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Posttraumatic Growth and Psychological Resilience in Young Adults Exposed to an Earthquake

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ABSTRACT

Objective: The present study aims to examine the factors affecting posttraumatic growth and psychological resilience in young adults who have experienced an earthquake. **Materials and Methods:** In the study, a total of 573 individuals who were affected by the earthquake between May and July 2023 participated in the study, sociodemographic characteristics form, Posttraumatic Growth Inventory (PTGI) and Brief Psychological Resilience Scale (BRS) were used in the study. **Results:** In the study, it was determined that the majority of the participants were women and more than half of them did not lose a first-degree relative in the earthquake. The average PTGI total score of the participants was 52.13±23.89, and the average BRS total score was 18.04±4.46. Between the PTGI and BRS scores was found positive correlation of the participants ($r=0.302$, $p<0.01$). As to the results of the regression analysis, gender, earthquake-related training and earthquake exposure were discovered to be important predictors of PTGI. Additionally, age, gender, marital status and earthquake-related training had a significant effect on BRS ($p<0.01$). **Conclusion:** The present study identified a bidirectional interactional process between PTGI and BRS, as well as a strong association between sociodemographic factors and PTGI.

Keywords: Earthquake, Posttraumatic Growth, Psychological Resilience, Young Adults.

Depreme Yakalanmış Genç Yetişkin Bireylerde Travma Sonrası Büyüme ve Psikolojik Sağlamlık

ÖZ

Amaç: Bu çalışma, depremi deneyimlemiş genç yetişkinlerde travma sonrası büyüme ve psikolojik dayanıklılığı etkileyen faktörleri incelemeyi amaçlamaktadır. **Gereç ve Yöntem:** Araştırmaya, Mayıs ve Temmuz 2023 tarihleri arasında depremden etkilenmiş toplam 573 birey katılmıştır. Araştırmada sosyodemografik özellikler formu, Travma Sonrası Büyüme Envanteri (PTGI) ve Kısa Psikolojik Dayanıklılık Ölçeği (BRS) kullanılmıştır. **Bulgular:** Çalışmada, katılımcıların çoğunluğunun kadın olduğu ve yarısından fazlasının depremde birinci derece yakın kaybı yaşamadığı belirlendi. Katılımcıların ortalama PTGI toplam puanı 52.13±23.89, ortalama BRS toplam puanı ise 18.04±4.46'dir. Katılımcıların PTGI ve BRS puanları arasında pozitif bir korelasyon saptandı ($r=0.302$, $p<0.01$). Regresyon analizi sonuçlarına göre, cinsiyet, depremle ilgili eğitim ve depreme maruz kalma PTGI için önemli belirleyiciler olarak tespit edildi. Ayrıca, yaş, cinsiyet, medeni durum ve depremle ilgili eğitimin BRS üzerinde anlamlı bir etkisi olduğu görüldü ($p<0.01$). **Sonuç:** Bu çalışma, PTGI ve BRS arasında çift yönlü bir etkileşim süreci olduğunu ve sosyodemografik faktörlerin PTGI ile güçlü bir ilişkiye sahip olduğunu ortaya koymuştur.

Anahtar Kelimeler: Deprem, Travma Sonrası Büyüme, Psikolojik Dayanıklılık, Genç Yetişkinler

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INTRODUCTION

Earthquakes are one of the most frequent natural phenomena in the world. In terms of their consequences, they cause the loss of many lives. In the 21st century, the number of earthquakes of magnitude 5 and above was recorded as 36.891 and approximately 732 thousand people lost their lives in these earthquakes (WHO, 2023). According to these data, an average of 1.603 earthquakes occur annually worldwide. Although not all earthquakes cause human casualties, earthquakes of higher magnitude are more destructive and may cause human casualties (PAHO, 2017).

