EKUAD JETPR
Eğitim Kuram ve Uygulama Araştırmaları Dergisi

ISSN 2149-7702
e-ISSN 2587-0718

DOI: 10.38089/ekuad.2025.241

Vol 11 (2025) Issue 3, 259-270

# Anxiety Sensitivity and Emotion Regulation as Predictors of Psychological Resilience in Adolescents Exposed and Unexposed to an Earthquake

**Eda ASLAN TÜRK[1], Eyüp ÇELİK[2]**

## Abstract

The present study aimed to investigate the relationship between adolescents' psychological resilience and their levels of anxiety sensitivity and emotion regulation skills. Additionally, it examined whether psychological resilience differs based on adolescents' exposure to an earthquake. Employing a quantitative research design, the study used correlational research design. The sample consisted of 785 high school students (434 girls and 351 boys) aged between 15 and 16. Among them, 356 had experienced an earthquake, while 429 had not. Data were collected using the Child and Youth Resilience Measure (CYRM-12), the Childhood Anxiety Sensitivity Index (CASI), and the Regulation of Emotions Questionnaire (REQ) for Adolescents. The analyses included correlation, multiple regression, and independent samples t-tests. All subdimensions of emotion regulation (internal-functional, internal-dysfunctional, external-functional, and external-dysfunctional) significantly predicted psychological resilience. A negative correlation was found between psychological resilience and the cognitive dimension of anxiety sensitivity; however, psychological resilience did not significantly predict overall anxiety sensitivity. Furthermore, no significant difference in psychological resilience was found between adolescents who had experienced an earthquake and those who had not. The results are discussed in the context of existing literature.

**Key Words**

Psychological resilience
Anxiety sensitivity
Emotion regulation skills
Adolescence
Earthquake

**About Article**

Sending date: 07.01.2025
Acceptance date: 04.11.2025
E-Publication date: 31.12.2025

[1] Psychological Counselor, Sakarya University, Türkiye, eda.aslan@ogr.sakarya.edu.tr , https://orcid.org/0000-0003-4453-3100

[2] Assoc. Prof. Sakarya University, Türkiye, eyupcelik@sakarya.edu.tr, https://orcid.org/0000-0002-7714-9263

## Introduction

Adolescence is a critical developmental period marked by rapid physiological, hormonal, and emotional changes. During this period, adolescents often experience emotions with great intensity and may struggle to regulate them effectively, leading to both internal conflicts and difficulties in their relationships with others (Kılıç, 2016). Such emotional turbulence may impair adolescents' individual and social functioning, increasing their vulnerability to psychological difficulties. Given the emotional turbulence characteristic of this stage, identifying effective coping mechanisms is essential (İkiz, 2020). Numerous studies emphasize the necessity of implementing preventive and protective interventions for adolescents, particularly those considered to be at psychological risk, as this period is associated with heightened vulnerability to mood disorders.

Among the protective variables, resilience emerged as a particularly important factor, enabling them to adapt positively despite challenges and hardships. Psychological resilience has been shown to buffer the negative effects of stress, promote mental well-being, and support the development of healthy coping strategies (Demircioğlu & Yoldaş, 2019; Ezer, 2017; Polizzi et al., 2020). According to Rutter (1993), psychological resilience serves a crucial role in mitigating emotional disturbances and facilitating problem-solving during challenging experiences. In a study conducted with adolescents, Arslan (2015) found that resilience was positively associated with self-efficacy and positive emotional states, reinforcing its role as a protective asset. Similarly, Kabasakal and Arslan (2014) concluded that resilience may shield adolescents from the detrimental effects of various risk factors, including environmental stressors and emotional dysregulation. Furthermore, resilience still receives considerable attention due to its relevance in helping adolescents manage global crises such as pandemics, natural disasters, and displacement. For instance, Masten and Motti-Stefanidi (2020) emphasized the need to support youth resilience during large-scale adversities, highlighting its influence on long-term psychological health. In light of this, understanding the mechanisms that contribute to resilience is crucial for developing targeted interventions that support adolescent well-being. In summary, psychological resilience not only allows individuals to cope effectively with difficult life events but also plays a central role in managing stress, anxiety, and other emotional reactions that arise in the face of adversity.

Adolescence is a developmental period characterized by emotional fluctuations and increasing responsibilities, often characterized by intense stress and anxiety. This can lead to a decrease in psychological resilience and an increase in anxiety sensitivity. Life experiences play a significant role in the development of anxiety, which can manifest as both psychological and physiological symptoms (Türkçapar, 2004). The literature frequently emphasizes a negative relationship between psychological resilience and anxiety (Demirsu, 2018; Önel, 2021). Önel (2021) reported that resilience levels are inversely proportional to anxiety sensitivity and depression. Anxiety sensitivity is also associated with various psychological disorders. Mantar (2008) and Şimşek (2015) found that this variable is linked to problems such as anxiety, depression, obesity, and compulsive symptoms. Furthermore, Schmidt et al. (1997) emphasized that anxiety sensitivity can predict cognitive impairments. These findings suggest that anxiety sensitivity is closely related not only to anxiety levels but also to cognitive and emotional functions. According to Kavurma (2014), increased stress during adolescence can negatively impact emotional regulation skills. Therefore, the relationship between anxiety sensitivity and emotion regulation difficulties is critical to understanding how psychological resilience functions at this developmental stage. In this regard, the current study aims to examine the relationship between psychological resilience, anxiety sensitivity, and emotion regulation skills in adolescents.

