

The relationship between post-traumatic stress and social support two years after a fire disaster

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Abstract

Aim of the study: Natural disasters negatively affect individuals living in affected regions, both psychologically and socially. This study aimed to examine post-traumatic stress and social support among survivors two years after a fire disaster.

Methods: This descriptive, correlational study included 202 individuals who had been affected by a fire disaster two years earlier. Data were collected using an Information Form, the Impact of Event Scale, and the Multidimensional Scale of Perceived Social Support.

Results: Two years after the fire disaster, post-traumatic stress levels were higher in women, individuals who experienced the fire while at home, and those who lost their homes and livelihoods. Perceived social support differed significantly according to marital status, occupation, and income level. A significant relationship was found between post-traumatic stress and perceived social support.

Discussion: This study contributes to the literature by addressing the limited evidence on the long-term psychosocial effects of disasters on survivors.

Conclusions: Our findings highlight the importance of mental health services in addressing the long-term mental health consequences of fire disasters.

forest fire; fire disaster; post-traumatic stress; perceived social support

INTRODUCTION

Disasters are catastrophic events that have major destructive effects on the regions in which they occur [1,2]. Although their consequences vary depending on the location, type, and magnitude of the disaster, they may result in loss of life and material damage, as well as disruptions to essential services such as education, health care, transportation, and communication [3]. A disaster is

defined as “a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources” [4].

Forest fires are disasters with social, economic, and environmental consequences [5,6]. Owing to global warming and related climate change, forest fires have increased worldwide in recent years [7]. In Türkiye, especially on the Mediterranean and Aegean coasts, forest fires cause ecological and biological destruction, loss of life and property, and serious social and economic consequences [8]. The fire that started in a forested

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area of Antalya's Manavgat district on July 28, 2021, was documented as the largest fire disaster in history of Türkiye. According to the Republic of Türkiye Ministry of Environment and Urbanization Antalya Province Fire Disaster Damage Assessment Report (2021), 58 thousand hectares of land burned across four districts in Antalya Province, and 1,410 buildings were identified as severely damaged. A total of 33 neighborhoods in Manavgat district, the area most affected by the fire, were severely damaged [9]. In addition, many people who earned their living from farming lost both large and small livestock kept near their cultivated land [10].

A fire disaster has psychological and social effects on the people living in the affected region, in addition to causing financial losses. Post-traumatic stress disorder is one of the most common psychological problems observed in post-disaster populations [11]. Symptoms of post-traumatic stress disorder following catastrophic events such as disasters include re-experiencing the event and feeling as if it is happening again (flashbacks), emotional numbing, social withdrawal, avoidance of the scene and of reminders of the event, fear, helplessness, anger, insomnia, and restlessness. These symptoms begin after the disaster, and if they persist for longer than one month, the condition is defined as post-traumatic stress disorder [12].

While some people recover quickly from the negative effects of trauma after a disaster, others continue to experience its effects for a long time [13]. People need psychological and social support to cope with mental health problems such as post-traumatic stress, which can affect quality of life [14]. Social support is important in times of crisis because it reduces the destructive effects of stressful events and helps buffer stress [15]. After natural disasters, social support is recognized as one of the most important protective factors against post-traumatic stress [16]. Formal or informal assistance received from individuals and groups constitutes social support [17]. Perceived social support is a concept that encompasses various characteristics of an individual's social world and the relationship between the individual and the social environment [18]. Social support is multidimensional and has four functions: emotional, instrumental, informational, and appraisal. Emotional support primarily

involves feelings of trust and love and includes care, empathy, compassion, and a sense of being loved. Instrumental support includes the provision of material help and resources. Informational support refers to advice and guidance, whereas appraisal support involves evaluating an individual's performance and recognizing their strengths [19,20]. Family, friends, neighbors, relatives, and professionals (doctors, social workers, nurses, psychologists, teachers, etc.) are all potential sources of social support [21].

Few studies have investigated long-term mental health problems among disaster survivors [11, 22-25]. A comprehensive understanding of the psychological and social impacts of disasters on survivors, as well as the duration of these effects, may contribute to the planning of appropriate support services. Therefore, long-term studies are needed to provide robust evidence regarding the effectiveness of such measures. The aim of this study was to examine the relationship between post-traumatic stress and perceived social support two years after a fire disaster. In line with this aim, the following main research questions were posed:

1. What are the levels of post-traumatic stress and perceived social support in people who have experienced the fire disaster?
2. Are the sociodemographic characteristics of the people who experienced the fire disaster related to post-traumatic stress and perceived social support?
3. Is there a relationship between post-traumatic stress and perceived social support of people who experienced the fire disaster?

