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# The mediating role of peritraumatic stress in the relationship between childhood psychological maltreatment and optimism and pessimism among earthquake survivors in Turkey

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## Abstract

**Introduction:** People encounter many events across their life span. However, some life experiences cause negative psychological outcomes. One of them is earthquakes. Therefore, in this study, it was aimed to examine the mediating role of peritraumatic distress in the relationship between childhood psychological maltreatment and optimism and pessimism among earthquake survivors.

**Methods:** Using a snowball sampling technique with a cross-sectional research design, the sample comprised 311 adults who survived earthquake survivors in Turkey. Participants ranged in age between 18 and 61 years (mean age = 27.57±8.03). Of the participants, 231 (74.3%) were females and

80 (25.7%) were males, and they completed the Psychological Maltreatment Questionnaire–Short Form, Peritraumatic Distress Inventory, and Optimism and Pessimism Questionnaire.

**Results:** The findings showed that childhood psychological maltreatment was positively related to peritraumatic distress and pessimism, and negatively related to optimism. Similarly, peritraumatic distress was positively related to pessimism and negatively related to optimism. More importantly, peritraumatic distress mediated the relationship between childhood psychological maltreatment and optimism and pessimism. These findings highlight the importance of addressing peritraumatic distress as an important factor in improving individuals' perspectives on life.

**Discussion:** Implementing tailored interventions to mitigate peritraumatic distress could lead to a more optimistic mindset and reduced levels of pessimism. By providing individuals with effective coping strategies and support systems, such interventions may empower them to overcome the challenges posed by stressful situations and cultivate a more positive outlook on life.

**Take-home message:** Childhood psychological maltreatment has significant implications for earthquake survivors' mental well-being, impacting their levels of optimism and pessimism. Peritraumatic distress plays a crucial mediating role in this relationship. Addressing peritraumatic distress through tailored interventions can foster a more optimistic mindset, reduce pessimism, and empower individuals to cope effectively with stress and improve their overall life outlook.

**Keywords:** Childhood psychological maltreatment; earthquake; optimism; peritraumatic distress; pessimism.

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## INTRODUCTION

On February 6, 2023, two earthquakes with 7.8 and 7.6 magnitudes (9 hours after the first earthquake) occurred in Turkey. From February 6 to May 6, approximately 33,591 aftershocks with magnitudes ranging from 0.2 to 6.6 were reported. These devastating earthquakes directly affected 11 provinces: Hatay, Kahramanmaraş, Adıyaman, Malatya, Gaziantep, Şanlıurfa, Adana, Osmaniye, Elazığ, Diyarbakır and Kilis. The earthquakes caused 50,783 deaths and more than 122,000 injuries and affected almost the whole country directly and indirectly. The earthquakes also had significant economic and social effects. These two earthquakes and aftershocks have caused almost countless houses to become uninhabitable. According to the latest report published on May 2, 2023 by the Ministry of Environment, Urbanization and Climate Change, a staggering 205,534 houses have been severely damaged. The impact of this catastrophic event goes beyond just housing, as over 2.7 million individuals have been forcibly displaced from their homes, neighbourhoods, and cities, as reported by the International Organization for Migration [1,2]. Furthermore, the earthquake has also had a significant adverse effect on industrial and commercial centres. In fact, this has been deemed the most substantial disaster of the past century, as stated by the Disaster and Emergency Management Authority.

The unpredictable, sudden and devastating effects of earthquakes have a dramatic negative impact on economic and social life. However, its effects are not limited to these, they also have psychological effects. Because people experience a wide variety of emotions from excitement to anxiety, depression, and anger when they encounter distress or difficulties [3] such as the loss of family members or home or personal objects, the sense of security, until social identity. Numerous studies have revealed that earthquakes can cause emotional problems such as shock, sadness, anger, guilt, helplessness, denial, jealousy, uncertainty, and fear alongside common mental problems such as sleep disorder, stress, anxiety, depression and post-traumatic stress disorder [2-6]. Existing evidence has emphasized that the experience of earthquakes may also affect the future expectations.

