

Secondary Traumatic Stress Symptoms in Social Media Users after the February 6, Kahramanmaraş Türkiye Earthquakes: The Relationship with Social Media Addiction, Depression, Anxiety and Stress Symptom Levels



Onur GÖKÇEN¹, Kader Semra KARATAŞ², Merve AKKUŞ³, Feyza DÖNMEZ⁴,
Çiğdem AYDOĞAN⁵, Elif AYDOĞAN⁶

ABSTRACT

Objective: The content shared on social media may cause secondary traumatic stress (STS) symptoms. The aim of this study is to evaluate the severity of social media related STS and the associated factors in university students who were not directly affected by the February 2023 earthquakes.

Method: In total, 436 university students completed an online survey including the Secondary Traumatic Stress Scale for Social Media Users (STSS-SM), the Bergen Social Media Addiction Scale (BSMAS), the Depression Anxiety Stress Scales (DASS-42), and demographic information and questions regarding social media use preferences after the earthquake.

Results: A large portion of the participants (79.1%) reported that they followed the news about the February 2023 earthquakes on social media instead of other media tools. STS associated with social media addiction, depression, anxiety and stress levels ($r=0.475$ $p<0.001$; $r=0.543$ $p<0.001$; $r=0.583$ $p<0.001$; $r=0.591$ $p<0.001$). Multiple linear regression analysis revealed that, female gender, social media addiction and anxiety levels predicted STS and explained 43.3% of the total variance. STS symptoms were higher in those who followed the earthquake-related news on social media ($t=3.534$ $p<0.001$) and in those who reported that Twitter was their preferred social media platform to access information regarding the earthquake (40.8%; ($t=6.376$ $p=0.002$)).

Conclusion: Social media has been widely used for news gathering following the February 2023 earthquakes. The results of this study reveal that STS in social media users is affected by gender, social media addiction, depression, anxiety, stress levels and social media platform preference.

Keywords: Earthquake, Secondary Trauma, Social Media Addiction, Depression, Anxiety, Traumatic Stress

INTRODUCTION

The consecutive earthquakes of magnitudes of 7.8 and 7.6 that occurred in Türkiye on February 6, 2023 affected a large number of people in a very large area and resulted in over 50,000 deaths (Hussain et al. 2023). It is known that the prevalence of psychiatric disorders such as post-traumatic stress disorder (PTSD), anxiety disorders and major depressive disorder tends to increase after natural disasters that result in major destruction such as earthquakes (Cerdá et al. 2013, Li et al. 2020).

The psychological distress of those who experienced and survived the earthquake is related to direct exposure to this traumatic experience (Neria et al. 2008). Although not being directly exposed to trauma, it has been stated that individuals who witness the traces of trauma after the event or who are indirectly exposed to trauma may also experience stress symptoms (Vukčević Marković and Živanović 2022). This has been defined as secondary traumatic stress (STS) (Vukčević Marković and Živanović 2022). In order for STS to occur, there must be triggering conditions such as empathy with trauma victims, exposure to traumatizing material, and engaging in activities such as therapy sessions where the trauma

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^{1,3,4}Assis. Prof., ²Assoc Prof., Kütahya Health Sciences University, Department of Adult Psychiatry, Kütahya; ⁵Dr., Bursa Central Emergency Health Services Station No. 03, Bursa; ⁶Dr., Afyonkarahisar Başmakçı District State Hospital, Afyon, Turkey.

e-mail: onurgokcen29@gmail.com

experience is re-enacted (Adams et al. 2006, Choi et al. 2021). In the literature, studies on STS have often been conducted with professionals working in the field of trauma (search and rescue teams, first aid teams and healthcare professionals, etc.) or family members of trauma victims (Greinacher et al. 2019, Setou et al. 2018, Sinclair and Hamill 2007). However, DSM-5 criteria reported that indirectly traumatized family members and professionals who help trauma victims should be considered as PTSD (American Psychiatric Association, 2022). According to DSM-5, the groups included in these studies are now within the scope of PTSD, not STS (Mancini 2019). On the other hand, according to criterion 4A of DSM-5, those who are exposed to the repulsive details of traumatic events through electronic media are excluded from the scope of PTSD (American Psychiatric Association 2022). Therefore, although STS is not defined as a separate diagnostic category in DSM-5, those who are indirectly exposed to trauma only through electronic media can still be considered STS cases since they are not in the scope of PTSD (Mancini 2019).

