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ARTICLE

The Effect of Psychological Resilience on Hopelessness and Post-Traumatic Growth in Individuals Experienced by Earthquake

Hacer Kabakoğlu[1,2,*] and Fatma Nuray Kuşçu Sahin[2]

[1]Faculty of Health Sciences, Gaziantep University, Gaziantep, 27000, Turkey

[2]Vocational School of Health Services, Hatay Mustafa Kemal University, Hatay, 31060, Turkey

*Corresponding Author: Hacer Kabakoğlu. Email: h.kabakoglu@hotmail.com

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ABSTRACT

Background: Disasters have effects that leave great negative marks on our lives, even after many years have passed. Individuals who experience an earthquake experience physical and psychological difficulties. The purpose of this study is to determine how psychological resilience levels affect the feeling of hopelessness and post-traumatic growth in adults who experienced the 06 February, 2023 Turkey-Syria earthquake. **Methods:** Data were collected using the "Personal Information Form (PIF)", "Turkish forms of Adult Resilience Measure (ARM)", "Dispositional Hope Scale (DHS)" and "Post-Traumatic Growth Inventory (PTGI)". In order to determine whether there is a significant difference in the effect of psychological resilience of earthquake victims participating in the study on hope and post-traumatic growth levels in terms of socio-demographic variables, after determining that the data was normally distributed, total score average, minimum and maximum values, standard deviation (SD), independent sample *t*-test, ANOVA, correlation analysis to determine the relationship between the scales and multiple regression analysis to determine the effect between the scales were performed. **Results:** Of the 202 earthquake victims who participated in the study, 65.8% were between the ages of 18–34, 67.3% were female, 92.1% were not trapped under the rubble, and 34.2% had second-degree relatives trapped under the rubble. It was determined that 77.8% of them lost their relatives in the earthquake and 77.8% of them lost a serious amount of property and money due to the earthquake. As a result of the analysis, it was determined that psychological resilience had a statistically significant and positive effect on hopelessness and post-traumatic growth in individuals who experienced the 06 February earthquake. In this regard, it has been determined that as the psychological resilience of individuals increases, their hope levels and post-traumatic growth will also increase. **Conclusion:** Based on the research results, increasing hope and increasing psychological resilience in psychosocial support studies carried out by mental health professionals for traumatic events will contribute to the spiritual recovery of individuals.

KEYWORDS

Earthquake; psychological resilience; hope; post-traumatic growth

Introduction

Disasters have effects that leave great negative marks on our lives, even after many years have passed. The reason why they have such permanent scars is that they cause great damage, loss of life and property, psychopathology, in short, much mental and physiological damage. The earthquake that occurred on 06 February 2023 on the Turkey-Syria border and caused great destruction to 10 more provinces is one of these disasters. Traumatic events that leave permanent scars that are difficult to overcome, such as these earthquakes, which are the disaster of the century, appear as the cause of many negative psychological consequences for the survivors, such as depression, fear, hopelessness,

psychological vulnerability, and the inability to grow due to post-traumatic stress disorder [1]. When the literature is examined, psychological resilience emerges as one of the factors that protect individuals from these negative factors. Stress factors are part of the normal flow of life and affect individuals at varying levels. While some do not see these situations as a problem and overcome them easily, others cannot. These different results are related to psychological resilience, which provides the power to manage challenging situations calmly and in balance [2]. Psychological resilience is a developmental defense mechanism and a dynamic journey that supports overcoming problems in life and showing positive adaptation to difficult life experiences to remain within a certain level of well-being and growth. This journey helps cope with stress and protects from factors that disrupt physical or psychological health [3,4]. One of the protective factors appears to be hope. Hopeless individuals generalize the negative life karma they experienced in the past and believe that it will happen in a similar or worse way in the future. Some symptoms should be taken into consideration to determine that a person has a hopeless nature. Negative dialogues, reluctance and decrease in communication, not sharing one's feelings, unresponsiveness to external stimuli, state of idleness, indifference, lack of initiative, loss of appetite, sleeping more or less than normal, decrease in personal hygiene and care, and avoiding social environments are some of these symptoms. Desperate individuals believe that every event will turn out against them without any logical explanation. For this reason, negative, generalized, negative inferences that do not require effort, in which the result is seen as unchangeable even if the subject changes, are seen as triggers of the feeling of hopelessness [5,6].