In other words, earthquakes can also cause feelings of hopelessness and pessimism [7]. These psychological effects of earthquakes can occur during or immediately after the event, or they emerge much later. Feelings of fear, helplessness, and horror experienced during or shortly after a traumatic event such as earthquakes are defined as peri-traumatic stress [8,9], and studies have indicated that peri-traumatic stress is a risk for psychopathology, especially post-traumatic stress disorder [10,11].

Adverse life experiences such as earthquakes can cause individuals to move away from optimism and become more pessimistic. Optimism refers to the tendency to expect positive results for the future, while pessimism refers to the tendency to expect negative results [12-14]. Optimism and pessimism express positive and negative expectations not only related to a specific subject but also about life in general [12]. These are effective personality structures especially in coping with uncontrollable life events [15,16], and they are also affected by stressful life events. In other words, optimism and pessimism are psychological constructs associated with individuals' responses to stressful events [17]. Scheier and Carver [15] conceptualized these two constructs as a unitary feature on the bipolar continuum that reflects optimism. However, some later researchers [18] suggested that positively framed optimism and negatively framed pessimism constitute sub-dimensions of dispositional optimism.

Optimism, which differs from hope, not only makes people feel better, but also provides benefits for what people do and what they can achieve in difficult times [18]. Therefore, optimism is positively associated with both physiological and psychological well-being [15]. According to Carver et al [14], optimism is an effective resource for coping with problems. Therefore, there is a linear relationship between the increase in optimism and the increase in subjective well-being. Many previous studies have found that optimism is positively associated with many positive psychological constructs including autonomy, environmental mastery, personal growth, hope, purpose in life, positive relations, positive affect, life satisfaction, social integration, social coherence, self-esteem and well-being, emotional competence, adaptive coping strategies [15,19-21].

As mentioned before, pessimism refers to a general tendency to expect the worst results about events or to believe that the worst will happen [22]. Therefore, unlike optimism, pessimism is positively related to negative psychological outcomes. Existing evidence has emphasized that pessimism is positively associated with inflexibility, stress, distress, somatization, anxiety and depression [17,22-26]. Optimists tend to see the best and learn from even negative life events, while pessimists tend to deny problems and abuse substances. In other words, optimists are active copers and pessimists are avoidant ones [3,27].

Talking about the effects of adverse life experiences on future expectations, it is impossible not to mention childhood experiences. Because childhood experiences have dramatic effects on adolescence and adulthood. Numerous studies have revealed both short-term and long-term psychological and physiological negative effects of childhood psychological maltreatment [28-31]. Previous research has emphasised that childhood psychological maltreatment is associated with anxiety, posttraumatic stress, and depression [32-34].

Similarly, Norman et al [35] reported that adults who were exposed to psychological maltreatment in childhood are more likely to experience mental health problems, use drugs, risk suicide, and engage in risky health behaviors. On the other hand, Currie and Spatz Widom [36] found that these people are at risk of being at a low socioeconomic level. Similarly, adults who were abused as children are at greater risk of being both perpetrators and victims of violence [35,36]. More importantly, some previous studies have revealed that childhood psychological maltreatment may be a risk factor for developing psychological problems after traumatic events such as earthquakes [37].

People encounter more than one adverse life experiences in their lifetime, and previous research has well-established the negative psychological impact of these experiences on adults [38]. Previous researchers have highlighted childhood psychological maltreatment is associated with vulnerability across the lifespan [36]. That is, childhood experiences also affect reactions to traumatic events. As indicated above, research showed that childhood psychological maltreatment is associated with

lifelong mental health disorders, physical health problems, and health risk behaviours [28,30]. Although previous studies have revealed that childhood psychological maltreatment is associated with optimism and pessimism [22,39], the role of peritraumatic stress in this relationship is not clear. Therefore, the main purpose of the present study is to examine the mediating role of peritraumatic stress in the relationship between childhood psychological maltreatment and optimism and pessimism in individuals who experienced the February 6 earthquakes in Turkey. For this purpose we hypothesized that childhood psychological maltreatment would be positively correlated with peritraumatic distress and pessimism, negatively correlated with optimism (H<sub>1</sub>), peritraumatic distress would be negatively correlated with optimism (H<sub>2</sub>), peritraumatic distress would be positively correlated with pessimism (H<sub>3</sub>), peritraumatic distress would have a mediating role in the relationship between childhood psychological maltreatment and optimism (H<sub>4</sub>), peritraumatic distress would have a mediating role in the relationship between childhood psychological maltreatment and pessimism (H<sub>5</sub>).

