517**	**4.527**	**4.703**
p		**<0.001**	**0.008**	**0.001**	**<0.001**	**<0.001**	**<0.001**

Mean: *Mean*, **SD:** *Standard deviation*, **F:** *One-way variance analysis (One-way ANOVA)*, *2: *Kruskal Wallis H test,* [1-2-3-4-5]: *Difference between the groups*

PETLDS: *Post-Earthquake Trauma Level Determination Scale*

Table 2. Comparison of participants mean scores on PETLDS and subdimensions by their opinions on sexual intercourse (n=206) (contd)

Variable		Behavior problems	Emotive limitation	Affective	Cognitive structuring	Sleep problems	PETLDS
	n (%)	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
I do not want to have sexual intercourse during an earthquake							
Yes	165 (80.1)	10.32±3.19	15.04±4.76	12.80±3.07	15.17±3.27	9.06±3.16	62.39±14.07
No	41 (19.9)	7.27±2.88	10.34±3.95	11.15±2.89	12.85±4.23	6.46±2.86	48.07±13.67
T		**5.585**	**5.835**	**3.117**	**3.812**	**4.800**	**5.864**
P		**<0.001**	**<0.001**	**0.002**	**<0.001**	**<0.001**	**<0.001**
I do not have pleasure during sexual intercourse							
Yes	107 (51.9)	10.64±3.24	15.66±4.71	13.00±2.97	15.69±3.24	9.64±3.06	64.64±14.05
No	99 (48.1)	8.72±3.21	12.41±4.70	11.90±3.16	13.65±3.67	7.35±3.07	54.03±14.27
t		**4.268**	**4.951**	**2.578**	**4.246**	**5.365**	**5.373**
P		**<0.001**	**<0.001**	**0.011**	**<0.001**	**<0.001**	**<0.001**
I experience pain during sexual intercourse							
Yes	92 (44.7)	10.28±3.19	14.93±4.96	12.79±3.12	15.23±3.66	9.22±3.22	62.46±14.79
No	114 (55.3)	9.25±3.43	13.43±4.90	12.21±3.08	14.29±3.50	8.00±3.21	57.18±14.97
T		**2.207**	**2.181**	1.343	1.875	**2.702**	**2.526**
P		**0.028**	**0.030**	0.181	0.062	**0.007**	**0.012**
I avoid sexual intercourse							
Yes	119 (57.8)	10.52±3.15	15.25±4.81	12.92±3.00	15.34±3.44	9.28±3.15	63.31±14.12
No	87 (42.2)	8.61±3.33	12.53±4.77	11.85±3.16	13.85±3.64	7.54±3.17	54.38±14.91
t		4.200	4.027	2.483	2.986	3.902	4.379
p		**<0.001**	**<0.001**	**0.014**	**0.003**	**<0.001**	**<0.001**

Mean: *Mean*, **SD:** *Standard deviation*,

t: *Independent samples t-test,* **PETLDS**: *Post-Earthquake Trauma Level Determination Scale*

p=0.031; p=0.004; p=0.045; p=0.037) (**Table 1**).

It was found in this study that 59.2% of married female healthcare personnel engage in sexual activity 1-2 times per week, whereas 62.1% experienced a decrease in frequency. Although 94.2% believe that sexuality is a part of life, 84.5% express fear of earthquakes during sexual intercourse, and 80.1% stated they do not wish to engage in sexual activity during earthquakes. The rates of individuals not enjoying sexual intercourse and experiencing pain were 51.9% and 44.7%, respectively, whereas 57.8% avoid sexual

intercourse (**Table 2**).