Traumatic life events, such as natural disasters, further intensify the impact of anxiety sensitivity and resilience. According to Herman et al. (2011), psychological resilience is a trait that can develop after individuals are exposed to traumatic events, enabling them to recover and adapt. Türkiye, a country that has experienced many traumatic and challenging events throughout its history, was most recently affected by the devastating earthquake that struck on February 6, 2023, centered in Kahramanmaraş. This disaster directly impacted 11 provinces, resulted in the deaths of over 45,000 people, caused thousands of injuries, and led to widespread displacement (Disaster and Emergency Management Authority [in Turkish; Afet ve Acil Durum Yönetimi Başkanlığı] (AFAD, 2023). Such large-scale trauma is expected to have profound psychological effects, especially on children and adolescents,

potentially increasing anxiety sensitivity and disrupting emotional regulation. Therefore, examining the protective role of psychological resilience in such contexts becomes essential.

The development of emotion regulation skills, alongside psychological resilience, plays a critical role in the effectiveness of both remedial and preventive interventions following traumatic life events. Emotion regulation refers to the ability to recognize, understand, and manage emotional responses in ways that are adaptive and appropriate to the context (Gross, 2003). It encompasses a range of cognitive and behavioral strategies used to influence the intensity, duration, and expression of emotional experiences. Effective regulation, such as cognitive reappraisal, is associated with psychological well-being, whereas maladaptive strategies, such as suppression or rumination, may contribute to increased vulnerability to psychopathology.

Contemporary models of emotion regulation conceptualize these strategies within four distinct subdimensions: Internal Functional Emotion Regulation, Internal Dysfunctional Emotion Regulation, External Functional Emotion Regulation, and External Dysfunctional Emotion Regulation (Zelkowitz & Cole, 2016). Internal functional strategies include cognitive reappraisal and emotional acceptance processes, while internal dysfunctional strategies encompass suppression, rumination, and self-blame. External functional regulation involves seeking social support or expressing emotions in socially acceptable ways, whereas external dysfunctional regulation may manifest as aggression, emotional outbursts, or manipulative behaviors (Phillips & Power, 2007; Zelkowitz & Cole, 2016). Recognizing these subdimensions is crucial for understanding how emotion regulation operates across different contexts and how it interacts with psychological resilience.

Soylu and Meydan (2021) emphasized that the development of these skills enables individuals to express emotions through appropriate channels, contributing to emotional maturity and resilience. Erdoğan (2014) found a significant relationship between anxiety sensitivity and emotion regulation, noting that deficits in emotion regulation may predict the emergence of posttraumatic stress disorder (PTSD) symptoms. Similarly, studies have shown that emotion regulation is a strong predictor of psychological resilience (Öztürk, 2019). Catalino and Fredrickson (2011) highlighted that individuals who are able to regulate their emotions positively in the face of adversity tend to exhibit higher levels of resilience. In summary, adolescents who develop functional emotion regulation skills are better equipped to cope with negative emotions triggered by adverse life experiences, thereby enhancing their psychological resilience and overall emotional well-being.

The primary aim of this study is to examine the predictors of psychological resilience among adolescents who have been exposed to earthquakes and those who have not. Specifically, the study focuses on two key psychological constructs—anxiety sensitivity and emotion regulation—and seeks to understand their respective roles in shaping resilience in the aftermath of traumatic life events such as natural disasters. Anxiety sensitivity, defined as the fear of anxiety-related sensations due to beliefs that these sensations have harmful physical, psychological, or social consequences, has been identified in the literature as a significant risk factor for emotional disorders. Adolescents with high anxiety sensitivity may perceive physiological symptoms of stress more intensely, potentially reducing their capacity to adapt to adversity. Investigating anxiety sensitivity in the context of trauma exposure is crucial for identifying individuals who may be more vulnerable to stress-related psychopathology. Emotion regulation, on the other hand, is regarded as a protective factor that enhances psychological resilience. It refers to the ability to monitor, evaluate, and modulate emotional reactions in adaptive ways. Adolescents who develop functional emotion regulation strategies are often better equipped to manage negative emotions triggered by traumatic experiences, thereby supporting their mental health and overall resilience. Understanding the role of emotion regulation in the post-disaster context is essential for informing intervention strategies aimed at strengthening emotional coping mechanisms in youth. Given the psychological risks posed by large-scale traumatic events such as earthquakes, this research holds particular significance. The findings may contribute to the design of targeted psychological support and intervention programs that aim to psychological resilience among adolescents, especially those affected by disasters.