METHODS

This was a descriptive, correlational study designed to determine the relationship between disaster-related post-traumatic stress and perceived social support among people who experienced a fire disaster.

Participants

The fire that started in a forested area of Antalya's Manavgat district in July 2021 spread to nearby settlements. A total of 33 neighbor-

hoods in Manavgat district were affected by the fire. Overall, 563 houses were reported to have been severely damaged, and thousands of hectares of land burned across these neighborhoods [10]. In the present study, 202 people living in 14 neighborhoods closest to the center of Manavgat and most affected by the fire were selected using random sampling. Data were collected through visits to the homes of individuals affected by the fire; participants who volunteered and met the inclusion criteria were interviewed. The inclusion criteria were as follows:

1. Individuals whose homes or livelihoods were lost or damaged in the fire disaster
2. Willingness to participate in the study
3. Age 18 years or older

Data were collected through face-to-face interviews conducted during home visits by the researchers between 1 June and 31 July 2023.

G*Power (version 3.1) was used to determine whether the sample size was statistically sufficient [26]. The significance level was set at $\alpha = .05$, and statistical power was set at $1-\beta = .80$. For the sample of 202 participants, power at the 95% confidence level and a 0.05 margin of error for an effect size of .52 was calculated as .99. This result indicates that the sample size was sufficient for the study.

MEASURES

The study used an Information Form prepared by the researchers, the Impact of Event Scale, and the Multidimensional Scale of Perceived Social Support.

Information Form

The form included questions on age, gender, occupation, income level, educational status, and type of loss experienced.

Impact of Event Scale

The Impact of Event Scale (IES) was developed by Weiss (2007) based on the American Psychiatric Association's criteria for post-traumatic stress disorder [27]. The Turkish validity and

reliability study was conducted by Çorapçıoğlu et al. (2006) [28]. The IES is designed to measure the level of stress related to a traumatic event. The scale consists of 22 items and three subdimensions: hyperarousal, intrusion, and avoidance. Hyperarousal reflects the extent to which the event affects the person. Intrusion refers to the recurrence of distressing thoughts and images related to the trauma beyond the person's control. Avoidance refers to efforts to suppress post-traumatic thoughts and memories from consciousness. These three subdimensions allow respondents to be evaluated from different perspectives.

It is a 5-point Likert-type scale with response options ranging from none, very little, and moderate to quite a lot and extremely. The minimum possible score is 0 and the maximum is 88. A score of 33 or above supports the diagnosis of post-traumatic stress disorder. In the Turkish adaptation study, Cronbach's alpha was .94 [28]. In the present study, Cronbach's alpha for the Impact of Event Scale was .88. Consistent with its use in the literature, the Impact of Event Scale was treated in this study as a measure of post-traumatic stress [29,30].

Multidimensional Perceived Social Support Scale

The Multidimensional Scale of Perceived Social Support (MSPSS) was developed by Zimet et al. [21]. It is a questionnaire in which individuals subjectively evaluate the social support they receive from family, friends, and a significant other. The Turkish validity and reliability study of the scale was conducted by Eker et al. [17]. The scale consists of 12 items and uses a 7-point Likert response format. Each item is rated on a seven-point scale ranging from definitely no to definitely yes. The minimum possible score is 12 and the maximum is 84. Higher scores indicate greater perceived social support, whereas lower scores indicate lower perceived social support. Items 1, 2, 5, and 10 assess support from a significant other; items 3, 4, 8, and 11 assess family support; and items 6, 7, 9, and 12 assess friend support [17]. In this study, Cronbach's alpha for the MSPSS was .93.

Data Analysis

Data were analyzed using SPSS version 22. Whether the data met the assumption of normality was examined using the Kolmogorov–Smirnov test and skewness and kurtosis coefficients. Although the Kolmogorov–Smirnov test was significant ($p < .05$), skewness and kurtosis values fell within ± 2.0 [31], indicating that the distributions did not deviate excessively from

normality; therefore, parametric tests were used (Table 1). Accordingly, the independent-samples *t* test was used for pairwise comparisons, one-way ANOVA was used when more than two groups were compared, and Pearson’s correlation analysis was used to determine relationships between continuous variables. The results were evaluated at the 95% confidence level, with $p < .05$ considered statistically significant.