Comparing the mean scores of groups by the married female healthcare personnel's views on sexual intercourse and the mean scores on the Post-Earthquake Trauma Level Determination Scale (PETLDS) and its subdimensions, statistically significant differences were observed in the mean scores on the Emotional and Sleep problems subdimensions between groups by the frequency of sexual activity (p=0.026; p=0.018). Statistically significant differences were also found in the mean scores of groups on PETLDS and its subdimensions by the frequency of sexual activity (p<0.001; p=0.001; p=0.048; p=0.004; p=0.001; p<0.001). Regarding the statement "I fear an earthquake during sexual intercourse," statistically significant differences were found in the mean scores of groups on the total PETLDS and its sub-dimensions (p<0.001; p=0.008; p=0.001; p<0.001; p<0.001; p<0.001). Similarly, significant differences were observed in the mean scores of groups by the statement "I do not want to engage in sexual intercourse during earthquakes" (p<0.001; p<0.001; p=0.002; p<0.001; p<0.001; p<0.001).

Concerning the statement "I do not enjoy sexual intercourse," statistically significant differences were found in the mean scores of groups on the total PETLDS and its subdimensions (p<0.001; p<0.001; p=0.011; p<0.001; p<0.001; p<0.001). Considering the statement "I experience pain during sexual intercourse," statistically significant differences were observed in the mean scores of groups on the total PETLDS and the subdimensions of behavioral problems, emotional limitation, and sleep problems (p=0.028; p=0.030; p=0.007; p=0.012).

Lastly, concerning the statement "I avoid sexual intercourse," statistically significant differences were found in the mean scores of groups on the total PETLDS and its subdimensions (p<0.001; p<0.001; p=0.014; p=0.003; p<0.001; p<0.001) (**Table 2**).

The mean score on the Post-Earthquake Trauma Level Determination Scale was found to be 59.54±15.09 (min.=12, max.=84). Examining the mean scores on the subscales, the mean score on behavioral problems section was found to be 9.71±3.36 (min.=4, max.=20), that on emotional restriction section to be 14.10±4.97 (min.=5, max.=25), that on affective section 12.47±3.10 (min.=4, max.=20), that on cognitive restructuring

Table 3. Distribution of expected and observed minimum and maximum scores and mean scores on the post-earthquake trauma level determination scale (PETLDS) and its subdimensions, and score ranges

Scale and Subdimensions	Number of items	Min.-Max. Scores	Observed Min.-Max. Scores	Mean±SD
PETLDS	20	20-100	20-100	59.54±15.09
Behavior problems	4	4-20	4-20	9.71±3.36
Emotive limitations	5	5-25	5-25	14.10±4.97
Affective	4	4-20	4-20	12.47±3.10
Cognitive structuring	4	4-20	4-20	14.71±3.59
Sleep disorders	3	3-15	3-15	8.54±3.26

Mean: *Mean*, **SD:** *Standard deviation*, **Min.:** *Minimum score*, **Max.:** *Maximum score*

PETLDS	Level	Score Range	Number (n)	Percentage (%)
Scale Score	*Good*	30-40	24	11.6
	Moderate	50-60	56	27.2
	Bad	70 and higher	126	61.2

section to be 14.71±3.59 (min.=4, max.=20), and that on sleep problems section to be 8.54±3.26 (min.=3, max.=15) (**Table 3**).

In this study carried out after an earthquake, it was observed that 11.6% of married female healthcare personnel fell within the good range of post-traumatic stress levels when considering the PETLDS score ranges, whereas 27.2% experienced moderate levels and 61.2% reported high levels of traumatic stress (**Table 3**).

Among married female healthcare personnel, post-earthquake trauma levels have a significant impact on sexual activity. While a 29.2% decrease in sexual activity was observed among those with good trauma levels, this figure was determined to be 55.4% and 71.4% for moderate and poor trauma levels, respectively (p<0.001). Moroever, it was also found that 66.7% of women with good trauma levels, 82.1% of those with moderate levels, and 88.9% of those with poor levels experienced fear of earthquakes during sexual intercourse (p=0.019). Post-earthquake trauma levels also affected the desire for sexual intercourse. While 41.7% of women with good trauma levels tended to avoid sexual intercourse, these percentages were 80.4% and 87.3% for those with moderate and poor levels, respectively (p<0.001). Significant differences were observed among trauma levels regarding pleasure and pain during sexual intercourse. While 20.8% of women with good trauma levels could not experience pleasure, these percentages were 53.6% and 57.1% for those with moderate and poor levels, respectively (p=0.005).