In 2023, one of the most destructive earthquakes in the world was the earthquake with a magnitude of 7.7 on the Richter scale that occurred on February 6, 2023 at 04:17 in the morning in Kahramanmaraş, Turkey. The series of earthquakes shook Kahramanmaraş and 11 other neighboring cities, killing more than 50.000 people, and the region experienced three consecutive major earthquakes (Ünlügenç et al., 2023). It resulted in the destruction of the cities of Kahramanmaraş, Hatay and Adıyaman, especially their central settlements. Approximately 3 million people were directly affected by the earthquake. After the earthquake, hundreds of thousands of people had to leave their city of residence temporarily or permanently (UN, 2023). Such disasters not only cause physical damage in societies but also have long-lasting effects on individuals' psychological resilience and development (Şen, 2021). Although post-earthquake trauma studies have recently gained prominence, it is observed that these studies mainly focus on adults (Hatori & Prakash Bhandary, 2022). Moreover, it is stated that approximately 15% of the population in earthquake-stricken regions experience post-traumatic problems while young adults have a high potential to cope with these problems (Pistoia et al., 2018; Bell et al., 2017).

Earthquakes can cause feelings of panic and fear in individuals due to their severity and sudden occurrence. Furthermore, post-traumatic stress disorder (PTSD), which is a mental problem caused by natural disasters, has been the most studied and recorded problem (Wang et al., 2021). Rapidly changing mood states during and after disasters can disrupt individuals' psychological balance and lead to the emergence of post-traumatic stress symptoms. On the other hand, a growing body of research has found that individuals are affected by a variety of factors following life-threatening events or experiences of extreme stress, as well as subsequent adaptation problems (Smith & Pollak, 2020) Additionally, certain studies suggest that traumatic events can produce some positive outcomes (Guo et al., 2017; van der Velden et al., 2018). Studies focusing on positive psychological changes after traumatic events have increased and this situation was named Post Traumatic Growth by Tedeschi and Calhoun (1995). The concept includes positive changes in individuals when faced with trauma and changes such as perceived changes and growth in the self (Dell'osso et al., 2022). Some people may experience positive growth experiences after traumatic events. Therefore, posttraumatic growth and resilience can be considered synonymous (Smith et al., 2016). Resilience has rapidly gained prominence in the field of disaster mental health, with multiple studies substantiating the notion that resilient individuals demonstrate adaptive behaviors in morale, somatic health and social function following trauma (Chen et al., 2018; Lee et al., 2014; Seo & Lee, 2020). Furthermore, previous studies suggest that enhanced resilience could potentially mitigate feelings of helplessness in the face of setbacks (Duggal et al., 2016). The connections between PTG and resilience remain unclear (Amiri et al., 2021; Galatzer-Levy et al., 2018; Meng et al., 2018; Ueno et al., 2020). For example, Galatzer-Levy et al. (n=54 studies) conducted a trajectory analysis of resilience responses to major life stressors and potential trauma, which revealed that responses to potential trauma are largely shaped not only by the objective nature of the event but also by the personal characteristics and environmental stressors that individuals have before and after the event. In the meta-analysis conducted by Amiri et al. on earthquake survivors (n=21 studies), the findings indicated that individuals who had experienced an earthquake exhibited low levels of post-traumatic growth (PTG). In the same study, it was reported that post-traumatic growth (PTG) levels were higher in adults compared to children and adolescents. Additionally, PTG levels were observed to decrease over time following the traumatic event. In a two-wave longitudinal study by Ueno et al. (2020) on the development of resilience in Japanese adults, it was observed that while the mean values of resilience scores remained unchanged over the two-year period, significant differences were evident at the individual level. Furthermore, it was indicated that the resilience of individuals did not invariably increase with age; in some cases, it was observed to decline. The duration of the effects of traumatic events on individuals may differ for each person. Factors such as gender, education, faith and marital status can be influential (Tang et al., 2017). Both resilience and PTG are processes that follow adversity, and PTG is struggle procedure with the recognition of positive changes (Smith et al., 2016). Given that exposure to disasters, whether direct or indirect, frequently associates with adverse mental health outcomes, it becomes crucial to delve into the relationship between individuals' posttraumatic growth and psychological resilience, especially during this period of public health emergencies in Turkey.