Table 1. Findings regarding the compliance of the scales with normal distribution

	Kolmogorov-Smirnov			Distortion	Kurtosis
	Statistics	sd	p		
Reliving	.067	202	.029	.269	-.136
Avoiding	.094	202	.000	.419	-.219
Over Stimulation	.075	202	.008	.329	-.448
Impact of Events	.060	202	.073	.355	-.166
Family	.140	202	.000	-.968	.407
Friends	.132	202	.000	-.402	-.674
Significant other	.103	202	.000	.007	-1.198
Multidimensional Perceived Social Support	.106	202	.000	-.568	-.199

Ethical Considerations

Ethical approval for the study was obtained from the Akdeniz University Social and Human Sciences Scientific Research and Publication Ethics Committee (decision no. 211, dated 13.04.2023). The study was conducted in accordance with the ethical principles of the Declaration of Helsinki. Before the interviews, participants were informed that they could withdraw from the study at any time, and written informed consent was obtained.

RESULTS

Sociodemographic Characteristics of the Participants

The mean age of the participants was 47.44 (SD = 13.30). Of the participants, 28.2% were female and 71.8% were male. Regarding educational status, 6.9% were illiterate, 5.9% were literate, 33.2% were primary school graduates, 10.4% were secondary school graduates, 27.7% were

high school graduates, and 15.8% were university graduates. In total, 16.3% of the participants were single and 83.7% were married. Regarding occupation, 20.8% were unemployed, 25.2% were farmers, 7.4% were civil servants, 30.2% were workers, 8.4% were small business owners, and 8.0% were daily wage workers. In terms of income level, 42.6% were in the low-income group and 57.4% were in the middle-income group. Finally, 60.4% of the participants reported receiving social support, whereas 39.6% did not.

While 60.4% of the participants were at home during the fire, 39.6% were outside. When the financial losses experienced after the fire were examined, 86.1% of the participants reported material losses. More specifically, 25.7% lost their houses completely, 17.3% reported that their houses were partially or slightly damaged, 10.4% lost both their houses completely and their livelihoods (loss of agricultural land), 23.3% lost their houses completely and their livelihoods, and 9.4% reported partial or minor damage to their houses together with loss of livelihood due to the loss of agricultural land.

Table 2. Total scores related to impact of Events Scale And Multidimensional Perceived Social Support Scale and sub-dimensions

Scales and Sub-Dimensions	\bar{x}	ss	min	max
Reliving	13.46	6.21	1.00	30.00
Avoiding	9.87	4.99	.00	25.00
Over Stimulation	7.63	4.65	.00	19.00
Impact of Events	30.96	13.76	3.00	68.00
Family	21.38	6.11	4.00	28.00
Friends	17.29	6.48	4.00	28.00
Significant other	14.07	6.73	4.00	28.00
Multidimensional Perceived Social Support	52.75	15.74	12.00	84.00

When the participants' mean IES scores were examined, the mean score for the intrusion sub-dimension was 13.46 (SD = 6.21), for the avoidance subdimension 9.87 (SD = 4.99), for the hyperarousal subdimension 7.63 (SD = 4.65), and for the total IES score 30.96 (SD = 13.76). For

the MSPSS, the mean score for the family support subdimension was 21.38 (SD = 6.11), for the friend support subdimension 17.29 (SD = 6.48), for the significant other support subdimension 14.07 (SD = 6.73), and for the total MSPSS score 52.75 (SD = 15.74) (Table 2).

Table 3. Comparison of the impact of Events Scale and Multidimensional Perceived Social Support Scale according to the sociodemographic characteristics of the participants

Variables	n	Impact of Events	Multidimensional Perceived Social Support	
Gender	Female	57	35.75 ± 13.16	54.49 ± 14.61
	Male	145	29.08 ± 13.58	52.06 ± 16.16
	<i>T</i>		3.168	.984
	<i>P</i>		0.002	0.326
Level of Education	Not literate	14	38.57± 16.26	40.64 ± 16.61
	Literate	12	38.00± 11.36	49.91 ± 16.46
	Primary school degree	67	29.49± 14.48	52.71 ± 15.53
	Secondary school degree	21	32.33± 10.65	52.71 ± 15.98
	High school degree	56	31.14± 13.33	53.17 ± 15.70
	University degree	32	26.87± 12.99	58.46± 13.30
	<i>F</i>		2.316	2.694
<i>P</i>		0.045	0.022	
Marital Status	Single	33	33.21 ± 13.54	61.00 ± 13.02
	Married	169	30.52 ± 13.80	51.14 ± 15.76
	<i>T</i>		1.025	3.833
	<i>P</i>		0.307	0.000