## **METHODS**

### ***Study design and procedure***

Data collection for this study commenced after obtaining approval from the Mardin Artuklu University Ethics Committee. Using an online survey, participants were recruited through various means, including text messages, WhatsApp, and email invitations. Potential participants who expressed interest in the study were provided with detailed information about the research. Afterwards, questionnaires, along with a consent form on the first page, were sent to those who agreed to participate. Participants provided electronic consent by signing the form. The completion of the questionnaires took approximately 10 minutes. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

### ***Study participants and sampling***

Using a snowball sampling technique with a cross-sectional research design, the study included a sample of 311 adults who were survivors of the 6 February earthquakes in Turkey. The participants' ages ranged from 18 to 61 years, with a mean age of 24.57 and a standard deviation of 8.03. Out of the participants, 231 (74.3%) were females, while 80 (25.7%) were males. Regarding marital status, 73 (23.5%) participants were married, 236 (75.9%) were single, and 2 (0.6%) were either divorced or widowed.

### ***Study instruments***

#### *Psychological Maltreatment Questionnaire–Short Form*

The scale is used to measure childhood psychologically abusive parent actions in Turkish individuals. The scale consists of 12 items (e.g., “My parent would threaten to leave me”) and each item is rated on a 4-point Likert-type scale (1= almost never to 4= almost always). A higher score on the scale shows a greater level of psychological maltreatment. Previous studies showed good evidence of reliability and validity [40]. In the present study, Cronbach’s alpha was .93.

#### *Peritraumatic Distress Inventory*

The scale was developed by Brunet et al [10] to measure the level of stress experienced during and immediately after a traumatic event. The scale includes 13 items, which are organized into two distinct sub-dimensions: negative emotions and perceived life threat and bodily arousal. Each item (e.g., “I felt helpless”) is rated using a 4-point Likert-type scale (0 = not at all, to 4 = extremely true). A higher score on the scale indicates a greater level of peritraumatic distress. In the present study, Cronbach’s alpha was .86.

#### *Optimism and Pessimism Questionnaire*

The scale was developed by Arslan and Yıldırım [41] to evaluate optimism and pessimism among Turkish. The scale consists of 12 items, and each item is rated using a 5-point Likert-type scale ranging from 1 = strongly disagree to 5 = strongly agree. Examples of the items are “I am always optimistic about my future.” and “I am helpless in this life, there is almost nothing that goes well.”

A higher score on the optimism subscale indicates a greater level of optimism, while a higher score on the pessimism scale represents a higher level of pessimism. In the present study, Cronbach’s alpha was .85 for both subscales.

**Data analysis**

Before conducting the mediation analyses, a series of preliminary analyses was conducted. Firstly, we examined the assumptions required for the analyses, including the assessment of descriptive statistics, internal reliability, and correlation analysis among the variables of interest. Following the preliminary analyses, mediation analyses were performed using the PROCESS macro v4.0 (model 4) for the statistical software SPSS. To determine the significance of the indirect effects, a bootstrapping approach with 10,000 resamples was employed, estimating the 95% confidence intervals (CI) for the effects. All statistical analyses, including the preliminary analyses SPSS v20 for Windows, while the mediation analysis was conducted using SPSS PROCESS Macro v3.4 [42,43].