Rapid identification and evaluation of the psychological impacts during a public health emergency can aid in deciding the direction of essential psychological support and inform public health strategies. Therefore, the present study aimed to examine the factors affecting posttraumatic growth and psychological resilience in individuals exposed to the February 6 earthquake.

MATERIALS AND METHODS

Study type

Conducted between May and July 2023, utilizing a descriptive-relational design, this study employed Google Forms for data collection.

Study group

Utilizing G*Power 3.1.9.7 software was used to determine the number of participants. Giving an effect size (d) of 0.3, a statistical power (1-β) of 0.95 and significance level (α) of 0.05, the established minimum sample size amounted to 196 participants. Ultimately, the statistical analysis encompassed 573 young individuals adults aged 18-40 (Walker-Harding et al., 2017). The study focused on young individuals residing in any of the 11 earthquake zones in Turkey that were severely damaged by the 6 February 2023 earthquake and still living in the region three months after the earthquake. In the study, potential participants were first selected through convenience sampling by inviting them to interviews through social networks (Twitter, WhatsApp, Facebook, Instagram, etc.). The study then used snowball sampling to find eligible participants. The survey was distributed over three months, and the sample was selected from people who had experienced the earthquake. All participants were given knowledge regarding the study's goals and the confidentiality of their responses before accessing the survey questions through Google Forms. Participants who agreed to participate were required to provide informed consent before proceeding to answer the survey questions, which were to be completed within a timeframe of 10-15 minutes.

Dependent and independent variables

The independent variables of this research are Age, Gender, Marital status, Education status, Place where the earthquake was experienced, Earthquake-related training, Loss of a relative in the earthquake, Status of the house after the earthquake. The dependent variable is the mean scores of Posttraumatic Growth and Psychological Resilience Scale.

Procedures

Adults exposed to an earthquake socio-demographic characteristics form, Posttraumatic Growth Inventory (PTGI) Scale and Brief Resilience Scale (BRS) Scale, prepared by the researchers in accordance with the literature, were used to collect data.

Sociodemographic Information Form

This form prepared by the researcher includes eight questions: gender, age, educational status, marital status, the location where the earthquake was experienced, whether the respondent received any training on earthquakes, The existence of immediate family members who perished in the earthquake and the condition of the respondent's house after the earthquake.

The Posttraumatic Growth Inventory (PTGI): The scale introduced by Tedeschi and Calhoun (1996) has a Cronbach's alpha value of 0.90. In the Turkish contex Kağan et al. (2012) conducted an assessment of this scale's validity and reliability, yielding the Cronbach's alpha value to be 0.83. The Post-Traumatic Growth Inventory (PTGI) consists of 21 items, scored on a 6-point Likert scale that ranges from 0 (no experience of change) to 5 (significant experience of change). The total score achievable on the scale varies from 0 to 105. High scores on the scale indicate that the person shows a high level of posttraumatic growth and development following a traumatic experience (Kağan et al., 2012). The sub-dimensions of the scale are: "positive change in self-perception (4, 10, 12, 19.), positive change in relationships with others (6, 8, 9, 15, 16, 20, 21), realization of new possibilities (3, 7, 11, 14, 17), change in belief system (5, 18.), and valuing life (1, 2, 3). The current study, the Cronbach's alpha coefficient of the Posttraumatic Growth (PTG) scale was found to be 0.94 for the overall scale, 0.80 for the subgroups of positive change in self-perception, 0.89 for positive change in relationships with others, 0.84 for realization of new possibilities, 0.71 for change in belief system, and 0.79 for valuing life.

The Brief Resilience Scale (BRS): Doğan (2015) completed the Turkish validation and reliability assessment of the scale developed by Smith et al. (2008) (Doğan, 2015). The Cronbach coefficient for the scale 0.83. This scale is structured in Likert-style with six items, each rated from 1 to 5. Importantly, items 2, 4, and 6 use reverse scoring, whereas the rest of the items are scored directly. Elevated cumulative scores on the scale correspond to heightened levels of psychological resilience. The Cronbach's alpha coefficient for the psychological resilience scale was calculated to be 0.71 in the current study

Statistical analysis

Data analysis was performed utilizing SPSS 25.0 software. Significance for the study was determined at $p<0.05$. Cronbach's α coefficient was used in the internal consistency analysis of the scales. The suitability of the research data for normal distribution was tested with Kolmogorov-Smirnov. Number, percentage, mean, standard deviation, spearman correlation and regression analysis were used to analyze the data.