A similar relationship was observed regarding experiencing pain during sexual intercourse (p=0.003). Lastly, the tendency to avoid sexual intercourse also increases as trauma levels increase. While 25.0% of women with good trauma levels avoided sexual intercourse, these percentages were 55.4% and 65.1% for those with moderate and poor levels, respectively (p=0.001) (**Table 4**).

Discussion

The changes in the sexual behaviors of married female healthcare workers following severe earthquakes were examined in this study and the impacts of trauma on sexual life were analyzed. It was found that post-earthquake trauma negatively affected sexual life by influencing factors such as the frequency of sexual activity, fear of earthquakes during sexual intercourse, reluctance to engage in sexual intercourse during earthquakes, avoidance of sexual intercourse, lack of enjoyment from sexual intercourse, and experiencing pain during sexual intercourse. These results indicate the negative effects of trauma on sexual health and relationships, and they also emphasize the importance of sexual health services in the post-trauma period. Moreover, it underscores the necessity of developing support and intervention strategies in the field of post-traumatic sexual health. Rates of susceptibility to disasters differ between women and men, women generally are more affected by disasters than men (4). In a previous study, women were found to report a diagnosis of post-traumatic stress disorder (PTSD) following trauma twice as men do. Therefore, it can be stated that women are more affected in trauma situations and have a higher likelihood of developing PTSD when compared to men. There may be several reasons for this, including factors such as how women process post-trauma experiences, express emotional responses, and receive social support. This result is important for understanding gender-based differences and post-traumatic stress responses, and it can contribute to the development of appropriate support and intervention strategies (20). In this study, the post-earthquake trauma level was determined to be 61.2%. Additionally, it was observed that post-disaster trauma was associated with personal characteristics such as occupation and education. As the level of education increases, it is known that cognitive and emotional aspects are affected post-disaster (21). It was found that married healthcare workers with poor economic status were more affected by the earthquake, had higher levels of post-traumatic stress, and experienced difficulties in understanding expressions and managing the process. Previous studies in the literature reported that

communities facing economic challenges may take a long time to recover and heal (22,23).

A decrease in the frequency of sexual activity after earthquakes and having sexual intercourse once every 15 days were associated with post-traumatic stress. Previous studies in the literature highlighted the importance of maintaining sexual activity in sustaining relationship intimacy. Emphasizing the importance of the regularity of sexual activity among couples is crucial for mitigating the effects of post-earthquake trauma and strengthening relationships (24). Natural disasters not only threaten people's lives and physical health but also have effects on mental health (25,26). Post-traumatic stress disorder and panic disorders are among the psychological problems that occur after traumas such as war, earthquakes, serious threats, and sexual assault. Factors contributing to these include the nature and severity of the trauma, being

Table 4. Comparison of participants' sexual intercourse statuses by their post-earthquake trauma levels

	Post-Earthquake Trauma Levels							
	Good		Moderate		Poor			
	n	%	n	%	n	%	Test (χ^2)	p
Sexual activity frequency								
Decreased	7	29.2	31	55.4	90	71.4	**16.807**	**<0.001**
Not changed	17	70.8	25	44.6	36	28.6		
Total	24	100.0	56	100.0	126	100.0		
I fear that an earthquake would occur during sexual intercourse								
Yes	16	66.7	46	82.1	112	88.9	**7.904**	**0.019**
No	8	33.3	10	17.9	14	11.1		
Total	24	100.0	56	100.0	126	100.0		
I don't want to have sexual intercourse during earthquake								
Yes	10	41.7	45	80.4	110	87.3	**26.339**	**<0.001**
No	14	58.3	11	19.6	16	12.7		
Total	24	100.0	56	100.0	126	100.0		
I do not enjoy having sexual intercourse								
Yes	5	20.8	30	53.6	72	57.1	**10.729**	**0.005**
No	19	79.2	26	46.4	54	42.9		
Total	24	100.0	56	100.0	126	100.0		
I experience pain during sexual intercourse								
Yes	7	29.2	17	30.4	68	54.0	**11.383**	**0.003**
No	17	70.8	39	69.6	58	46.0		
Total	24	100.0	56	100.0	126	100.0		
I avoid sexual intercourse								
Yes	6	25.0	31	55.4	82	65.1	**13.457**	**0.001**
No	18	75.0	25	44.6	44	34.9		
Total	24	100.0	56	100.0	126	100.0		