In today's society, various media channels allow traumatized individuals to easily share their experiences and disaster-related information. Indeed, many previous studies have reported that exposure to disaster-related content through media channels causes secondary trauma symptoms (Ahern et al. 2004, Thompson et al. 2019). Studies conducted especially in those exposed to disaster-related content through television have shown that indirect exposure can cause posttraumatic stress symptoms as much as direct exposure (Jarolmen and Sisco 2005, Holman et al. 2014). It is also found that exposure to trauma through media channels is associated with symptoms of depression and anxiety in some studies (Ahern et al. 2004, Silver et al. 2013, Pfefferbaum et al. 2021).

Social media, which is now as widely used as other media channels, is reported to have 4.76 billion users worldwide in 2023 (wearesocial.com 2023). Türkiye, on the other hand, was reported to be home to 62.55 million social media users in January 2023, equivalent to 73.1 percent of its total population (wearesocial.com 2023). Individuals state that they use social media to connect with others, access news quickly, share information, have fun and for social development (Bekalu et al. 2019). Although some studies have shown positive effects of social media use on mental health, some studies have also reported negative effects such as decreased self-esteem, physical appearance anxiety, eating disorders, decreased life satisfaction, depressive symptoms, and increased suicide risk (Bekalu et al. 2019, Nesi 2020, Sharma et al. 2020). Some researchers have also stated that social media use can be addictive (Andreassen and Pallesen 2014, Andreassen et al. 2017). Spending a lot of time on social media, being overly concerned about social media, acting with a strong motivation to use social media, and using social media in a way that disrupts other social activities have been referred to by different names such as "problematic social

media use" or "social media addiction" (Casale et al. 2023, Mitropoulou et al. 2022). The World Health Organization has emphasized that excessive use of social media has become a public health problem (World Health Organization 2015).

Another problem that social media can cause similar to other media tools is secondary trauma. As with other mass media, it has been reported that exposure to traumatic events or disturbing content on social media platforms can cause trauma (Mancini 2019). In 2014, a study conducted after a ferry accident in Korea reported that social media use was associated with posttraumatic stress symptoms (Park et al. 2018). After natural disasters, social media is used to gather and disseminate information. During the COVID-19 pandemic, social media was widely used for information gathering and dissemination (Merchant and Lurie 2020, Zhu et al. 2020). In two online studies conducted during the pandemic period, social media use was found to be associated with STS (Zhao and Zhou 2020, Zhong et al. 2021). It is known that social media is an effective communication channel used to collect and disseminate information after the earthquake as well as during the pandemic (Peary et al. 2012). It has been observed that the number of studies on secondary trauma related to social media use is much less in the literature (Pfefferbaum et al. 2021). Social media is an area where new research is needed for reasons such as the development of media technology, the formation of new forms and platforms in social media, and the increase in frequency of use (Pfefferbaum et al. 2021, Pfefferbaum et al. 2014).

The successive earthquakes that occurred on February 6, 2023 are an extraordinary disaster that resulted in widespread destruction affecting many provinces in Türkiye. It can be predicted that this natural disaster is likely to affect individuals who are directly affected by the earthquake, as well as those who are exposed to earthquake-related content through social media. Based on this, this study aimed to determine the symptoms of social media-related secondary traumatic stress (STS) in university students who themselves and/or their families were not directly affected by the earthquake and to examine the relationship of the symptom level with social media addiction, anxiety, depression and stress symptom levels.