The last concept discussed in the study is post-traumatic growth. Negative emotions such as helplessness, terror, panic, and fear that occur in the face of an event or event that occurs suddenly at an unexpected moment and puts the individual's mental and physical health at risk are called trauma [7,8]. After the traumatic event, self-esteem, self-confidence, expressing oneself more comfortably and better, approaching the environment positively, developing empathy skills, not being afraid of difficulties, feeling stronger, remaining calmer, spiritual and spiritual development are some of the results of post-traumatic growth. When the literature is examined, it is reported that one of the factors that post-traumatic growth may be related to is psychological resilience. Psychological resilience is the individual's capacity to recover from stressful events. It is reported that psychological resilience facilitates psychological adaptation after traumatic experiences [9]. Hope is another variable that may be related to post-traumatic growth. Hope is a positive motivational state based on agency and planning to achieve goals in some way. Hope is vital during difficult times in life because it can help create a more positive perception and determination in the face of adversity. The literature suggests a significant and positive relationship between hope and post-traumatic growth [9,10]. When we look at these parameters, nurses play a role in protecting, developing, and maintaining the health of individuals. Nurses are one of the professional groups that try to intervene in the first person who encounters a traumatized individual. Therefore, the healthy communication of nurses (calming the individual at the time of the event, reducing stress, explaining the event, and providing guidance after the event) and guiding the individual from the very beginning can ensure that the events experienced are taken under control and the individual is not adversely affected by the events. The aim of this study is to guide nurses in field practices by determining how the psychological resilience levels of adults who survived the 06 February earthquake affect the feeling of hopelessness and post-traumatic growth after the event. This study was conducted to determine how the psychological resilience levels of adults who survived the 06 February earthquake affected the sense of hopelessness and post-traumatic growth after the event and to guide nurses in field practices.

Methods

Study desing

The research is quantitative research on determining the effect of the psychological resilience of the victims of the 06 February earthquake on their hope levels and post-traumatic growth and was conducted with a general screening model. The data of the research was collected between 15 March, 2024, and 15 May, 2024.

Research questions

- ✓ What are the psychological resilience, hope and post-traumatic growth levels of individuals who experienced an earthquake?
- ✓ Does psychological resilience have an effect on the level of hope and post-traumatic growth?

Setting and sample

The research was carried out on the earthquake-affected lifeboats 'Süreyya Sultan' and 'Rauf Bey', which were deployed after the earthquake in the İskenderun district of Hatay Province. The population of the research consists of individuals who lived on these ships and experienced the earthquake. The sample size in this study was determined by examining the effect of individuals' psychological resilience on post-traumatic growth. When the studies in the literature [11] were discussed, the effect size of the relationship was estimated as $r = 0.227$. It was calculated that 135 observations should be included in the study to obtain 95% power with $\alpha = 0.05$ type I error and $\beta = 0.5$ type II error. The study was conducted with 202 individuals. The research was conducted by face-to-face interviews with individuals living on the ship. After the purpose of the study was explained, the research was conducted with individuals who agreed to participate.

The sampling inclusion criteria were determined as follows:

- ✓ Being 18 years or older,
- ✓ Having experienced the 06 February, 2023 Türkiye-Syria centered earthquake,
- ✓ Being literate,

✓ Having no cognitive or communication barriers that would prevent continuing the conversation and completing the surveys,
✓ Agreeing to participate in the study after being informed.

Ethical consideration

To conduct the research, permission was received from the coast trust command to which the earthquake victims' ships 'Süreyya Sultan' and 'Rauf Bey' were affiliated. The research was approved by the Hatay Mustafa Kemal University non-invasive clinical research ethics committee on 04 March, 2024. At the same time, individuals were asked to fill out a voluntary participation form.

Measurements/instruments

To collect the data, the "Personal Information Form (PIF)", "Turkish Forms of Adult Resilience Measure (ARM)", "Dispositional Hope Scale (DHS)" and "Post Traumatic Growth Inventory (PTGI)" were used.