The primary aim of this study is to examine the relationship between adolescents' psychological resilience and their levels of anxiety sensitivity and emotion regulation skills. In line with this general aim, the following specific objectives are presented:

1. Is there a significant relationship between adolescents' psychological resilience levels and their emotion regulation skills, and do these skills predict psychological resilience?
2. Is there a significant relationship between adolescents' psychological resilience levels and their anxiety sensitivity?
3. Is there a significant difference in psychological resilience levels between adolescents who have experienced an earthquake and those who have not?

## Method

### *Model of the Research*

To obtain the data needed within the scope of this research, a quantitative research method and correlational research design were used. The main purpose of correlational research designs is to examine the relationships between one or more variables without considering cause-and-effect relationships (Büyüköztürk et al., 2021).

### *Sample*

The sample consists of 9th- and 10th-grade high school students studying in provinces affected by the February 6, 2023, Kahramanmaraş earthquake, namely, Hatay, Adana, Malatya, Elazığ, Osmaniye, Diyarbakır, Gaziantep, and Şanlıurfa, as well as in provinces not affected by the earthquake, including Düzce, Sakarya, and Kırşehir. Of the 785 students who voluntarily participated in the study, 434 were girls and 351 were boys. While 356 participants had direct experience of the earthquake, 429 did not.

The inclusion of Düzce, Sakarya, and Kırşehir as part of the non-affected group was based on their geographical and seismic distance from the epicenter and primary impact zones of the February 6 earthquake. Although Düzce and Sakarya have historically experienced major earthquakes, they were not significantly impacted, neither physically nor psychologically, by this particular seismic event. Kırşehir, on the other hand, is located outside the active seismic zones affected by the earthquake and did not report any substantial effects. For these reasons, these provinces were considered appropriate representatives of the group not exposed to the February 6 disaster in the context of this study.

### *Data Collection Process*

Data collection for the study started in April 2023, approximately two months after the February 6, 2023, Kahramanmaraş earthquake, and was completed in June 2023. The data were gathered through a paper-and-pencil method in collaboration with teachers working in both earthquake-affected and non-affected provinces. The measurement tools were sent to these teachers via postal mail, who then administered them to volunteer students and returned the completed forms to the researcher. Prior to data collection, the necessary permissions were obtained from school administrations, and participants were informed about the purpose of the study. Informed consent was obtained in accordance with ethical research principles and voluntary participation. Ethical approval for this study was obtained from the Ethics Committee of Sakarya University (Approval No: E-61923333-050.99-255126). The two-month interval following the earthquake allowed participants to partially move beyond the acute trauma phase, thereby enabling more stable and reflective responses regarding psychological resilience and the associated variables.

### *Data Collection Tools*

#### Child and Youth Resilience Measure (CYRM-12)

Liebenberg, Ungar and LeBlanc in 2012 evaluated the psychological resilience of children and young people; a short-form study was conducted in 2013 and was adapted into Turkish by Arslan (2015). The research was conducted on a sample group between the ages of 11 and 16. The Child and Youth Resilience Measure (CYRM-12) consists of 12 items and a single dimension. The items are rated on a 5-point Likert scale ranging from "It completely describes me" (5) to "It does not describe me at all" (1). The lowest score that can be obtained from the scale is 12, and the highest score is 60. There are no reverse items in the scale. The factor loading value of the scale varies between .54 and .81. This shows that the scale items have high representative power. The results of the factor analysis revealed that the scale consisted of a single factor that explained 51.28% of the total variance. According to the confirmatory factor analysis results, *the χ2 value* was found to be significant at the .01 level. The RMSEA value has a fit index of .060. Statistical analysis revealed that the NFI was .94, the GFI was .94, the IFI was .97 and the CFI was .97, and when the RMR value was examined, the fit index was 039. The calculated Cronbach's reliability alpha was found to be .91. This information shows that the Child and Youth Psychological Resilience Measure is a valid and reliable measurement tool.

#### Childhood Anxiety Sensitivity Index (CASI)

This scale, developed by Silverman et al. (1991) to assess concerns and fears related to anxiety-related bodily sensations, was adapted into Turkish by Arslan and Zinnur Kılıç (2015) following validity and reliability studies. The scale consists of 18 items with 3 subdimensions (physical, social, and cognitive) and is rated on a 3-point Likert scale (1 = not at all - 3 = very much) to facilitate understanding. The lowest score that can be obtained from the scale is 18, and the highest score is 54. In the confirmatory factor analysis, the fit indices were $\chi^2 / sd < 2$ $p < 0.0$, the GFI and CFI values were greater than 0.90, and the RMSA was smaller than 0.05. The factor loadings vary between 0.30 and 0.32. As a result of the statistical analysis performed to determine the reliability level, the Cronbach's alpha value was found to be 0.74, and the test-retest reliability was found to be $r = 0.77$, $p < 0.001$. These results indicate that the scale is valid and reliable.