Occupation	Unemployed	42	33.88 ± 14.98	51.88 ± 13.50
	Farmer	51	31.54 ± 14.79	44.50 ± 17.64
	Civil servant	15	31.26 ± 16.58	55.33 ± 16.29
	Worker	61	30.21 ± 12.14	56.77 ± 15.27
	Small business	17	28.57 ± 7.34	57.64 ± 9.27
	Daily worker	16	26.68± 15.43	58.37 ± 12.16
	<i>F</i>		0.850	4,856
	<i>P</i>		0.516	0.000
Perceived Income status	Low	86	31.34± 15.82	47.79± 17.85
	Middle	116	30.68± 12.08	56.43± 12.88
	<i>T</i>		0.327	-3.813
	<i>P</i>		0.744	0.000
Place exposed to fire	At home	122	33.96± 13,85	52,29± 16,50
	Out of home	80	26.38± 12,37	53.45± 14.59
	<i>T</i>		3,964	-,509
	<i>P</i>		0.000	0.611
Nature of loss	Total loss of house	52	28,96± 15.19	56,17± 16,44
	House with minör damage	35	26,51± 14.65	50,74± 14,91
	Loss of livelihoods	21	33,23± 12,32	55,90± 16,56
	Total loss of house and livelihood	47	37,36± 13,38	45,53± 15,60
	House with minör damage and loss of livelihood	19	27,10± 12.55	53,15± 17,07
	<i>F</i>		4,093	3,190
	<i>P</i>		0.003	0.015

$p < 0.05$

A statistically significant difference was found in the total IES score according to participants' gender. Women had a higher mean IES score than men. There was no statistically significant gender difference in the total MSPSS score (Table 3).

The total IES score differed significantly according to participants' educational status. Post hoc analysis showed that participants who were illiterate or only literate, that is, those with the lowest educational level, had higher IES scores than those with higher levels of education (Table 3).

There was no statistically significant difference in the total IES score according to marital status.

For the MSPSS, however, the total score differed significantly, with single participants reporting higher perceived social support than married participants (Table 3).

The mean IES scores did not differ significantly according to participants' occupations. However, a statistically significant difference was found in the total MSPSS score according to occupation. Post hoc analysis showed that workers, tradesmen, and daily wage workers had higher mean MSPSS scores than farmers (Table 3).

There was no statistically significant difference in the total IES score according to income level. For the MSPSS, the mean score of the middle-in-

come group was higher than that of the low-income group (Table 3).

A statistically significant difference was found in total IES scores according to participants' location at the time of the fire. Participants who were at home during the fire had higher total IES scores than those who were outside at the time of the fire. There was no statistically significant difference in the total MSPSS score (Table 3).

The total IES score differed significantly according to the losses experienced by the participants after the fire. Participants who lost both their homes and livelihoods had higher total IES scores than participants whose houses were only slightly damaged. The mean MSPSS scores also differed significantly according to the type of loss experienced. Participants who lost only their homes had higher total MSPSS scores than those who lost both their homes and livelihoods (Table 3).

Table 4. Relationship between the impact of Events Scale and the Multidimensional Perceived Social Support Scale Score averages

		Reliving	Avoiding	Over Stimulation	IES	Family	Friends	Significant other	MPSS
Reliving	r	1							
	p								
Avoiding	r	.471*	1						
	p	.000							
Over Stimulation	r	.740*	.694*	1					
	p	.000	.000						
IES	r	.872*	.810*	.924*	1				
	p	.000	.000	.000					
Family	r	-.185*	-.467*	-.396*	-.387*	1			
	p	.008	.000	.000	.000				
Friends	r	-.138	-.108	-.082	-.129	.393*	1		
	p	.050	.128	.249	.067	.000			
Significant other	r	-.080	-.211*	-.018	-.119	.377*	.700*	1	
	p	.260	.003	.801	.093	.000	.000		
MPSS	r	-.163*	-.316*	-.195*	-.254*	.711*	.863*	.862*	1
	p	.021	.000	.005	.000	.000	.000	.000	

*: $p < 0.05$

The relationship between the IES and MSPSS mean scores of the participants was examined. A statistically significant low negative correlation was found between the total MSPSS score and the total IES score. Specifically, there was a low negative correlation between the MSPSS and IES total scores ($r = -.254$, $p < .001$). There was also a moderate negative correlation between the IES avoidance subdimension and total MSPSS score ($r = -.467$, $p < .001$) as well as family support ($r = -.316$, $p < .001$). In addition, the IES hyperarousal subdimension was moderately negatively correlated with family support

($r = -.396$, $p < .001$). Finally, the total IES score was moderately negatively correlated with family support ($r = -.387$, $p < .001$) (Table 4).