Personal Information Form: A questionnaire form consisting of 6 questions (age, gender, whether they or their relatives were trapped in the rubble, whether there was a recent loss of life and a serious loss of property or money due to the earthquake) was used to evaluate the socio-demographic characteristics of the participating earthquake victims, which was created by the researcher.

Turkish forms of Adult Resilience Measure: The adult form was created by Arslan [12] based on the Child and Youth Psychological Resilience Scale. The scale is a 5-point Likert-type measurement tool (rating between 5, "It completely describes me" and 1, "It doesn't describe me at all"), and it has 21 items. As a result of the exploratory factor analysis of the scale, it was found that it had a structure of 4 factors that explained 65% of the variance. Scale; It consists of 4 sub-dimensions: relational resources, individual resources, familial resources, and cultural-contextual resources. A high score on the scale indicates that the individual has high psychological resilience. Scale reliability was examined using Crombach's α method and the scale internal consistency coefficient was found to be α = 0.94 and the test-retest coefficient was found to be α = 0.85.

Dispositional Hope Scale: The scale was developed by Snyder et al. (1991) to determine adult dispositional hope. The adaptation study of the scale into the Turkish language was carried out by Tarhan et al. [13]. The scale consists of two subscales: pathways thoughts (4 items) agency thoughts (4 items) and distractor items that are not related to hope (4 items). The scale includes 12 items however, it can be used as an 8 scale if the distractor items are not used. The participant chooses the degree of agreement with each statement on an 8-point scale ranging from (1) wrong to (8) true.

Post Traumatic Growth Inventory: The study used the PTGI which was developed by Tedeschi and Calhoun and its Turkish validity and reliability study was carried out by Kağan et al. [14]. The Likert-type scale scored between 0 and 5 consists of 21 items and measures post trauma growth. The scores from the scale are as follows: 0; I have never experienced this change after the stressful event(s), 1; very little, 2; somewhat, 3; at a moderate level, 4; quite much and 5; I have experienced this change to a large extent after the stressful event(s). A higher score on the scale expresses that PTG is experienced. The three subscales of PTGI are "Change in Self-Perception (CSPS)" (5, 10, 11, 12, 13, 15, 16, 17, 18, 19), "Change in Relationships with Others (CROS)" (6, 6, 8, 9, 20, 21) and "Change in Philosophy of Life (CPLS)" (1, 2, 3, 4, 7, 14). The internal consistency obtained from Turkish adaptation studies of the scale was α = 0.88 for change in self-perception, α = 0.77 for change in relationships with others, and α = 0.78 for change in philosophy of life.

Data analysis

The collected data was analyzed using the SPSS 26.0 program. Frequency and percentage calculations were made to determine the demographic and descriptive data of the participants. To determine whether there was a significant difference in the effect of psychological resilience of earthquake victims participating in the study on hope and post-traumatic development levels in terms of socio-demographic variables, the Kolmogorov-Smirnov test was used to determine that the data had a normal distribution. Then, the total score average, minimum and maximum values, standard deviation (SD), and independent sample *t*-test scores were calculated. ANOVA and correlation analysis were used to determine the relationship between the scales, and multiple regression analysis was used to determine the effect between the scales. A threshold *p*-value of 0.05 was used to determine statistical significance.

Results

In this section of the research, first, the characteristics of the descriptive and demographic data of the participants are included (Table 1). Looking at Table 1, it was determined that 65.8% of the 202 earthquake victims who participated were between the ages of 18–34, 67.3% were women, and 92.1% were not situated under the rubble. It was found that 34.2% of the earthquake victims had their second-degree families situation under the rubble, 31.2% of individuals whose relatives were buried under the rubble lost their second-degree families in the earthquake, and 77.8% suffered serious property and money losses due to the earthquake.