#### Regulation of Emotions Questionnaire (REQ) for Adolescents

Phillips and Power (2007) aimed to reveal the ways in which adolescents manage emotional reactions. This scale was adapted into Turkish following validity and reliability studies conducted by Duy and Yıldız (2014). The scale consists of 18 items and four subdimensions (*internal functional emotion regulation, internal dysfunctional emotion regulation, external functional emotion regulation, and external dysfunctional emotion regulation*). Scores obtained from each subdimension provide information about the emotion regulation strategies most frequently used by adolescents. The scale is rated on a 5-point Likert scale, and total scores obtained from the scale range from 18 to 90. As a result of the exploratory factor analysis performed to determine the fit of the four-dimensional model of the scale, the fit index values calculated were found to be at an acceptable level ($\chi 2 = 517.94$, $df = 129$, $\chi 2/df = 4.01$, $p = 0.00$). While the factor loadings of the items in the scale vary between .50 and .85, the internal consistency coefficient of the scale varies between .59 and .76.

### *Data analysis*

In this study, the relationships among psychological resilience, anxiety sensitivity, and emotion regulation skills were examined using Pearson correlation coefficients and multiple regression analyses. Furthermore, an independent samples t-test was conducted to determine whether adolescents' psychological resilience levels differed based on earthquake exposure. Prior to the analyses, normality and linearity assumptions were tested. Mahalanobis distance values were calculated, and 20 multivariate outliers ($p < .01$) were excluded from the dataset to ensure these assumptions.

Descriptive statistics, including arithmetic means, standard deviations, skewness, and kurtosis values for participants' scores on the psychological resilience, emotion regulation, and anxiety sensitivity scales, are presented in Table 1. Findings related to the assumptions of normality and regression analyses are provided in Figure 1. All statistical analyses were conducted using the IBM SPSS Statistics 26 software.

**Table 1.** Results of descriptive statistics

| | $\bar{x}$ | *SD* | Skewness | Kurtosis | Min. | Max. |
|---|---|---|---|---|---|---|
| Psychological resilience | 42.53 | 7.773 | -.098 | -.476 | 21 | 60 |
| Physical anxiety sensitivity | 21.17 | 5.193 | .313 | -.554 | 12 | 35 |
| Cognitive anxiety sensitivity | 4.71 | 1.600 | .733 | -.231 | 3 | 9 |
| Social anxiety sensitivity | 6.66 | 1.518 | -.161 | -.626 | 3 | 10 |
| Internal functional emotion regulation | 14.81 | 3.288 | -.461 | -.134 | 5 | 20 |
| Internal dysfunctional emotion regulation | 14.55 | 4.405 | .057 | -.640 | 5 | 25 |
| External functional emotion regulation | 10.92 | 3.650 | .106 | -.613 | 4 | 20 |
| External dysfunctional emotion regulation | 10.62 | 4.042 | .554 | -.441 | 5 | 22 |

*N=785*

As presented in Table 1 and supported by Figure 1, the skewness values range between -.461 and .733, while kurtosis values fall between -0.640 and -0.134. According to George and Mallery (2010), values within the ±1 range for both skewness and kurtosis indicate that the data approximate a normal distribution. Therefore, it can be stated that the dataset meets the assumptions for parametric analyses.

The mean score for psychological resilience was 42.53 (*SD* = 7.77), with a range between 21 and 60. Given the scale's possible score range, participants' resilience levels appear to be moderate to relatively high. However, definitive interpretation should rely on standardized norms or cut-off values, if available.

Regarding emotion regulation, scores were assessed across four subdimensions. The highest mean was observed in the internal dysfunctional regulation subdimension ($\bar{x}$ = 14.55, *SD*= 4.41), suggesting that adolescents may more frequently resort to maladaptive internal emotion regulation strategies (e.g., self-blame, rumination). The internal functional regulation subdimension ($\bar{x}$ = 14.81, *SD*= 3.29) also yielded a relatively high average, indicating that adolescents tend to use both adaptive and maladaptive internal strategies.

In terms of anxiety sensitivity, participants scored highest in the physical dimension ($\bar{x}$ = 21.17, *SD* = 5.19), indicating moderate concern regarding physical symptoms associated with anxiety (e.g., heart palpitations, dizziness). The cognitive anxiety sensitivity mean ($\bar{x}$ = 4.71, *SD* = 1.60) was lower, suggesting that adolescents were less likely to fear cognitive aspects of anxiety, such as losing control or going crazy. Similarly, the mean score for social anxiety sensitivity ($\bar{x}$ = 6.66, *SD* = 1.52) reflected a moderate level of concern about being judged or embarrassed in social settings.