DISCUSSION

In this study, the relationship between perceived social support and post-traumatic stress was evaluated two years after a fire disaster. The findings show that post-traumatic stress levels remained high in women two years after the disaster (35.75 ± 13.16). This finding is con-

sistent with the literature indicating that women have a high probability of experiencing post-traumatic stress disorder (PTSD) long after disasters [32,33,25]. The persistence of post-traumatic stress in women over the long term may be related to greater vulnerability to destructive events [34], genetic and physiological differences, differences in social roles and expectations [35], and difficulties in fulfilling responsibilities because of losses experienced after the disaster [36]. These findings indicate that the long-term psychological effects of disasters may be especially pronounced in women.

Another finding of the study was that post-traumatic stress differed according to participants' location at the time of the fire. Specifically, post-traumatic stress levels were higher among participants who were caught in the fire while at home than among those who were away from home. In our study, participants who encountered the fire disaster while at home had high post-traumatic stress levels two years after the disaster (33.96 ± 13.85). In a study by Heir et al. [32] of Scandinavian tourists from tsunami-affected areas in Southeast Asia, participants exposed to danger reported more symptoms of post-traumatic stress disorder (PTSD) than those not exposed to danger. Similarly, Fontalba-Navas et al. [37] found that greater physical risk during a disaster was positively associated with the development of PTSD symptoms. Thus, our findings are in line with previous studies indicating that exposure level at the time of the disaster affects post-traumatic stress.

Our study also showed that the participants experienced serious losses as a result of the fire disaster. Although two years had passed since the disaster, post-traumatic stress levels remained high among people who had completely lost both their homes and livelihoods (37.36 ± 13.38). Similarly, a previous study conducted after a fire disaster reported that post-traumatic stress levels were significantly higher among individuals who lost their homes and livelihoods than among other participants [30]. In a study conducted by Fontalba-Navas et al. [37] in regions affected by severe flooding, post-disaster PTSD symptoms were found to be elevated among disaster-exposed individuals, with financial losses emerging as a decisive factor in the development of such psychological

problems. Likewise, Wu et al. [38], in a study of survivors of the Chi-Chi earthquake in Taiwan, found that people with low socioeconomic status one year after the disaster reported higher levels of PTSD symptoms. These findings indicate that financial losses and socioeconomic difficulties after disasters have a substantial impact on post-traumatic stress levels.

Another finding of our study was that perceived social support differed significantly according to marital status, occupation, and income level among individuals exposed to the fire. Single individuals reported higher perceived social support than married individuals. Previous studies have similarly reported higher perceived social support among single individuals affected by disasters than among married individuals [39,40,15,11]. In our study, the higher perceived social support observed among single individuals may reflect the fact that they have greater freedom and more opportunities for social interaction than married individuals.

In our study, farmers reported lower perceived social support than participants in all other occupational groups (workers, daily wage workers, tradesmen) as well as those who were unemployed. Wildfires affect some of the world's most vulnerable populations, especially people living in rural areas who depend heavily on land for their livelihoods [41]. For farmers, who depend on agricultural production for income, forest fires may have a more severe impact than for individuals with regular wages or salaried employment. Therefore, social support represents an important resource for farmers facing the threat of wildfires [42].

Significant differences in perceived social support were also found according to participants' income levels. Individuals with higher income levels reported greater perceived social support. Socioeconomic status can influence how people perceive the amount and type of support available to them after a disaster, and inadequate social support can adversely affect mental health [43]. A study by Rosenthal et al. [44] conducted after major fires showed that individuals who lost their homes faced a difficult and prolonged process of rebuilding and resettlement, especially those in the low-income group.

In this study, a low negative correlation was found between perceived social support and

post-traumatic stress among individuals after the forest fire. One of the factors that may reduce the effects of disasters and their enduring mental health consequences is social support. Previous studies have shown that social support in disaster settings has a protective effect against mental health problems [45,46,47]. Likewise, a perceived lack of social support from friends, family, and the broader social environment has been associated with greater psychological distress [48].

LIMITATIONS

This study has several limitations. First, the data were collected two years after the fire disaster; therefore, the levels of post-traumatic stress and social support in the immediate post-disaster period remain unknown. Second, the findings are limited to individuals who remained in the fire zone and continued to live in areas where forests and habitats had been destroyed. Third, the data were collected during the summer months (June–July), which coincided with the season in which the fires had occurred. This seasonal timing may have influenced participants' post-traumatic stress levels and should therefore be considered a limitation of the study.