Ethical considerations

Prior to initiating the study, ethical approval (2023-E.66404/64371) was secured from the Scientific Publishing and Ethics Committee at Şırnak University. The individuals who had experienced the earthquake survivors were informed with an explanation regarding the study's objectives, assurance of confidentiality, and the option to withdraw from participation at any point. The study adhered to the principles outlined in the Declaration of Helsinki. Besides, the earthquake survivors were asked to read the "Informed Voluntary Consent Form" and to check the box "I agree to participate in the survey voluntarily" if they agreed to participate in the survey.

RESULTS

In this section, the descriptive features of 573 young adult earthquake survivors who participated in the study and the variables of the Posttraumatic Growth and Brief Psychological Resilience scales are presented. Table 1

shows the descriptive characteristics of all individuals who participated in the study. The majority of the participants were female and the majority had not lost a first-degree relative in the earthquake (Table 1). 64.50% of the participants had an undergraduate or postgraduate degree and 71.20% were single. 86.40% reported that they experienced the earthquake at home, 64.70% reported that they did not receive any training on earthquakes, and 59.90% reported that there was no damage to their homes after the earthquake.

Table 1. Descriptive features of the participants.

Variables		n	%*
Sex	Female	389	67.90
	Male	184	32.10
Education status	1. Literate	14	2.40
	2. Primary school	23	4.00
	3. Middle school	23	4.00
	4. High school	144	25.10
	5. University and higher	369	64.50
Marital status	Married	165	28.80
	Unmarried	408	71.20
Place where the earthquake was experienced	At home	495	86.40
	At work	18	3.10
	Outside	14	2.40
	Other	46	8.10
Earthquake-related training	Yes	202	35.30
	No	371	64.70
Loss of a first-degree relative in an earthquake	Yes	28	4.90
	No	545	95.10
Status of residence after the earthquake	No damage	343	59.90
	Minimal damage	169	29.50
	Moderate damage	37	6.50
	Severe damage	16	2.80
	Demolished	8	1.30
		Mean	**SD**
Age		29.08	10.08
Total		**573**	**100.0**

In the present study, the mean score of the participants in PTGI subgroups were 10.13±5.17 for positive change in self-perception, 16.63±8.81 for positive change in relationships with others, 11.13±6.18 for realization of new possibilities, 6.39± 2.91 for change in the belief system, and 7.46±3.88 for valuing life, respectively. The mean PTGI total score of the participants was 52.13±23.89 and the mean BRS total score was 18.04±4.46 (Table 2). Between the mean PTGI and BRS scores of positive and weak correlation was found the participants (r= .302**, p<0.01) (Table 2).

Table 2. The Posttraumatic Growth Inventory (PTGI) and Brief Resilience Scale (BRS) scores of the participants and their correlation.

	Variables	Mean±SD	1	2	3	4	5		
1	**PTGI Overall**	52.13±23.89	-						
2	Positive change in self-perception	10.13±5.17	0.881**	-					
3	Positive change in relationships with others	16.63±8.81	0.913**	0.724**	-				
4	Realization of new possibilities	11.13±6.18	0.901**	0.770**	0.756**	-			
5	Change in the belief system	6.39±2.91	0.763**	0.667**	0.637**	0.589**	-		
6	Valuing life	7.46±3.88	0.770**	0.640**	0.605**	0.760**	0.592**	-	
7	**BRS Overall**	18.04±4.46	0.302**	0.300**	0.238**	0.267**	0.234**	0.223**	-

**Correlation is significant at the 0.01 level (2-tailed)

Table 3. Interpretation of the participants' descriptive features with PTGI and BRS regression analysis.