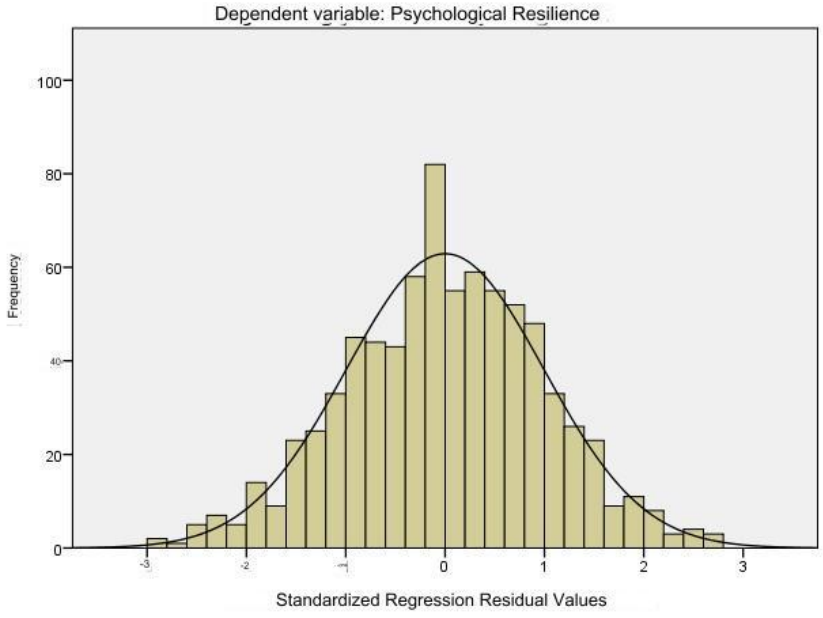


**Figure 1**. Normal distribution curve

## Findings

In this study, the relationships between psychological resilience and anxiety sensitivity (physical, cognitive, social) and emotion regulation skills (internal functional, internal dysfunctional, external functional, external dysfunctional) were examined via Pearson correlation analysis, and the findings are presented in Table 2.

**Table 2**. Results of the pearson correlation analysis

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Psychological resilience | 1 | | | | | | | |
| Physical anxiety sensitivity | -.030 | 1 | | | | | | |
| Cognitive anxiety sensitivity | -.103** | .431** | 1 | | | | | |
| Social anxiety sensitivity | -.029 | .062 | .053 | 1 | | | | |
| Internal functional emotion regulation | .303** | .123** | .095** | .163** | 1 | | | |
| Internal dysfunctional emotion regulation | -.353** | .347** | .338** | .244** | .119** | 1 | | |
| External functional emotion regulation | .208** | .229** | .165** | -.147** | .179** | .025 | 1 | |
| External dysfunctional emotion regulation | -.364** | .056 | .121** | -.003 | -.087* | .277** | .090* | 1 |

***p<.01, *p<.05 N=785*

Upon examining Table 2, a statistically significant but weak negative correlation was found between psychological resilience and the cognitive dimension of anxiety sensitivity ($r = –.10$, $p < .01$). No significant correlations were observed between psychological resilience and the physical or social dimensions of anxiety sensitivity.

In terms of emotion regulation, psychological resilience was found to be positively and significantly correlated with both internal functional ($r = .30$, $p < .01$) and external functional ($r = .20$, $p < .01$) regulation strategies. Conversely, internal dysfunctional ($r = –.35$, $p < .01$) and external dysfunctional ($r = –.36$, $p < .01$) emotion regulation strategies were negatively and significantly associated with psychological resilience.

Based on these findings, a multiple regression analysis was conducted including only the subdimensions of emotion regulation and anxiety sensitivity that showed significant correlations with psychological resilience. The results of the regression analysis are presented in the following section.

**Table 3.** Regression analysis results regarding the level of prediction of the psychological resilience variable in adolescents to emotion regulation and cognitive anxiety sensitivity subdimensions

| Predictive Variables | *B* | *DF* | *β* | *t* | *p* |
|---|---|---|---|---|---|
| Still | 40.23 | 1.736 | | 23.463 | .000 |
| Cognitive anxiety sensitivity | -.172 | .162 | -.035 | -1.058 | .290 |
| Internal functional emotion regulation | .658 | .072 | .278 | 9.082 | .000 |
| Internal dysfunctional emotion regulation | -.572 | .061 | -.324 | -9.450 | .000 |
| External functional emotion regulation | .413 | .067 | .194 | 6.203 | .000 |
| External dysfunctional emotion regulation | -.510 | .059 | -.265 | -8.569 | .000 |

*R= 581 $R^2$=.338 Adjusted $R^2$=332*

A multiple regression analysis was conducted to examine the effects of emotion regulation subdimensions and the cognitive dimension of anxiety sensitivity on adolescents' psychological resilience. The physical and social anxiety sensitivity subdimensions were excluded from the model, as correlation analyses revealed no significant relationship between these dimensions and psychological resilience.

The results showed that internal functional emotion regulation ($\beta = .278$, $p < .001$) and external functional emotion regulation ($\beta = .194$, $p < .001$) were positive and significant predictors of psychological resilience. In contrast, internal dysfunctional emotion regulation ($\beta = –.324$, $p < .001$) and external dysfunctional emotion regulation ($\beta = –.265$, $p < .001$) were negative and significant predictors. The variable of cognitive anxiety sensitivity did not significantly predict psychological resilience ($\beta = –.035$, $p = .290$).