**RESULTS**

Preliminary analysis findings indicated that all variables had normal distribution (skewness and kurtosis scores  $\leq |1.5|$ ) [44], and the variables had strong internal consistency reliability coefficients (see Table 1). As seen in Table 1, correlation analysis carried out to examine the relationships between variables revealed that childhood psychological maltreatment was positively correlated with peritraumatic distress ( $r = .17, p < .01$ ) and pessimism ( $r = .19, p < .01$ ), and negatively correlated with optimism ( $r = -.22, p < .01$ ). Similarly, peritraumatic distress was positively correlated with pessimism ( $r = .35, p < .01$ ), and negatively correlated with optimism ( $r = -.25, p < .01$ ). Finally, optimism was negatively correlated with pessimism ( $r = -.60, p < .01$ ).

**Table 1.** The results of descriptive statistics and correlation analysis.

Variable	Descriptive statistics					Correlations			
	$\alpha$	Mean	SD	Skew	Kurt	1	2	3	4
1. Childhood psychological maltreatment	0.93	1.79	0.04	1.03	0.47	—	.17**	-.22**	.19**
2. Peritraumatic distress	0.86	2.46	0.04	-0.21	-0.43		—	-.25**	.35**
3. Optimism	0.85	3.21	0.05	-0.15	-0.43			—	-.60**
4. Pessimism	0.85	2.78	0.05	0.26	-0.42				—

Note: \*\*. Correlation is significant at the 0.01 level (2-tailed).

Following preliminary analyses, the mediation role of peritraumatic distress in the relations between childhood psychological maltreatment and optimism and pessimism was examined. The results of mediation analysis are displayed in Table 2 and Figure 1. The results indicated that childhood psychological maltreatment significantly and positively predicted peritraumatic distress ( $\beta = .17, p < .01$ ) by accounting for 3% of the total variance in peritraumatic distress. Similarly, childhood psychological maltreatment ( $\beta = -.18, p < .01$ ) and peritraumatic distress ( $\beta = -.22, p < .001$ ) significantly and negatively predicted optimism. Also, both variables explained 9% of the total variance in optimism. In addition, childhood psychological maltreatment ( $\beta = .14, p < .05$ ) and peritraumatic distress ( $\beta = .32, p < .001$ ) significantly and positively predicted pessimism by accounting for 14% of the total variance in pessimism.

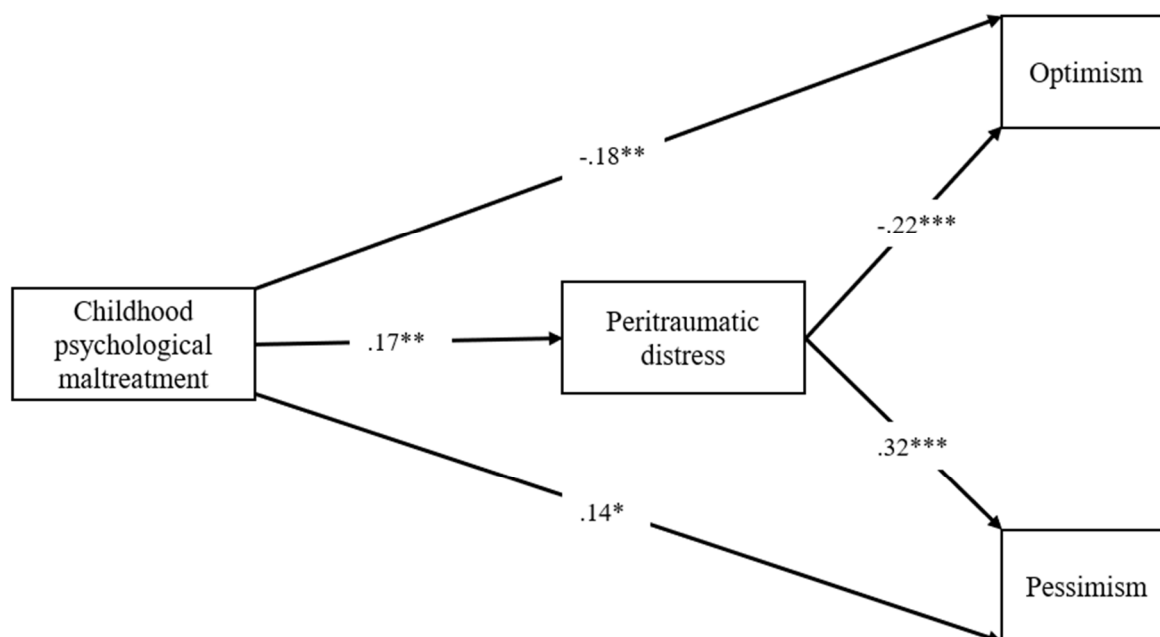
Table 3 displays the indirect effect of childhood psychological maltreatment on optimism and pessimism through peritraumatic distress. The indirect effect of childhood psychological maltreatment on optimism ( $\beta = -.05, 95\% \text{ CI } [-.09, -.01]$ ) and pessimism ( $\beta = .08, 95\% \text{ CI } [.03, .14]$ ) via peritraumatic distress was significant. These findings revealed that peritraumatic distress mediated the effect of childhood psychological maltreatment on optimism and pessimism.