	Posttraumatic Growth					Psychological Resilience				
	Unstandardized Coefficients		Standardized Coefficients			Unstandardized Coefficients		Standardized Coefficients		
Model	**B**	**Std. Error**	**Beta**	**t**	**p**	**B**	**Std. Error**	**Beta**	**t**	**p**
(Constant)	50.270	14.814		3.394	0.001	11.829	2.726		4.339	0.000
Age	0.246	0.141	0.104	1.742	0.082	0.087	0.026	0.195	3.324	0.001
Gender	-8.852	2.135	-0.173	-4.146	0.000	1.741	0.393	0.182	4.430	0.000
Marital status	2.951	3.174	0.056	0.930	0.353	1.420	0.584	0.144	2.431	0.015
Education status	0.215	1.144	0.008	0.188	0.851	-0.160	0.211	-0.033	-0.761	0.447
Place where the earthquake was experienced	0.979	1.152	0.035	0.850	0.396	-0.233	0.212	-0.045	-1.097	0.273
Earthquake-related training	-4.239	2.103	-0.085	-2.016	0.044	-1.184	0.387	-0.127	-3.060	0.002
Loss of a relative in the earthquake	0.664	4.803	0.006	0.138	0.890	1.357	0.884	0.064	1.535	0.125
Status of the house after the earthquake	3.373	1.212	0.119	2.782	0.006	-0.343	0.223	-0.065	-1.539	0.124
	R=0.239[a] R Square=0.057 F=4.274 p=0.000					R=0.293[a] R Square=0.086 F=6.610 p=0.000				

B: unstandardized coefficients; Std Error: standard error; Beta: standardized coefficients; R^2: determination coefficient; F: ANOVA; $p<0.05$

Table 3 shows the factors affecting the participants' PTGI and BRS. The effect of the variables examined on PTGI and BRS was found to be significant at a level of $p<0.001$. The influence of qualitative data qualities on PTGI was examined and found to be R=0.239, R2= 0.057, 5.7% of the total variance in the PTGI dependent variable, and the result was statistically significant ($p<0.001$) (Table 3). The effect of characteristics related to qualitative data on BRS was determined and found to be R=0.293, R^2=0.086. A statistically significant outcome was found, indicating that these variables accounted for 8.6% of the total variance in the dependent variable BRS ($p<0.01$) (Table 3). Additionally, gender, earthquake-related training and status of being affected by the earthquake were observed to be significant predictors of PTGI. On the other hand, age, gender, marital status and earthquake-related training were found to have a significant effect on the BRS ($p<0.01$) (Table 3).

DISCUSSION

Various mental problems may be observed in individuals following traumatic stress in the aftermath of a catastrophic disaster such as an earthquake (Lee et al., 2014). Determination of protective factors to improve the well-being and psychological health of individuals is of vital importance in terms of public health (Song et al., 2021). When previous studies are examined, it is observed that the presence of psychological resilience in survivors after the devastating effects of the earthquake supports posttraumatic growth (Lee et al., 2014; Chen et al., 2019; Li & Hu, 2022). In the present study, it was discovered that the posttraumatic growth and psychological resilience levels of the individuals were low although three months had passed after the earthquake. Prior research has underscored the efficacy of conscious rumination interventions, particularly those conducted in the immediate aftermath of a traumatic event, in mitigating the adverse consequences of trauma and enhancing individuals' PTGI levels (Wang et al., 2019; Xu et al., 2022). For example, Garcia et al. found that mindful rumination contributed to PTG in 349 adult trauma survivors after the tsunami and earthquake that hit Chile on February 27, 2010 (Garcia et al., 2016). In the literature, PTGI and BRS have been measured at different time points since the earthquake. In a study conducted by Cao et al. with 1063 survivors of the Chinese earthquake 9.5 years after the earthquake, it was stated that posttraumatic growth was at a low level among the survivors (Cao et al., 2018). In the study conducted by Chen et al. with 122 individuals living in the region most affected by the earthquake after 12-18 months, it was emphasized that while the mean posttraumatic growth was high in the first year, the mean decreased significantly as time passed (Chen et al., 2015). Similarly, when the studies conducted in a similar manner were examined, it was found that the posttraumatic growth averages, which started high, decreased significantly after 1 year (Meng et al., 2018; Amiri et al., 2021; Xu & Liao, 2011). On the other hand, in the study conducted by XI et al. with 607 individuals three months after the earthquake, it was reported that the survivors showed moderate psychological resilience after the earthquake (Xi et al., 2020). Moreover, in several studies, it was determined that the psychological resilience levels of the survivors after the earthquake did not follow a regular course and there were temporal effects (Ueno et al., 2020; Galatzer-Levy et al., 2018; von Soest et al., 2018). This finding is consistent with previous research. Considering these results, it can be said that psychological resilience is significantly related to individual factors. In addition, PTGI may be related to the characteristics of the region of residence, sudden and large economic loss, and decreasing social support over time.