These findings indicate that adolescents' ability to employ both internal and external functional emotion regulation strategies is associated with higher levels of psychological resilience, whereas the use of dysfunctional strategies is associated with lower resilience levels. The inclusion of emotion regulation subdimensions in the analysis allows for a more detailed examination of how different strategies influence resilience and helps identify which strategies function as protective or risk factors.

Finally, an independent samples t-test was conducted to determine whether adolescents' psychological resilience levels differed significantly according to earthquake exposure. The results are presented in Table 4.

**Table 4.** Independent samples t-test results examining the psychological resilience variable in adolescents in terms of whether or not they experienced an earthquake

| | | | | Levene's Test | | t-Test | | |
|---|---|---|---|---|---|---|---|---|
| Variables | Category | $\bar{x}$ | *SD* | *F* | *p* | *t* | *DF* | *p* |
| Psychological resilience | Experiencing an earthquake | 42.96 | 7.89 | .379 | .538 | 1.424 | 783 | .155 |
| | No earthquake | 42.17 | 7.66 | | | | | |

Table 4 presents the results of the independent samples t-test examining differences in psychological resilience according to earthquake exposure. The analysis revealed no statistically significant difference between adolescents who experienced the earthquake ( $\bar{x}$ = 42.96, *SD*= 7.89) and those who did not ($\bar{x}$ = 42.17, *SD*= 7.66), *t* (783) = 1.42, *p* = .155. These findings indicate that earthquake exposure did not have a measurable impact on adolescents' psychological resilience levels.

## Discussion, Conclusion and Suggestions

This study examined the relationships among psychological resilience, anxiety sensitivity, and emotion regulation skills in adolescents. It also investigated whether psychological resilience levels differed according to earthquake exposure. The findings demonstrated that psychological resilience was significantly predicted by the subdimensions of emotion regulation: internal functional, internal dysfunctional, external functional, and external dysfunctional regulation. This result aligns with the existing literature, which indicates that emotion regulation has a predictive effect on psychological resilience (Aldao et al., 2010; Kır et al., 2021; Öztürk, 2019; Seçim, 2020). Particularly during adolescence, adaptive emotion regulation strategies have been reported to enhance psychological resilience, whereas maladaptive strategies tend to undermine it. Accordingly, the findings support the notion that both functional and dysfunctional dimensions of emotion regulation exert differential effects on psychological resilience.

Significant positive correlations were found between psychological resilience and both internal and external functional emotion regulation, while internal and external dysfunctional emotion regulation were negatively correlated with psychological resilience. In a study by İşözen and Kolay (2022), functional emotion regulation skills were identified as playing a protective role against life difficulties, especially during the vulnerable adolescent period, whereas maladaptive emotion regulation strategies were linked to increased risks of addiction, violence tendencies, hopelessness, and risky behaviors. Similarly, Gross and John (2003) reported that the use of functional strategies such as cognitive reappraisal supports psychological adjustment, whereas maladaptive strategies like emotional suppression are negatively associated with psychological resilience. In light of these findings, strengthening adaptive emotion regulation strategies can be considered critical for the development of psychological resilience in adolescents.

Individuals with high psychological resilience are capable of generating positive emotions even under stress, and individuals who adopt functional emotion regulation strategies tend to have strengthened psychological resilience (Southwick et al., 2011; Tugade & Fredrickson, 2007). Consistent with this perspective, the results of the present study indicate that internal and external functional emotion regulation strategies positively contribute to psychological resilience, whereas internal and external dysfunctional strategies have a diminishing effect. This suggests a mutual and dynamic interaction between emotion regulation and psychological resilience. Therefore, interventions aimed at

enhancing psychological resilience, particularly during adolescence, should prioritize the development of functional emotion regulation skills.

Although the correlation analysis revealed a negative relationship between psychological resilience and only the cognitive subdimension of anxiety sensitivity, the regression analysis indicated that none of the subdimensions of anxiety sensitivity predicted psychological resilience. The literature shows that as a person's capacity to show flexibility when faced with stress, trauma, or difficulties increases, the tendency for intense anxiety in their intellectual processes decreases (Demirsu, 2018; Önel, 2021). However, in this study, the effects of adolescents' egocentric mentality may be attributed to the fact that psychological resilience does not predict anxiety sensitivity. Elkind (1967) stated that the idea of indestructibility, which is one of the dimensions of the adolescent self-centered mindset, indicates that individuals perceive themselves as strong and able to overcome all kinds of difficulties. This may be a developmental process, or it may be a defense mechanism used by the adolescent to combat intense anxiety.