χ^2: *Pearson Chi-square test,* **n:** *number*, **%:** *Percentage*

female, poor coping skills, and low social support (27,28). Cognitive health issues become a fundamental concern among the female population during disaster periods. In women exposed to a traumatic event, it was confirmed that, even if full post-trauma symptoms do not develop, there is a higher prevalence of these symptoms. These results indicate that the effects of traumatic experiences on individuals can be observed in a broader range and that post-traumatic symptoms may exist even if they are not prominent (16). Feelings of sadness and anxiety, along with factors such as insomnia, pessimism, trauma, stress, and memory loss, are some of the common psychological problems (29). The most commonly identified sexual dysfunction among patients with panic disorder is sexual avoidance (30). A study reported impairment in post-traumatic sexual functions, sleep disturbances, appetite problems, and decreased sexual satisfaction. These findings indicate the adverse effects of traumatic experiences on individuals' sexual health and overall well-being (16). Following natural disasters, the frequency of sexual intercourse in a population may decrease due to direct effects such as physical damage or poor health (31). Results reported in the literature indicate a decrease in sexual intercourse frequency after earthquakes (32,24). Similarly, it was found in the present study that post-traumatic stress leads to a decrease in sexual intercourse frequency. Another study, however, reported an increase in fertility desire to replace lost children and strengthen after the earthquake, which suggests a potential increase in sexual intercourse frequency based on this finding (26). Liu et al. reported that, even though 94% of individuals were dissatisfied with their sexual lives before the earthquake, this percentage increased to 99% after the earthquake (33). This study emphasizes the multifaceted nature of post-disaster trauma and its effects on sexual health, highlighting the importance of comprehensive and gender-sensitive approaches in disaster response and recovery efforts. Following natural disasters such as earthquakes, it is emphasized that the mental and sexual health needs of women should be given greater consideration.

Strengths and Limitations

The strength of this study lies in reaching female healthcare workers in the areas affected by the recent earthquake in Turkey, which was called the "disaster of the century." This study allowed for the acute evaluation of the trauma on sexual life immediately following the effects of the earthquake. Moreover, the present study contributes to the limited literature. However, due to its cross-sectional design, inability to evaluate information regarding the sexual health of married healthcare workers before the earthquake, and the inability to reach a sufficient number of married female healthcare workers from all affected regions, including 11 provinces across Turkey, the results achieved in this study cannot be generalized. These constraints constitute the limitations of the study.

Conclusions

As a result, it was found that more than half of the married female healthcare personnel participating in the present study reported engaging in sexual activity 1-2 times per week, but this frequency decreased significantly after the earthquake. It was noted that participants experienced fear of earthquakes during sexual intercourse and a significant proportion of participants expressed avoidance from engaging in sexual intercourse during the earthquake. Moreover, statistically significant portion of participants was found to not enjoy sexual intercourse, to experience pain during intercourse, and to avoid sexual intercourse. Overall, previous studies reported that post-traumatic stress and panic disorders are more common in women than in men. Psychological, social, and biological factors should be examined regarding the negative impact of natural disasters such as earthquakes on sexual life due to fear or anxiety, as human sexuality is a complex phenomenon influenced by many situations. Therefore, seeking assistance from healthcare professionals is necessary to maintain a healthy sexual life, which is an important aspect of human life. Community-based studies related to earthquakes are recommended to be carried out through

face-to-face interviews. Particularly, in-depth studies are necessary to reveal the effects of trauma experienced after an earthquake on married female healthcare workers and to assess the impacts of post-earthquake trauma on their sexual lives.

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