The study also revealed a significant positive correlation between posttraumatic growth and psychological resilience. Similarly, Li et al. reported a positive relationship between posttraumatic growth and psychological resilience in their study (Li et al., 2015). In addition, it was emphasized that individuals with high levels of psychological resilience can recover from trauma with less psychosocial damage, utilize effective coping mechanisms more, and so promote posttraumatic growth by boosting the experience of good change as a result of dealing with difficult life crises (Matheson et al., 2020; Aksu & İmrek, 2023; Matheson et al., 2020). In contrast, the current study found a strong positive association between all sub-dimensions of The Posttraumatic Growth Inventory and the Psychological Resilience Scale. In the literature, it has been stated that individuals with positive self-perception can cope with negative situations in a healthy way, and it has also been stated that individuals with negative self-perception are partially resistant to feedback about themselves and have difficulty in increasing their self-worth (Niveau et al., 2021). On the other hand, it has been emphasized in previous studies that the traumatized person displays a positive attitude in terms of empathy towards others, starts to make more effort and increases their belief and confidence that they are strong (Jung & Han, 2023; Niveau et al., 2021; Pratt et al., 2017). As a matter of fact, individuals who realize the value of life following trauma can create positive changes and live a better life since they are open to change in order to achieve the life they desire (Salawali et al., 2020).

As another finding in the present study, gender, damage to the residence and earthquake-related training emerged as significant determinants of PTGI. The present study revealed that the mean PTGI scores of males, those who did not receive earthquake

training, and those whose houses were not damaged were higher. Prior research has indicated that the impact of gender on posttraumatic growth is multifaceted. For instance, a recent investigation of earthquake survivors six years after the 2010 Yushu earthquake highlighted a notable discrepancy between genders in PTGI scores, with women reporting higher mean PTGI than men (Xie et al., 2020). However, the analysis conducted by Kesnold Mesidor (n=256) revealed no significant gender difference in PTGI mean scores among individuals exposed to the 2010 Haiti earthquake (Kesnold Mesidor, 2019). Furthermore, various studies have demonstrated that men's social, political, and economic influence can facilitate the development of post-traumatic growth (Chang, Yang, and Yu 2017; Dong et al. 2017). Furthermore, the PTGI model posits that the profound impact of traumatic events can fundamentally alter an individual's worldview (Tedeschi & Calhoun, 1996). For individuals lacking training in earthquake preparedness, an earthquake represents an unanticipated and unmanageable disruption. This unanticipated natural phenomenon prompts the individual to reassess their understanding of the world and their place within it. Such a shock can result in a more profound process of meaning-making among those lacking education, which may subsequently enhance their level of growth. Dell'Osso et al. posit that the unexpected nature of trauma facilitates the process of post-traumatic growth by expediting individuals' pursuit of meaning and value in their lives (Dell'osso et al., 2022). Furthermore, individuals lacking training may engage in more intense rumination following a traumatic event. In contrast, individuals with earthquake training may demonstrate a more limited capacity for meaning-making, whereas untrained individuals may engage in more profound reflection and attempt to comprehend the impact of the event (Buchholz, 2015). Conversely, it has been posited that those lacking earthquake training may exhibit heightened levels of PTG, contingent upon their ability to interact with a supportive network and articulate their experiences with those around them (Hao et al., 2023). Furthermore, the present study revealed that the absence of physical damage to living spaces after the earthquake was found to have a positive effect on individuals' posttraumatic growth processes. The ability to maintain the integrity of one's residence may confer a sense of security upon individuals, thereby enabling them to more effectively direct their attention toward the healing process by circumventing the need to address additional material concerns and traumas (Ozturk et al., 2023). As documented in the literature, the presence of a secure physical environment has been linked to feelings of safety, a diminished perception of trauma as a threat, and the promotion of growth through the reduction of anxiety levels (Kimberg and Wheeler, 2019). The results of this finding are consistent with the literature. When the literature is examined, it is stated that exposure to trauma depends on many factors such as the severity and duration of the event, gender, age, social, environmental and cultural factors, the number and proximity of losses, and the damage to the residence (Amiri et al., 2021; Chen et al. 2022; Jieling & Xinchun, 2017; Şenyüz et al., 2021; Jin et al., 2014). Therefore, PTGI in adults who have experienced a disaster can be considered as a key factor in predicting the recovery capacity of a community.