Conclusion

This study provides an overview of mental health problems in the aftermath of a wildfire disaster. Our findings indicate that mental health problems persist in some disaster-exposed groups—women, those who lost their entire homes and livelihoods, and those who were exposed to the fire while at home—even two years after the disaster. These results highlight the importance of mental health services for people affected by fires, not only to help them recover from the initial shock of the disaster but also to alleviate the symptoms of prolonged and recurrent trauma.

Considering climate change and the increasing frequency of forest fires in Mediterranean climates, local and central policymakers need to take disaster-related health, social, and economic recovery services into account and plan innovative structural solutions.

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REFERENCES

1. Shaluf IM. *An overview on disasters. Disaster Prevention and Management: An International Journal*, 2007;16(5), 687-703. DOI: 10.1108/09653560710837000
2. Erkal T, Değerliyurt M. *Türkiye'de Afet Yönetimi. Doğu Coğrafya Dergisi*, 2009; i(22), 147-164. In Turkish.
3. Eshghi K, Larson RC. *Disasters: lessons from the past 105 years. Disaster Prevention and Management: An International Journal*. 2008;17(1), 62-82. DOI: 10.1108/09653560810855883
4. *United Nations International Strategy for Disaster Reduction (UN-ISDR). 2009. UN-ISDR terminology on disaster risk reduction.* UN-ISDR, Geneva, Switzerland. Access address: <http://www.unisdr.org/we/inform/terminology> Date of access: 09.03.2024
5. Bilgili E, Başkaya Ş, Küçük Ö, Hacıoğlu H, Kurtulmuşlu M, Yüksel E, Kol M. *Fire Management and Associated Public Policies in Turkey.* International Forest Fire News (IFFN). 2005; (33), 62-69.
6. Sivakumar MV. *Impacts of natural disasters in agriculture, rangeland and forestry: an overview. Natural disasters and extreme events in agriculture: Impacts and mitigation.* 2005; 1-22. DOI: 10.1007/3-540-28307-2_1
7. UNEP. Access address: <https://www.unep.org/news-and-stories/story/climate-changes-world-grapples-wildfire> Date of access: 01.03.2024
8. Doğan M. İklim değişikliği ve turizm. IJOPEC Publication. UNWTO (2019), 'Overtourism. 2023; 156-169. In Turkish.
9. T.C. Çevre ve Şehircilik Bakanlığı Antalya İli Manavgat İlçesi Yangın Afeti Hasar Tespit Raporları 09 Ağustos 2021. [Republic of Türkiye Ministry of Environment and Urbanization Antalya Province Manavgat District Fire Disaster Damage Assessment Reports].
10. Kaya Kılıç A, Uğur SB. *Psiko-sosyal ve ekonomik kayıplarıyla Manavgat yangını.* Sosyal, Beşerî ve İdari Bilimler Alanında Uluslararası Araştırmalar XIX, 89102. 2023, In Turkish.
11. Dai W, Chen L, Tan H, Wang J, Lai Z, Kaminga AC, Liu A. *Association between social support and recovery from post-traumatic stress disorder after flood: a 13–14 year follow-up study in Hunan, China.* BMC Public Health. 2016; 16(1), 1-9. DOI 10.1186/s12889-016-2871-x
12. American Psychiatric Association. *Diagnostic and statistical manual of mental disorders: DSM-5 (5)*. 2014; Washington, DC: American Psychiatric Association.
13. Işıklı E, Keser S. *Travma Sonrası Stres Bozukluğunda Duygular ve Duygu Düzenleme.* Ankara: Türkiye Klinikleri. 2020, In Turkish.