METHOD

Participants

University students who were not directly affected by the February 6 earthquakes and who received earthquake-related news through media/social media were included in this study. After obtaining ethics committee permission (Kütahya Health Sciences University E-41997688-050.99-91713), the study was conducted online between 01/06/2023-01/09/2023. Consents of the participants were obtained online. In order to reach university students,

invitation messages were shared on popular social media networks used by students. In the invitation message, the purpose and content of the study and that the target group was university students who were not directly affected by the earthquake were stated. In addition, in the online survey, participants were asked whether they were in the earthquake zone during the earthquake and whether their families/relatives were affected by the earthquake. Those who were directly affected by the earthquake and those whose families or relatives were affected by the earthquake were not included in the evaluation. Two dummy questions (attention control items: e.g. "please select '5' for this question") were also included to improve response quality. 452 university students participated in the study, 10 of them were excluded due to stating that they were directly affected by the earthquake, and 6 of them were excluded because they answered the dummy question incorrectly, and the answers of 436 participants were evaluated.

Measures

Sociodemographic Data Form: Participants were administered a sociodemographic data form consisting of questions specially prepared by the authors for this study. Age, gender, history of psychiatric disorder currently being treated, and place of residence were asked. In addition, questions about media use preferences and routines were prepared by analyzing the questions used in similar studies (Jeri-Yabar et al. 2019, Zhao and Zhou 2020, Zhong et al. 2021). The question "Which sources did you primarily prefer to follow the news regarding the earthquake?" was asked to find out the preferred media type to access earthquake-related content. To determine social media use preferences, the question "Which social media platforms do you use?" was asked. More than one answer could be given to this question. In addition, the social media platform preferred to access earthquake-related content was also asked with the question "Which is your primarily preferred social media platform to get information regarding the earthquake?"

In addition to these questions evaluating preference priorities, some social media addiction scales have been used in the medical literature to assess social media use. In addition to duration and frequency, these scales aim to assess other areas such as prioritizing use over other activities (Jeri-Yabar et al. 2019, Zhong et al. 2021, Zhao and Zhou 2020, Casale et al. 2023). Therefore, the Bergen Social Media Addiction Scale was also used to assess social media use in the study.

Bergen Social Media Addiction Scale (BSMAS): A modified version of the Bergen Facebook Addiction Scale, the BSMAS was developed in 2016. It is one of the most widely used scales for the assessment of social media addiction and problematic social media use (Andreassen et al. 2016, Doan et al. 2022, Mitropoulou et al. 2022). It is a five-point Likert-type scale consisting of six items measuring mental occupation, mood

change, conflict, unsuccessful quit attempts, tolerance and withdrawal, which correspond to the basic addiction criteria (Andreassen et al. 2016, Demirci 2019).

The Secondary Traumatic Stress Scale for Social Media Users (STSS-SM): The STSS-SM was developed in 2019. It was created to measure avoidance, arousal and aggression symptoms in people indirectly exposed to traumatic experiences through social media. It is a 17-item five-point Likert-type scale consisting of three sub-dimensions (Mancini, 2019). In 2021, the scale was adapted into Turkish and has a single-factor structure instead of the three-factor structure of the original (Çelik and Altınışık 2019).

The Depression Anxiety Stress Scales (DASS-42): This scale was developed in 1995 and adapted into Turkish in 2010. The DASS-42 is a 42-item, clinically validated scale that includes three subscales designed to measure negative emotional states of depression, anxiety and stress. (Bilgel and Bayram, 2010; Lovibond, 1995). Each subscale consisted of fourteen questions. The scores range between zero and forty-two for each subscale, and the total score can vary between zero and one hundred and twenty-six (Bilgel and Bayram, 2010; Lovibond, 1995). High scores obtained from each of the depression, anxiety and stress dimensions indicate that the level of depression or anxiety or stress symptom is high.

Statistical Analysis

All the statistical analyses were performed using IBM SPSS version 25.0 (SPSS Inc., Chicago, Illinois, USA). Descriptive analyses of sociodemographic data of the participants were given in the form of frequency tables.