When Table 2 is examined, significant differences were detected in the earthquake victims' dispositional hope levels and the variables of the situation under debris ($p < 0.001$). The significant difference in the situation of being trapped under debris was caused by the fact that the total score averages of those who were not trapped under debris were significantly higher than those who were trapped under debris. In other words, the hope levels of the participants who were trapped under the rubble were lower than those who were not. When Table 3 is examined, the score averages of alternative way thoughts and active thoughts, which are the sub-dimensions of the earthquake victims' continuous hope level scale, are given. While the mean score of alternative thoughts was 23.84, the mean score of active thoughts was 22.86.

TABLE 1

Findings regarding the socio-demographic characteristics of the participants

Socio-demographic characteristics	Groups	N	%
Age	18–34 years old	133	65.8
	35–49 years old	54	26.7
	50–65 years old	15	7.4
Gender	Female	136	67.3
	Male	66	32.7
Situation under debris	No	186	92.1
	Yes	16	7.9
Situation under rubble in the family	No	95	47
	First degree family	21	10.4
	Second degree family	69	34.2
	Social friend	17	8.4
Loss of life in the family	No	102	50.5
	First degree family	15	7.4
	Second degree family	63	31.2
	Social friend	22	10.9
Serious loss of property or money due to earthquake	No	46	22.8
	Yes	156	77.8

TABLE 2

Findings between participants' socio-demographic characteristics and psychological resilience

Socio-demographic characteristics	Groups	N	Mean	SD	T or F value	*p* value
Age	18–34 years old	133	82.34	11.84	0.311	0.733
	35–49 years old	54	83.17	17.78		
	50–65 years old	15	84.67	14.61		
Gender	Female	136	83.38	11.29	2.3130	**0.004***
	Male	66	81.42	12.62		
Situation under debris	No	186	65.96	8.41	3.311	**0.020***
	Yes	16	58.56	11.23		
Situation under rubble in the family	No	95	82.90	10.94	0.107	0.956
	First degree family	21	82	10.90		
	Second degree family	69	83.03	12.20		
	Social friend	17	81.53	15.66		
Loss of life in the family	No	102	82.75	11.72	0.759	0.518
	First degree family	15	84.53	7.80		
	Second degree family	63	83.43	11.14		
	Social friend	22	79.45	15.42		
Serious loss of property or money due to earthquake	No	46	66.52	8.49	0.136	0.320
	Yes	156	65.04	8.97		

Note: SD: standard deviation; N: number; *$p < 0.001$.

When Table 4 was examined, a significant difference was detected only between the post-traumatic growth trends of the earthquake victims and the variables of serious loss of property or money due to the earthquake ($p < 0.001$). It is seen that this significant difference is due to the fact that the total score average of those who did not experience serious property or money loss as a result of the earthquake is significantly higher than those who did. As stated in the

TABLE 3

Findings between participants' socio-demographic characteristics and dispositional hope scale

Socio-demographic characteristics	Groups	N	Mean	SD	T or F value	*p* value
Age	18–34 years old	133	47.09	8.23	1.358	0.260
	35–49 years old	54	46.75	8.19		
	50–65 years old	15	43.06	15.80		
Gender	Female	136	47.19	8.61	2.276	0.262
	Male	66	45.68	9.68		
Situation under debris	No	186	47.31	8.51	2.393	**0.001***
	Yes	16	39.56	11.34		
Situation under rubble in the family	No	95	47.09	8.27	1.558	0.201
	First degree family	21	43.61	11.38		
	Second degree family	69	47.68	8.01		
	Social friend	17	44.35	12.39		
Loss of life in the family	No	102	46.20	8.95	1.332	0.265
	First degree family	15	46.13	7.63		
	Second degree family	63	48.41	8.12		
	Social friend	22	44.50	11.73		
Serious loss of property or money due to earthquake	No	46	46.91	8.26	0.043	0.857
	Yes	156	46.64	9.20		

Note: SD: standard deviation; N: number; *$p < 0.001$.

TABLE 4

Participants' dispositional hope subscale scores

Sub-scale	Min-max	Mean	SD	T or F value	*p* value
Sub-dimension of alternative way thoughts	6–32	23.84	4.78	−0.922	1.637
Sub-dimension of active thoughts	7–32	22.86	4.90	−1.003	1.288

Note: SD: standard deviation; N: number; *$p < 0.001$.

table, no significant difference was found between the other variables and the scale, except for the loss of a significant amount of money or property ($p < 0.001$).