14. Doğan T, Erdur Ö. Afetler, Travmalar, Krizler ve Travmatik Stres Tepkileri. Ankara: Türk PDR Derneği Yayınları.2014, In Turkish.
15. Guo S, Tian D, Wang X, Xiao Y, He H, Qu Z, Zhang X. *Protective effects of social support content and support source on depression and its prevalence 6 months after Wenchuan earthquake.* Stress and Health. 2015; 31(5), 382-392. DOI: 10.1002/smi.2563
16. Platt JM, Lowe SR, Galea S, Norris FH, Koenen KC. *A longitudinal study of the bidirectional relationship between social support and posttraumatic stress following a natural disaster.* Journal of Traumatic Stress. 2016; 29(3), 205-213. DOI: 10.1002/jts.22092
17. Eker D, Arkar H, Yaldız H. *Çok Boyutlu Algılanan Sosyal Destek Ölçeğinin Gözden Geçirilmiş Formunun Faktör Yapısı, Geçerlik ve Güvenirliliği.* Türk Psikiyatri Dergisi.2001; 12(1), 17-25. In Turkish.
18. Drogendijk AN, van der Velden PG, Gersons BP, Kleber RJ. *Lack of perceived social support among immigrants after a disaster: Comparative study.* The British Journal of Psychiatry.2011; 198(4), 317-322. doi:10.1192/bjp.bp.110.077644
19. Malecki CK, Demaray MK. *What type of support do they need? Investigating student adjustment as related to emotional, informational, appraisal, and instrumental support.* School psychology quarterly. 2003; 18(3), 231. DOI: 10.1521/scpq.18.3.231.22576
20. Gottlieb BH, Bergen AE. *Social support concepts and measures.* Journal of psychosomatic research. 2010; 69(5), 511-520. DOI: 10.1016/j.jpsychores.2009.10.001
21. Zimet GD, Powell SS, Farley GK, Werkman S, Berkoff K. *APsychometric characteristics of the multidimensional scale of perceived social support.* Journal of personality assessment. 1990; 55(3-4), 610-617.
22. Önder E, Tural Ü, Aker T, Kılıç C, Erdoğan S. *Prevalence of psychiatric disorders three years after the 1999 earthquake in Turkey: Marmara Earthquake Survey (MES).* Social psychiatry and psychiatric epidemiology. 2006; 41(11), 868-874. DOI: 10.1007/s00127-006-0107-6
23. Neria Y, Nandi A, Galea S. *Post-traumatic stress disorder following disasters: a systematic review.* Psychological medicine. 2008; 38(4), 467-480. DOI: 10.1017/S0033291707001353
24. Morina N, Wicherts JM, Lobbrecht J, Priebe S. *Remission from post-traumatic stress disorder in adults: a systematic review and meta-analysis of long term outcome studies.* Clinical psychology review. 2014; 34(3), 249-255. DOI: 10.1016/j.cpr.2014.03.002
25. Acharya Pandey R, Chalise P, Khadka S, Chaulagain B, Maharjan B, et al. *Post-traumatic stress disorder and its associated factors among survivors of 2015 earthquake in Nepal.* BMC Psychiatry. 2023; 23(1), 340. DOI: 10.1186/s12888-023-04836-3
26. Faul F, Erdfelder E, Buchner A, Lang AG. *Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses.* Behavior research methods. 2009; 41(4), 1149-1160. DOI: 10.3758/BRM.41.4.1149
27. Weiss D. *The Impact of Event Scale: Revised* In Cross-Cultural Assessment of Psychological Trauma and PTSD. 2007; Boston: International and Cultural Psychology Series.
28. Çorapçıoğlu A, Yargıç İ, Geyran P, Kocabaşoğlu N. *Olayların Etkisi Ölçeği (IES-R) Türkçe Versiyonunun Geçerlilik ve Güvenirliliği.* New Symposium Journal. 2006; 44(1), 14-22. In Turkish.
29. Sattler DN, Claramita M, Muskavage B. *Natural disasters in Indonesia: Relationships among posttraumatic stress, resource loss, depression, social support, and posttraumatic growth.* Journal of Loss and Trauma. 2018; 23(5): 351-365. <https://doi.org/10.1080/15325024.2017.1415740>
30. Kaya Kılıç A, Uğur SB, Bademli K. *The Relationship Between Post-Traumatic Stress, Hopelessness and Resources Adequacy in Fire Disaster Survivors: A Mediation Analysis.* Clinical Social Work Journal. 2024; 1-12. <https://doi.org/10.1007/s10615-024-00956-9>
31. George D, Mallery P. *SPSS for Windows Step by Step A Simple Guide and Reference 17.0 Update (10th Edition b.).* 2010; Pearson,Boston.
32. Heir T, Rosendal S, Bergh-Johannesson K, Michel PO, Mortensen EL, Weisæth L, Hultman CM. *Tsunami-affected Scandinavian tourists: Disaster exposure and post-traumatic stress symptoms.* Nordic Journal of Psychiatry 2011; 65(1), 9-15. DOI: 10.3109/08039481003786394
33. Bryant RA, Waters E, Gibbs L, Gallagher HC, Pattison P, Lusher D, Forbes D. *Psychological outcomes following the Victorian Black Saturday bushfires.* Australian & New Zealand Journal of Psychiatry. 2014; 48(7), 634-643. <https://doi.org/10.1177/0004867414534476>
34. Düger Y, Yaman M. *Doğal Afetler Bağlamında Kadına Yönelik Cinsiyet Temelli İnsan Hakları İhlalleri.* Karamanoğlu Mehmetbey Üniversitesi Sosyal Ve Ekonomik Araştırmalar Dergisi. 2022; 24(43), 931-952. In Turkish.
35. Norris FH, Perilla JL, Ibañez GE, Murphy AD. *Sex differences in symptoms of posttraumatic stress: Does culture play a role?.* Journal of Traumatic Stress. 2001; 14, 7-28.
36. Demirci K, Avcu T. *Afet Süreçlerinde Kadın Bireylerin Yaşadığı Sorunlar ve Çözüm Önerileri: İzmir İli Örneği.* Batman Üniversitesi Yaşam Bilimleri Dergisi. 2021; 11(1), 86-105. In Turkish.
37. Fontalba-Navas A, Lucas-Borja ME, Gil-Aguilar V, Arrebola JP, Pena-Andreu JM, Perez J. *Incidence and risk factors for post-traumatic stress disorder in a population affected by a severe flood.* Public Health. 2017; 144, 96-102. <https://doi.org/10.1016/j.puhe.2016.12.015>
38. Wu YC, Hung FC, Chen SH. *"Changes or not" is the question: The meaning of posttraumatic stress reactions one*