When the continuous data of the study were analyzed in terms of normality assumptions, it was determined that the values obtained from the quotients of Skewness and Kurtosis values to their standard errors were within the threshold value range of ± 3.29 and thus showed normal distribution (Mayers 2013). In addition, the data set was also examined in terms of scatter and histogram graphs to check its conformity to normal distribution (Wilcox 2012, Thode 2002). In the evaluation of the normally distributed findings, Pearson correlation analysis, one of the parametric tests, was used to determine the relationship between scale and subscale scores. In addition, independent sample t-test and one-way ANOVA test, which are parametric tests, were applied to determine whether there was a significant difference between the scale and subscales and the sociodemographic data of the participants. In case of a significant difference between the groups, Sidak test, one of the post-hoc tests, was used to determine which groups the significance was between. $p < 0.05$ was considered statistically significant. Univariate and multivariate linear regression analyses were performed to determine the variables predicting secondary traumatic stress (Tabachnick and Fidell 2001).

RESULTS

The results of the analyses related to the comparison of the scale and subdimension scores applied to the participants and various variables are given in Table 2. According to the results of this analysis, women were found to have higher STSS-SM total scores ($t=6.044$ $p<0.001$), BSMAS total scores ($t=3.022$ $p=0.003$), depression ($t=3.214$ $p=0.002$), anxiety ($t=4.401$ $p<0.001$) and stress ($t=5.374$ $p<0.001$) scores than men (Table 2).

Those who reported that they followed earthquake-related news from social media had higher STSS-SM total scores ($t=3.534$ $p<0.001$), BSMAS total scores ($t=3.152$ $p=0.002$), depression ($t=3.324$ $p=0.001$), anxiety ($t=2.161$ $p=0.032$) and stress ($t=2.919$ $p=0.004$) scores than those who followed the news from newspaper/TV/radio.

Those who used Twitter to get information about the earthquake had higher STSS-SM scores compared to the other groups ($t=6.376$ $p=0.002$). According to the results of Sidak Post-Hoc analysis, there is a statistically significant difference between those who use Twitter and those who use Instagram ($p=0.007$) and other platforms ($p=0.011$). In addition, the total scores of Twitter users were found to be higher than the other groups in the BSMAS ($t=6.164$ $p=0.002$) and according to the results of Sidak Post-Hoc analysis, there was a statistically significant difference between those who use Twitter and those who use Instagram ($p=0.004$) and other platforms ($p=0.039$).

When the results of the multivariate model were analyzed, being female ($p<0.001$), total score of the BSMAS ($p<0.001$) and anxiety score ($p<0.001$) were associated with the total score of the STSS-SM. Approximately 43.3% of the total variance of the STSS-SM score is explained by the model.

DISCUSSION

This study shows that STS was associated with social media addiction score, depression, anxiety and stress symptom severity in social media users after the February 2023 earthquake. In addition, according to the multivariate linear regression analysis model; being female, social media addiction score and severity of anxiety symptoms predict STS. In previous studies, it was reported that exposure to media content in wars, terrorist attacks and natural disasters such as earthquakes and tsunamis was associated with secondary trauma symptoms (Holman et al. 2014, Pfefferbaum et al. 2014, Pfefferbaum et al. 2021, Silver et al. 2013, Thompson et al. 2019,). On the other hand, although the results are more heterogeneous, exposure to disaster-related content through various media channels has also been shown to be associated with depression and anxiety symptoms (Pfefferbaum et al. 2021). It is known that post-disaster depression and anxiety symptoms are associated with stress reactions and are often