In this study, psychological resilience levels did not differ significantly according to earthquake experience. The literature indicates that psychological resilience is not merely a characteristic that emerges after trauma, but rather a capacity that develops throughout life and serves as a protective factor that reduces the degree of impact from traumatic events (Wang et al., 2022; Yule et al., 2018). Individuals with high resilience tend to experience fewer negative emotional consequences following trauma and recover more quickly. Moreover, some studies have shown that low resilience is a strong predictor of post-traumatic stress symptoms (Lee et al., 2016). In this context, the absence of differences between adolescents who had and had not experienced an earthquake in our study may be explained by the protective effects of resilience levels that existed prior to the traumatic event. Additionally, the degree of earthquake exposure (such as witnessing destruction, experiencing the loss of a loved one, or sustaining direct physical harm) can have varying effects on psychological resilience. Due to the lack of precise data on exposure levels, the absence of significant differences between groups appears plausible. Furthermore, social support plays an important role in psychological recovery after trauma. Stein et al. (2003) emphasized the restorative effects of social support networks and the type of support provided on adolescents' emotional well-being and coping strategies following trauma. In the Turkish context, the prevalence of a collectivist lifestyle, strong kinship ties, and peer support, particularly among adolescents, may serve as protective factors that help stabilize resilience levels after an earthquake. Therefore, the findings suggest that psychological resilience is a multidimensional construct supported by both individual and environmental resources.

This study has several limitations that should be acknowledged. First, the sample consisted exclusively of adolescents aged 15–16, which restricts the generalizability of the findings to other age groups. In addition, the cross-sectional design of the study prevents the establishment of causal relationships among the variables. Data collection began approximately two months after the earthquake, suggesting that participants' psychological reactions might have been either at an early stage or still evolving during the assessment period. Therefore, the results should be interpreted with caution. Another important limitation concerns the nonsignificant relationship observed between anxiety sensitivity and psychological resilience, which warrants further investigation. Possible explanations for this result may include characteristics of the measurement instruments, sample-specific factors, or complex interactions among the variables examined.

Future studies should explore the relationship between anxiety sensitivity and psychological resilience using more diverse samples and advanced analytical approaches. It is also recommended that future research include broader age groups (children, adolescents, and adults) and assess the severity of earthquake exposure. Longitudinal and mixed-method designs incorporating both quantitative and qualitative data could provide a more comprehensive understanding of resilience development and dynamic responses to trauma. Such approaches would allow for a deeper exploration of how resilience and related variables influence mental health in the aftermath of disasters. In conclusion, while this study offers valuable insights into adolescents' levels of psychological resilience, addressing its limitations and conducting more comprehensive investigations will significantly contribute to the advancement of knowledge in this field.

**Conflicts of Interest**

The authors declare that they have no conflict of interest.

**Funding**

The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript. The authors received no specific funding for this work.

**Data Availability**

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

## References

AFAD (2023). *Republic of Turkey, Ministry of Interior Disaster and Emergency Management Presidency*. Access address: https://deprem.afad.gov.tr/last-earthquakes(2023).

Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30*(2), 217–237. https://doi.org/10.1016/j.cpr.2009.11.004

Arslan, G. (2015). Psychological resilience in adolescents: The role of individual protective factors. *Turkish Psychological Counselling and Guidance Journal, 5*(44), 73-82. https://dergipark.org.tr/en/download/article-file/631450.

Asmundson, G. J., & Stapleton, J. A. (2008). Associations between dimensions of anxiety sensitivity and PTSD symptom clusters in active-duty police officers. *Cognitive Behaviour Therapy, 37*(2), 66-75. https://doi.org/10.1080/16506070801969038

Büyüköztürk, Ş., Kılıç Çakmak, E., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2021). *Scientific research methods* (32nd ed.). Ankara: Pegem Academy.

Catalino, L. I., & Fredrickson, B. L. (2011). A Tuesday in the life of a flourisher: The role of positive emotional reactivity in optimal mental health. *Emotion, 11*(4), 938-950. https://doi.org/10.1037/a0024889

Demircioğlu, H., & Yoldaş, C. (2019). Psychosocial risk factors and protective elements in childhood and adolescence. *Ankara Health Services Journal, 18*(1), 40-48. https://dergipark.org.tr/en/pub/ashd/article/535725.

Demirsu, Ö. (2018). *The mediating roles of resilience and anxiety sensitivity on the relationship between perceived parental attitudes and trait anxiety* (Unpublished master's thesis). Işık University, Istanbul, Turkey.

Elkind, D. (1967). Egocentrism in adolescence. *Child Development, 38*(4), 1025–1034. https://doi.org/10.2307/1127100

Erdoğan, Z. (2014). *The relationship of post traumatic stress disorder symptoms, cognitive schemas, emotion regulation and anxiety sensitivity among alcohol and/or substance dependent patients* (Unpublished master's thesis). Ege University. İzmir.

Ezer, H. İ. (2017). *Examining the relationship among the psychological resiliance, happiness level and the most defense mechanisms used in adolescents: An example of Hatay city center* (Unpublished master's thesis). Çağ University. Mersin.

George, D., & Mallery, P. (2010). *SPSS for Windows step by step: A simple study guide and reference*. India: Pearson Education.

Gizir, C. (2007). Psychological resilience: A review study on risk factors and protective factors. *Turkish Psychological Counselling and Guidance Journal, 3*(28), 113-128. https://dergipark.org.tr/en/download/article-file/200204.