When Table 5 was examined, significant differences were detected in the psychological resilience of the earthquake victims and the variables of gender and being under debris ($p < 0.05$). The significant difference in the gender variable is due to female participants as their mean scores are higher. In other words, the psychological resilience levels of female participants are significantly higher than male participants. The significant difference in the situation of being trapped under debris was caused by the fact that the total score averages of those who were not trapped under debris were significantly higher than those who were trapped under debris. In other words, the psychological resilience of the participants who were trapped under the rubble was weaker than those who were not. As stated in the table above, no significant difference was found between psychological resilience and all variables except gender and being trapped under rubble ($p > 0.05$).

Table 6 gives the results of the multiple regression analysis conducted within the scope of the research title to determine to what extent psychological resilience affects positive emotional states such as hope level and post-traumatic growth. Based on these results, when the established model (F: 60.121; $p < 0.001$) and the t statistics data indicating that the regression coefficient was significant were examined (t: 11.416; $p < 0.001$), it was determined that the results obtained were statistically significant. In the model; It is seen that a one-unit improvement in psychological resilience will result in a 0.419 unit improvement in the level of permanent hope, and a one-unit improvement in psychological resilience will result in a 0.369 improvement in post-traumatic growth. In addition, the rate at which an individual with increased psychological resilience explains both the level of hope and post-traumatic growth is Adjusted R Square: 0.372.

Discussion

According to the analysis results between the demographic variables and psychological resilience of the participants, significant differences were observed in gender and situations of being situation under debris.

In the gender variable, it is seen that the psychological resilience of woman participants is higher than that of male

TABLE 5

Findings between participants' socio-demographic characteristics and post-traumatic growth scores

Socio-demographic characteristics	Groups	N	Mean	SD	T or F value	*p* value
Age	18–34 years old	133	63.50	18.59	0.237	0.790
	35–49 years old	54	61.43	61.43		
	50–65 years old	15	62.07	62.07		
Gender	Female	136	63.57	1.84	0.103	0.438
	Male	66	61.33	19.93		
Situation under debris	No	186	62.68	19.04	1.395	0.679
	Yes	16	64.75	21.38		
Situation under rubble in the family	No	95	64.40	18.78	1.294	0.278
	First degree family	21	56.81	21.95		
	Second degree family	69	61.49	18.67		
	Social friend	17	67.06	19.47		
Loss of life in the family	No	102	64.22	19.44	0.407	0.748
	First degree family	15	60.40	22.56		
	Second degree family	63	61.19	17.99		
	Social friend	22	62.86	19.68		
Serious loss of property or money due to earthquake	No	46	68.78	15.48	5.427	**0.007***
	Yes	156	61.09	19.85		

Note: SD: standard deviation; N: number; **p* < 0.001.

TABLE 6

Regression analysis findings regarding the effect of psychological resilience on trait hope and post-traumatic growth

Variable	B	Std. error	β	*t*	*p*	VIF	F	Model (*p*)
Constant	43.037	3.770		11.416	0.000		60.121	***p* < 0.001***
Dispositional hope	0.547	0.075	0.419	7.304	0.000	1.048		
B-**post-traumatic growth**	0.226	0.035	0.369	6.427	0.000	1.048		
	Durbin-Watson: 1.823							
	R^2: 0.378; Adjusted R Square: 0.372; R: 0.615; **p* < 0.001							
	Regression Equation of the Model: X = 43.037 + (0.547A) + (0.226B)							

Note: **p* < 0.001; VIF—variance inflation factor; B—unstandardized beta regression coefficient.