**Table 2.** Standardized coefficients for the mediation model.

		<b>Consequent</b>			
		<i>M</i> (Peritraumatic distress)			
<b>Antecedent</b>		<b>Coeff.</b>	<i>SE</i>	<i>T</i>	<i>p</i>
X (Childhood psychological maltreatment)		.17	.07	3.03	<.01
Constant		2.08	.13	15.90	<.001
<i>R</i> <sup>2</sup> = .03 <i>F</i> = 9.17; <i>p</i> < .01					
		<i>Y</i> <sub>1</sub> (Optimism)			
Antecedent		<b>Coeff.</b>	<i>SE</i>	<i>T</i>	<i>p</i>
X (Childhood psychological maltreatment)		-.18	.07	-3.32	<.01
<i>M</i> (Peritraumatic distress)		-.22	.06	-3.92	<.001
Constant		4.24	.19	22.48	<.001
<i>R</i> <sup>2</sup> = .09 <i>F</i> = 15.86; <i>p</i> < .001					
		<i>Y</i> <sub>2</sub> (Pessimism)			
Antecedent		<b>Coeff.</b>	<i>SE</i>	<i>T</i>	<i>p</i>
X (Childhood psychological maltreatment)		.14	.08	2.59	<.05
<i>M</i> (Peritraumatic distress)		.32	.06	6.02	<.001
Constant		1.46	.20	7.32	<.001
<i>R</i> <sup>2</sup> = .14 <i>F</i> = 24.80; <i>p</i> < .001					

**Table 3.** Indirect effect of childhood psychological maltreatment on optimism and pessimism through peritraumatic distress.

<b>Paths</b>	<b>Effect</b>	<i>SE</i>	<b>BootLLCI</b>	<b>BootULCI</b>
Childhood psychological maltreatment → Peritraumatic distress → Optimism	-.05	.02	-.09	-.01
Childhood psychological maltreatment → Peritraumatic distress → Pessimism	.08	.03	.03	.14



*Note.* \*.  $p < 0.5$ , \*\*.  $p < 0.01$ , \*\*\* $p < 0.001$

**Figure 1.** The model indicating the mediating role of peritraumatic distress in the relationship between childhood psychological maltreatment and optimism and pessimism.

## DISCUSSION

In the current study, the mediating role of peritraumatic distress in the relationship between childhood psychological maltreatment and optimism and pessimism in individuals who survived the 6 February earthquakes in Turkey was examined in order to determine the psychological effects of the earthquakes on individuals. To our knowledge, this relationship has not been investigated. It is well-documented that childhood negative experiences are associated with human behaviour in adulthood. For example, Herrenkohl et al [45] found that childhood psychological maltreatment was associated with anger, self-esteem, autonomy and life satisfaction in adults. Similarly, Arslan [24] revealed that childhood psychological maltreatment was positively related to optimism and negatively related to pessimism among college students. In line with the literature, in this study, the correlation results revealed that childhood psychological maltreatment was positively related to optimism and negatively related to pessimism, as we expected. This means that as childhood psychological maltreatment increases, optimism decreases and pessimism increases. This finding revealed that the findings of previous studies were also observed in adults and earthquake survivors. Similarly, correlation results indicated that childhood psychological maltreatment was positively associated with peritraumatic distress. This finding is consistent with the findings of studies revealing that childhood psychological maltreatment may be a risk factor for developing psychological problems after traumatic events such as earthquakes [39]. Finally, correlation analysis results revealed that peritraumatic distress, like childhood psychological maltreatment, was also positively related to optimism and negatively related to pessimism.