Finally, in the present study, age, gender, marital status and earthquake-related training were found to be significant determinants of BRS. These findings may be due to women's adherence to gender roles, expressing their emotions more than men, and socialization messages. Studies have emphasized that women reflect on traumatic life events more than men and tend to use emotion-focused coping more than men (Cohen-Louck, 2022). Because this process increases their social support, women are more likely to be accepted in the context of BRS (Prieto-Ursúa & Jódar, 2020). In addition, pre-earthquake education can help individuals be better prepared for the earthquake and reduce potential traumatic effects. Education can help individuals become more resilient after trauma by increasing both knowledge and coping skills (Yeon et al., 2020). A literature review revealed that age, marital status, gender, receiving disaster training and psychological support are associated with psychological resilience among post-earthquake survivors (Karairmak & Güloğlu, 2014; Mızrak & Tutkun, 2020; Mishra & Suar, 2012; Trip et al., 2018). On the other hand, the differences between the studies may be related to the severity of the earthquake and the characteristics of the regions.

The present study revealed that posttraumatic growth and psychological resilience levels were low in young adults three months after the earthquake. In the literature, no study was found to reveal the relationship between PTGI and BRS in earthquake survivors 3 months after the earthquake. Therefore, the results of this study are strongly representative of the post-earthquake period. In particular, it was observed that modifiable risk factors (such as receiving disaster training, features of the residence, psychological support) as well as non-modifiable factors (such as age, gender) significantly affected post-traumatic growth and psychological resilience levels. It is thought that these findings will be useful for psychological interventions and recovery processes after disaster-induced traumatic events. The results of this study are in line with the literature and may emphasize the importance of mental health studies to improve the health and well-being of the society.

The present study has certain limitations. The sample includes survivors from 11 earthquake-affected provinces in Turkey and therefore is not representative of all survivors of the February 6

earthquake. As the PTGI and BRS were administered through a self-report questionnaire, participants may have responded in a socially acceptable manner. Since the survey data was collected through an online tool, married or working individuals may have participated less due to their busy schedules. This may have resulted in overrepresentation of some groups such as women or single people. In addition, the study could not take into account participants' previous life events, previous losses and mental states. Further studies could employ a longitudinal study design to understand the impact of PTGI and BRS over time

CONCLUSION

The current study discovered that individuals affected by an earthquake and still residing in the affected area exhibited low average scores on both the Post-Traumatic Growth Inventory (PTGI) and the Brief Resilience Scale (BRS), with a positive correlation observed between the two measures. Sociodemographic characteristics of earthquake-affected individuals (gender, receiving earthquake-related training and being affected by the earthquake) were found to have an effect of 5.7% on PTGI. Age, gender, marital status, and earthquake-related training had an effect of 8.6% on psychological resilience. Based on these findings, it can be suggested that health professionals take into account the two-way interactional process between PTGI and BRS and consider it as an active and positive process that restructures individual lives in order to maintain better independent lives following trauma.

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Conflict of Interest

The author declare no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

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