participants, and in the variable of being trapped under debris, the psychological resilience of those who were not trapped in the debris is higher than those who remained. At this point, the reason why female participants' scores are higher can be explained by their more positive outlook on life and their primary responsibility for family life and child care. Having the belief that one day everything will be fine and being aware that good psychology is essential for this can make them more resilient spiritually. Among the reasons why the average score of those who did not stay under the rubble is higher than those who stayed under the rubble, may be that the trauma occurred in the recent past and that those who remained under the rubble were exposed to earthquakes many times during the time they spent there. At the same time, the fact that individuals can do nothing in this process, having relatives die in front of their eyes at the point where they are, the magnitude of the destructiveness of the earthquake, and the decrease in hope that they will be able to get out of there can be counted among the other affecting factors. When the region is examined, an improvement large enough to make people forget what happened may have negatively affected the individuals who could not experience it in the region and whose conditions were not fully improved. Unlike this study finding, Zhong et al.'s [15] study, it was determined that the endurance scores of male participants were significantly higher than female participants. In the studies [16,17], no significant difference was found between psychological resilience and gender. Another finding, that the psychological resilience of individuals trapped under the rubble is lower than that of those not trapped, is a result of Wingo et al. [18] and Chang et al. [19] being similar to the study findings. In this study, no significant difference was found between exposure to past trauma and psychological resilience.

In our study, it was determined that the permanent hope levels of earthquake victims were affected by being under debris, that is, the hope levels of participants who were trapped under debris were weaker than those who were not. In the study of Kardaş et al. [20], it was reported that the level of stress increased the level of hopelessness. It can be said that individuals who were trapped under rubble during the earthquake experienced the event more traumaticly and their stress levels were higher. This high level of stress may have increased the symptoms of hopelessness in the individual. In a study conducted with individuals who experienced the earthquake that occurred in the Pazarcık and Elbistan districts of Kahramanmaraş on 06 February, 2023, it was reported that the average score of the idea of alternative way thoughts was 22.77 and the average score of the active thoughts subscale was 20.21 [21]. In our study, these scores were found to be higher. As the theory of hope explains, the sub-dimension of agentic thinking is the motivating part that enables hope to emerge [22]. In this context, the increase in agentic thoughts, which is characterized by the individual finding the motivation and strength to overcome them despite encountering many problems, may have created a motivating force in reducing the traumatic symptoms that occurred after the earthquake. This power may be a factor that explains the high post-traumatic growth scores discussed in our study.

In our study, a significant difference was detected between the post-traumatic growth trends of earthquake victims and the variables of serious loss of property or money due to the earthquake. It is seen that this significant difference is because the total score average of those who did not experience serious property or money loss as a result of the earthquake is significantly higher than those who did. In a study conducted to investigate whether perceived social support, personality, and coping strategies during the Covid period were related to post-traumatic growth, it was reported that social support positively affected the individual's post-traumatic growth level [23]. In line with this information, we can say that individuals who suffered serious loss of property and money in the earthquake lost their financial support, which is social support, after the earthquake. Therefore, we can reach the point where individuals have difficulty coping with this. In a study conducted to examine the role of post-traumatic stress symptoms, psychological resilience, and hope in post-traumatic growth in individuals who have recovered from the new coronavirus disease (COVID-19), it was found that the post-traumatic growth levels of women were significantly higher than the post-traumatic growth levels of men and that the post-traumatic growth levels of those who survived the disease severely were significantly higher than the post-traumatic growth levels of men. It has been reported that the levels are higher than the post-traumatic growth levels of those who survived the disease mildly and moderately. When the score averages of this study were examined, the post-trauma growth inventory score averages were reported as 57.37 for women and 50.76 for men [24]. In another study examining the Post-Traumatic Stress, Post-Traumatic Growth, and hopelessness symptoms of university students exposed to an earthquake, the average post-traumatic growth score of the students was reported as 51.04 [20]. In the study examining stress and post-traumatic growth in survivors of the Lushan earthquake, the mean post-traumatic growth scale score was 56.89 for men and 58.73 for women. In this study, the post-traumatic growth level of women was reported to be significantly higher than that of men [25]. In our study, the average score of the same scale was found to be 63.57 for women and 61.33 for men. While no significant difference was detected between men and women in our study, it is noteworthy that the mean scores were higher than other studies. Considering this study we conducted in Hatay, it is a known fact that most individuals have a great traumatic effect due to the loss of their families, friends, jobs, and the places they live. In these conditions, individuals need to get stronger, come back to life, and adapt to these difficult conditions. For this reason, individuals achieved a high level of post-traumatic growth even though the disaster was greater. Considering the higher losses in Hatay and the destruction of the city, it has become mandatory for individuals to achieve post-traumatic growth, regardless of gender, to live in these difficult conditions and rebuild their lives.