- year after the Taiwan chi-chi earthquake. *Journal of the Chinese Institute of Engineers*. 2002; 25(5), 609-618. DOI: 10.1080/02533839.2002.9670735
39. Ke X, Liu C, Li N. *Social support and Quality of Life: A cross-sectional study on survivors eight months after the 2008 Wenchuan earthquake*. *BMC Public Health*. 2010; 10, 1-11.
 40. Arnberg FK, Melin L. *Can demographic and exposure characteristics predict levels of social support in survivors from a natural disaster?* *Plos one*. 2013; 8(6), e65709. doi:10.1371/journal.pone.0065709
 41. Kouassi JL, Wandan N, Mbow C. *Exploring wildfire occurrence: local farmers' perceptions and adaptation strategies in central Côte d'Ivoire, West Africa*. *Journal of Sustainable Forestry*. 2022; 41(2), 173-192. <https://doi.org/10.1080/10549811.2020.1845744>
 42. McGee TK, Russell S. *It's just a natural way of life... an investigation of wildfire preparedness in rural Australia*. *Global Environmental Change Part B: Environmental Hazards*. 2003; 5(1), 1-12. DOI: 10.1016/j.hazards.2003.04.001
 43. Jones E, Gupta S, Murphy A, Norris F. *Inequality, socioeconomic status, and social support in post-disaster mental health in Mexico*. *Human Organization*. 2011; 70(1), 33-43.
 44. Rosenthal A, Stover E, Haar RJ. *Health and social impacts of California wildfires and the deficiencies in current recovery resources: An exploratory qualitative study of systems-level issues*. *PloS One*. 2021; 16(3), e0248617. <https://doi.org/10.1371/journal.pone.0248617>
 45. Kaniasty K, Norris FH. *Longitudinal linkages between perceived social support and posttraumatic stress symptoms: Sequential roles of social causation and social selection*. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies*. 2008; 21(3), 274-281. DOI: 10.1002/jts.20334
 46. Chan CS, Lowe SR, Weber E, Rhodes JE. *The contribution of pre-and postdisaster social support to short-and long-term mental health after Hurricanes Katrina: A longitudinal study of low-income survivors.* *Social Science & Medicine*. 2015; 138, 38-43. <https://doi.org/10.1016/j.socsci-med.2015.05.037>
 47. Cherry KE, Sampson L, Nezat PF, Cacamo A, Marks LD, Galea S. *Long-term psychological outcomes in older adults after disaster: relationships to religiosity and social support*. *Aging & Mental Health*. 2015; 19(5), 430-443. <https://doi.org/10.1080/13607863.2014.941325>
 48. Sugimoto T, Umeda M, Shinozaki T, Naruse T, Miyamoto Y. *Sources of perceived social support associated with reduced psychological distress at 1 year after the Great East Japan Earthquake: Nationwide cross-sectional survey in 2012.* *Psychiatry and Clinical Neurosciences* 2015; 69(9), 580-586. doi:10.1111/pcn.12235