Table 1. Participant characteristics (n=436)

	n or Median (Min-Max)	% or Mean \pm SD
Age (years)	21.0 (18.0-44.0)	21.24 \pm 2.40
Gender		
Female	340	78.0
Male	96	22.0
Where do you stay?		
At home with family	207	47.5
Dormitory	114	26.1
Home alone or with a roommate	115	26.4
Which sources did you primarily prefer to follow the news regarding the earthquake?		
Social media	345	79.1
Newspaper/TV/radio	91	20.9
Which social media platforms do you use?*		
Twitter	263	60.3
TikTok	78	17.9
YouTube	330	75.7
Instagram	398	91.3
Facebook	50	11.5
WhatsApp	376	86.2
Reddit	23	5.3
Quora	3	0.7
Telegram	100	22.9
Which is your primarily preferred social media platform to get information regarding the earthquake?		
Twitter	178	40.8
TikTok	4	0.9
YouTube	30	6.6
Instagram	174	39.9
Facebook	2	0.5
WhatsApp	42	9.6
Reddit	2	0.5
Telegram	4	0.9

n=Number, Min=Minimum, Max=Maximum, SD=Standard deviation

*Participants could choose multiple responses.

Table 1 shows the frequency distribution of participants' sociodemographic characteristics and various variables.

Table 2. Comparison of Scale Scores According to the Gender and Characteristics of Media Use

		STSS-SM	BSMAS	DASS-42 depression	DASS-42 anxiety	DASS-42 stress
	n	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
Gender						
Female	340	54.53±12.61	18.79±5.59	17.86±9.97	14.30±9.61	19.79±10.21
Male	96	44.55±14.72	16.80±5.97	14.42±9.06	9.50±8.80	13.91±9.26
t=		6.044	3.022	3.214	4.401	5.374
p=		<0.001	0.003	0.002	<0.001	<0.001
Which sources did you primarily prefer to follow the news regarding the earthquake?		Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
Social media	345	53.51±13.39	18.79±5.62	17.9±10.01	13.71±9.91	19.19±10.42
Newspapers/TV/radio	91	47.87±14.13	16.68±5.86	14.08±8.72	11.49±8.34	15.88±9.40
t=		3.534	3.152	3.324	2.161	2.919
p=		<0.001	0.002	0.001	0.032	0.004
Which is your primarily preferred social media platform to obtain information regarding the earthquake?						
1) Twitter	178	55.1±12.26	19.49±5.41	18.24±10	14.06±9.76	19.83±9.68
2) Instagram	174	50.69±14.51	17.52±5.97	16.40±9.79	12.98±9.89	17.77±10.81
3) Others	84	49.87±14.12	17.63±5.53	16.13±9.63	12.08±8.79	17.19±10.26
F=		6.376	6.164	2.040	1.309	2.614
p=		0.002	0.002	0.131	0.271	0.074
Post-Hoc=		1>2.3	1>2.3	-	-	-

t= Independent Samples Test, F=One Way ANOVA Test, Post-Hoc=Sidak, p<0.05

Table 3. Correlation matrix between STSS-SM, BSMAS and DASS-42 scores (n=436)

		1	2	3	4	5
1- The Secondary Traumatic Stress Scale for Social Media Users (STSS-SM)	r	1				
	p					
2- The Bergen Social Media Addiction Scale (BSMAS)	r	0.475**	1			
	p	<0.001				
3-DASS-42 depression	r	0.543**	0.492**	1		
	p	<0.001	<0.001			
4-DASS-42 anxiety	r	0.583**	0.468**	0.814**	1	
	p	<0.001	<0.001	<0.001		
5-DASS-42 stress	r	0.591**	0.555**	0.848**	0.845**	1
	p	<0.001	<0.001	<0.001	<0.001	

DASS-42: The Depression Anxiety Stress Scales

*Correlation is significant at 0.05 level (Pearson correlation test), **Correlation is significant at 0.01 level (Pearson correlation test)

As seen in Table 3, the relationships between the total and sub-dimension scores of the scales were shown by Pearson correlation analysis.