In our study, it is seen that a one-unit improvement in psychological resilience will lead to a 0.322-unit improvement in the level of permanent hope, and a one-unit improvement in psychological resilience will lead to a 0.392-unit improvement in post-traumatic growth. A study examining the relationship between resilience, hope, and post-traumatic growth showed that anxiety and depression may indirectly affect post-traumatic growth through the mediating role of resilience and hope [26]. In another study aiming to evaluate the extent of post-traumatic growth in family caregivers of patients with cancer and to examine the relationship between post-traumatic growth dimensions and perceived social support and hope, it was reported that hope positively affects post-traumatic growth [27]. Another study conducted to examine the role of post-traumatic stress symptoms, psychological resilience, and hope in post-traumatic growth in individuals who have recovered from the new coronavirus disease, it was reported that post-traumatic stress symptoms, psychological resilience, and hope variables were positive and significant predictors of post-traumatic growth [24]. In addition, people's resilience in the face of negative events enables them to take action more easily and produce healthier solutions when faced with difficulties. In a way, difficulties act as a whip. The logic of the relationship between people with high psychological resilience and a constant level of hope stems from this point [28–31]. This information supports our study. Hope and resilience are important components of mental health that lead individuals to believe that they can cope with stress The ability to plan future goals and use ways to achieve goals is very important in reducing anxiety and depression. If individuals get through anxious periods in a healthy way, they enter the new period even stronger. In their review of the literature, many studies have concluded that psychological resilience is an important force that supports post-traumatic growth [32–35].

One of the limitations of the research is that although the earthquake affected 10 provinces, the research was conducted in a single province. Despite these limitations, our findings lay the groundwork for future research on earthquake-living information. Another limitation is that individuals did not want to talk about the earthquake and stated that they remembered the earthquake through questions. For this reason, many individuals did not agree to participate in the study.

Conclusion

In our study, it was determined that being under the rubble affected the parameters of psychological resilience and hope, that is, those who were not under the rubble had better levels of hope and psychological resilience. At the same time, it was determined that the post-traumatic growth score was better in those who did not suffer serious property and material losses. Another finding of our study is that a one-unit improvement in psychological resilience will lead to a 0.419-unit improvement in permanent hope level, and a one-unit improvement in psychological resilience will lead to a 0.369-unit improvement in post-traumatic growth. Within the scope of these results, it is important to increase psychological resilience in the region. After trauma, it is important to increase individuals' self-worth and hope for the future and to correct their distorted interpretations of the environment in which they live so that they can develop more realistic and positive perspectives. In Hatay, individuals can be supported in this sense by providing training to increase psychological resilience by mental health professionals in container cities or schools where a large part of the population lives. It is important to provide special psychological training for disadvantaged groups (those who have lost loved ones, those trapped under debris, those injured). Providing psychoeducation, especially in schools, will support the mental health of future individuals. Improving and developing the mental health of children means that the society that will be formed will be healthier. In this sense, it is important to assign mental health professionals to container cities. Under current conditions, there are mental health workers assigned to container cities where earthquake survivors live in Hatay. However, newer studies can be conducted to determine whether the studies conducted are sufficient. Group training can also be provided to support individuals, strengthen them together, increase post-traumatic growth, and strengthen hope. Individuals can draw strength from each other to overcome common problems they experience. Nurses can reduce the risk of mental illness in the future by explaining coping mechanisms to individuals, teaching stress management, providing training tailored to individuals' needs, screening for symptoms of depression and post-traumatic stress disorder, and identifying at-risk individuals.

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Availability of Data and Materials: The analyzed data sets generated during the study are available from the corresponding author upon reasonable request.

Ethics Approval: The research was approved by the Hatay Mustafa Kemal University Non-Invasive Clinical Research Ethics Committee. All participants signed the informed consent in this study.

Conflicts of Interest: The authors declared that they had no conflicts of interest to report regarding the present study.

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