As far as we know, although there is no study directly examining this relationship, it is well-documented that adverse life events have a psychologically negative impact on individuals' future expectations, as mentioned above. For example, Brodhagen and Wise [46] found that experiences of traumatic events were negatively related to optimism. In this respect, the findings of the present paper confirm and expand the relevant literature. As we expected, the most important finding of this study was that peritraumatic distress had a mediating role in the relationship between childhood psychological maltreatment and optimism and pessimism. Some researchers have examined the mediating effect of peritraumatic distress. For example, Boelen [47] revealed the mediating role of

peritraumatic distress in the impact of violent a loss and unexpectedness of the loss on post-traumatic stress disorder. Similarly, some previous studies [48-50] reveal the role of possible mediators such as aversion to happiness in the relationship of childhood psychological maltreatment with optimism and pessimism. However, as far as is known, there is no study examining peritraumatic distress in these relationships. In addition, conducting the current study with the earthquake survivors makes the current study even more valuable. These findings revealed that childhood psychological maltreatment is associated with optimism and pessimism through peritraumatic distress, and that peritraumatic distress is a risk factor that can increase the effect of childhood psychological maltreatment on future expectations.

The present study has several basic limitations. First, the findings of the study are based on self-reported questionnaires. As it is well known, self-reported questionnaires may be prone to bias. Also, retrospective reports of adults about childhood psychological maltreatment may have affected the results of the current study due to recall problems. Conducting research with behavioural measures will be effective in overcoming these limitations. The cross-sectional nature of the study is another limitation. In our study, we stated that theoretically adverse life experiences such as childhood psychological maltreatment and earthquakes can affect future expectations. In other words, we implied that peritraumatic distress can affect optimism and pessimism. However, there are also studies suggesting that optimism and pessimism may affect the impact of the traumatic event on individuals [49-51].

The findings of the current study and previous studies indicate that the relationship between peritraumatic distress and optimism and pessimism may be bidirectional. Longitudinal and experimental studies are recommended to reveal the causality between the variables of the study. Lastly, in our study, the earthquake was considered a traumatic event and earthquake-related peritraumatic distress were measured. Similar relationships were also observed in different types of traumatic events. It is thought that research testing whether these relationships are also confirmed in different types of traumatic events will expand the relevant literature.

Despite all these limitations, our study highlighted the traumatic effect of earthquakes. The present study revealed the relationship between childhood psychological maltreatment with optimism and pessimism and the role of peritraumatic distress in this relationship. Examination of this relationship in a special group, such as earthquake survivors, expands the literature and sheds light on practitioners by revealing possible predictors of optimism and pessimism.

## **CONCLUSION**

In conclusion, this study contributes to the expanding literature by illustrating the influence of the earthquake on the psychological well-being of survivors in Turkey. Therefore, the present findings provide novel perspectives that can inform the development and implementation of future psychotherapeutic strategies or psychological interventions aimed at enhancing individuals' positive self-perceptions, life outlook, and future orientation. Emphasizing these positive aspects holds significant potential for intervention programs targeting helping people, who are at risk of earthquake, facilitating their improved functioning in daily life.

**Author Contributions:** Conceptualization: ZGC. Methodology: ZGC, IA, MY. Software: MY. Validation: MY, FC, IAA, AZ. Formal analysis: ZGC. Investigation: IA, IAA, RB, KB. Resources: ZGC, MY. Data curation: ZGC. Writing—original draft preparation: ZGC, MY. Writing—review, and editing: MES, IAA, SHC, FC, LS, GN, NB, AR, AZ, MY. Visualization: MY. Supervision: FC, MY. Project administration: MY. All authors have read and agreed to the published version of the manuscript.

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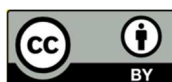


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