Table 4. Linear Regression Analysis Results for the Total Score of the STSS-SM

	STSS-SM score													
	Univariate Models						Multivariate Model							
	B	Std. Error	β	t	p	%95 CI		B	Std. Error	β	t	p	%95 CI	
					Lower	Upper							Lower	Upper
Gender (Female)	9.977	1.514	0.302	33.322	<0.001	7.002	12.953	5.662	1.246	0.171	4.543	<0.001	3.212	8.112
BSMAS	1.137	0.101	0.475	11.246	<0.001	0.939	1.336	0.497	0.105	0.208	4.747	<0.001	0.291	0.703
DASS-42 depression	0.755	0.056	0.543	13.460	<0.001	0.644	0.865	0.104	0.102	0.075	1.019	0.309	-0.097	0.305
DASS-42 anxiety	0.831	0.055	0.583	14.967	<0.001	0.722	0.940	0.379	0.103	0.266	3.669	<0.001	.176	0.586
DASS-42 stress	0.788	0.052	0.591	15.263	<0.001	0.687	0.890	0.196	0.111	0.147	1.759	0.079	-0.023	0.414
Constant								28.377	1.849	-	15.345	<0.001	24.742	32.012

CI= Confidence interval, R=65.8, R²=43.3, F=65.62, p<0.001

associated with PTSD (Bonanno et al. 2010). Some studies reviewing media effects have also reported that depression and anxiety symptoms are associated with traumatic stress symptoms (Jenness et al. 2016, Pfefferbaum et al. 2021, Thompson et al. 2019). However, some of the studies on the impact of exposure to media content on mental health have focused only on television broadcasts (Pfefferbaum et al. 2019, Pfefferbaum et al. 2021).

79.1% of the students participating in the study reported that they followed the news regarding the February 6 earthquake on social media. The rate of those who reported that they followed other media, such as newspapers, TV, or radio, is much lower. It is known that young adults are more likely to use social media sources to access disaster-related news compared to their use of traditional media (Jones et al. 2016). In a 2013 study conducted after the Boston Marathon bombing, traditional media use was associated with older age, while new media (online news sites and social media channels) use was associated with younger age (Jones et al. 2016). Social media can provide quick access to information and facilitate communication after social traumatizing events. Especially when accurate information from reliable sources is shared in a timely manner, it can serve as a kind of “psychological first aid” (Brown et al. 2021, Taylor et al. 2012). However, although social media provides direct and fast access to information and facilitates communication, it may have some drawbacks (Bekalu et al. 2019, Berryman et al. 2018, Sharma et al. 2020, Sherlock and Wagstaff 2019). Social media users can be exposed to traumatic content directly by seeing the social media posts of the victims and without any censorship. However, studies reviewing the impact of exposure to traumatic content through social media are still scarce.

In an online study conducted with university students after a plane crash in China in which 123 passengers and 9 crew members lost their lives, self-reported frequency of social media use was found to be associated with indirect trauma symptoms (Li et al. 2024). Most studies examining the impact of social media use were conducted during the pandemic period. In 2020, in a study conducted in China aiming to investigate the relationship between social media use related to Covid-19 and mental health, 512 university students were reached online and it was found that the duration of social media use was associated with STS, depression level, anxiety level and negative affect (Zhao and Zhou 2020). In addition, STS was also shown to be associated with depression and anxiety symptom severity. In addition, greater exposure to disaster news through social media was associated with more severe levels of depression for participants with higher levels of the disaster stressor. Similar to this study, social media use was assessed with a social media addiction scale in an online study conducted with residents of Wuhan, the epicenter of the outbreak during the peak of the COVID-19 pandemic,

and social media use was shown to be associated with both depression and STS (Zhong et al. 2021). The results of these studies are consistent with the results of the present study. However, one of the rare studies reporting contradictory results was conducted in Türkiye in the same period and examined the effect of social media use on depression and anxiety levels in cancer patients, but no relationship was found between social media use and symptom levels (Aşut et al. 2024). In addition to the different results arising from the different characteristics of the sample such as being oncology patients and high education level, the fact that whether social media use is at a problematic level has not been examined with a scale may be a limitation of this research.

There are studies showing the relationship of inappropriate use with depression, anxiety and stress levels by examining whether social media use is problematic or not (Glaser et al. 2018, Sharma et al. 2020, Sherlock and Wagstaff 2019, Wolfers and Utz 2022). In addition to spending a lot of time on social media, these harmful effects have been reported to depend on many different variables that characterize the relationship people establish with social media, such as the purpose of social media use and the emotional bond established with social media use (Bekalu et al. 2019, Berryman et al. 2018, Glaser et al. 2018). These variables indicate social media addiction or problematic social media use (Andreassen et al. 2016, Casale et al. 2023). For these reasons, some studies have preferred to use social media addiction scales instead of frequency and duration criteria when evaluating social media use (Jeri-Yabar et al. 2019, Zhong et al. 2021, Zhao and Zhou 2020). In this study, it was preferred to examine the symptoms of social media addiction, and this variable was found to be associated with depression, anxiety, stress levels and stress symptoms secondary to social media use. There are other studies in the literature that support this finding (Andreassen et al. 2016, Jeri-Yabar et al. 2019, Lopes et al. 2022, Mitropoulou et al. 2022).

A total of 40.8% of the participants reported that the social media platform they used to receive information about the February 6 earthquake was Twitter (renamed “X” in July 2023). Secondary traumatic stress scores were higher in this group. Online data platform Statista reported that there were approximately 18 million Twitter users in Türkiye as of January 2023, making Türkiye the seventh country with the highest number of Twitter users (statista.com 2023). Twitter is known as the leading source of breaking news (Vis 2013). This is probably why the Twitter platform was frequently used to receive and share news after the February 6 earthquake (Argın 2023, Tarakcı 2023). However, it has been reported that there can be a lot of misinformation on the platform and news can be distorted to serve a certain purpose (Argın 2023, Youmans and York 2012). Twitter leaves the responsibility for the content of the post to the creator under its terms of service (x.com, Brown et al.

2021). On the other hand, 39.9% of the participants in this study reported using Instagram to access information about the earthquake (most frequently after Twitter). Instagram's community guidelines state that uncensored violent videos and images can be removed (instagram.com). There are criticisms that Twitter's strict policy of leaving responsibility for content in the hands of users may expose users to content with negative effects (Brown et al. 2021). In addition, messages (tweets) about traumatic events may sometimes be reactive and emotionally charged, and sometimes may express frustration with authority (Argın 2023, García Ramírez et al. 2021). All these reasons suggest that Twitter users may show more secondary traumatic stress symptoms compared to other platform users, or those who show secondary traumatic stress symptoms may prefer to use Twitter due to these features of the platform.

Finally, STS scores of female participants were found to be higher and female gender maintained its relationship with STS in the multivariate linear regression analysis model. In similar studies in the literature, it has been reported that women have higher STS levels after disasters (Holman et al. 2014, Thompson et al. 2019, Zhong et al. 2021).

This study has some limitations. First of all, the study was conducted online. Since the symptoms of the participants were collected online with self-report scales, individuals with symptoms at a clinically diagnostic level could not be identified. In addition, the sample consists mostly of female participants. Therefore, gender-related results should be interpreted with caution. Another limitation is that the participants were only university students. It can be assumed that the frequency of social media use and the use of social media for news gathering may be higher in this young group compared to older age groups. Therefore, the findings cannot be generalized to the whole society. Data collection started four months after the earthquake. Although it was a major disaster that remained on the national agenda for a long time, changes in the content and quality of posts over time may have affected the measurements.

Despite the limitations mentioned above, this study has important outcomes. To our knowledge, this is the first study to assess secondary trauma due to social media use after the catastrophic February 2023 earthquakes. In addition to spending a lot of time on social media to measure social media use, symptoms of social media addiction were also examined, including craving for social media use, worrying about social media use, and using social media in a way that disrupts other activities. The results revealed the relationship between the level of traumatic stress secondary to social media and the levels of social media addiction, depression, anxiety and stress symptoms in university students who were not directly affected by the earthquake. The majority of the university students reported that they preferred social media instead

of traditional media to receive news about the earthquake, supporting that social media has become an important part of our lives. The results of the study suggest that more research should be conducted on the subject so that social media can be used in favor of individuals and appropriate policies can be developed, especially after major traumatic events.

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