Gross, J. J. (2002). Emotion regulation: Affective, cognitive, and social consequences. *Psychophysiology, 39*(3), 281–291. https://doi.org/10.1017/S0048577201393198

Gross, J.J., & John, O.P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85*(2), 348–362. https://doi.org/10.1037/0022-3514.85.2.348

İkiz, F. E. (2020). Child and adolescent mental health and psychopathology. In F. Savi Çakar (Ed.), *Diagnostic and treatment approaches in child and adolescent mental health behavioral disorders* (pp. 1-32). Ankara: Pegem Academy.

İşözen, Ü. H., & Kolay, İ. (2022). Examining the relationship between psychological resilience and emotion regulation in adolescents aged 15-17. *Journal of International Social Research, 15*(84). https://doi.org/10.17719/jisr.2022.5100

Kabasakal, Z., & Arslan, G. (2014). The relationship between anti-social behavior, psychological resilience, and family problems in adolescence. *International Refereed Journal of Family, Child and Education, 2*(3), 76-90. https://doi.org/10.17359/ACED.201439230

Kavurma, M. (2014). *The effects of temperament-characteristics and anxiety sensitivity on emotion regulation difficulties in major depression, generalized anxiety disorder, and panic disorder* (Unpublished doctoral thesis). Dokuz Eylül University. İzmir.

Kılıç, M. (2016). *Real-life taste: Developmental stages 2 – Puberty and adolescence* (2nd ed.). Ankara: Pegem Academy.

Kır, Ö., Özteke Kozan, H. İ., & Koç, H. (2021). Examining the psychological resilience levels of secondary school students in terms of attachment styles and emotion regulation skills. *Current Research and Reviews in Psychology and Psychiatry, 1*(1), 1-17. https://dergipark.org.tr/tr/download/article-file/2261126

Lee, J. H., Nam, S. K., Kim, A. R., Kim, B., Lee, M. Y., & Lee, S. M. (2016). Resilience: A meta-analytic approach. Journal of Counseling & Development, 94(1), 1–13. https://doi.org/10.1002/jcad.12066

Mantar, A. (2008). *Validity and reliability study of the Turkish form of the Anxiety Sensitivity Index-3* (Unpublished doctoral thesis). Dokuz Eylül University. İzmir.

Mantar, A., Yemez, B., & Alkın, T. (2011). The role of anxiety sensitivity in psychiatric disorders. *Turkish Journal of Psychiatry, 22*(3), 187-193. https://www.turkpsikiyatri.com/PDF/C22S3/187-193.pdf

Masten, A. S., & Motti-Stefanidi, F. (2020). Multisystem resilience for children and youth in disaster: Reflections in the context of COVID-19. *Adversity and Resilience Science, 1*(2), 95–106.

https://doi.org/10.1007/s42844-020-00010-w

Önel, S. N. (2021). *Examining the relationship between self-compassion and psychological resilience with depression, anxiety, and stress during the Covid-19 process* (Unpublished master's thesis). Işık University. İstanbul.

Öztürk, H. (2019). *Examining the relationship between emotion regulation strategies and psychological resilience in university students* (Unpublished master's thesis). Hasan Kalyoncu University. Gaziantep

Polizzi, C., Lynn, S. J., & Perry, A. (2020). Stress and coping in the time of COVID-19: Pathways to resilience and recovery. *Clinical Neuropsychiatry, 17*(2), 59-62. https://doi.org/10.36131/CN20200204

Rutter, M. (1993). Resilience: Some conceptual considerations. *Journal of Adolescent Health, 14*(8), 626–631. https://doi.org/10.1016/1054-139x(93)90196-v

Schmidt, N. B., Lerew, D. R., & Jackson, R. J. (1997). The role of anxiety sensitivity in the pathogenesis of panic: Prospective evaluation of spontaneous panic attacks during acute stress. *Journal of Abnormal Psychology, 106*(3), 355. https://doi.org/10.1037/0021-843x.106.3.355

Seçim, G. (2020). The effect of cognitive flexibility and emotion regulation features on psychological resilience. *Turkish Journal of Educational Sciences, 18*(2), 505-524. https://dergipark.org.tr/tr/download/article-file/1041012

Şimşek, M. K. (2015). *Examining the correlation between the obsessive compulsive symptoms in adolescents depression and anxiety sensitivity via structural equation model* (Unpublished master's thesis). Atatürk University. Erzurum.

Southwick, S. M., Litz, B. T., Charney, D., & Friedman, M. J. (Eds.). (2011*). Resilience and mental health: Challenges across the lifespan.* Cambridge University Press.

Soylu, Y., & Meydan, B. (2021). Emotional development. In D. M. Siyez (Ed.), *Child and adolescent development: A multidimensional perspective* (pp. 474-508). Ankara: Pegem Academy.

Stein, B. D., Jaycox, L. H., Kataoka, S. H., Wong, M., Tu, W., Elliott, M. N., & Fink, A. (2003). A mental health intervention for schoolchildren exposed to violence: A randomized controlled trial. *Journal of the American Medical Association, 290*(5), 603–611. https://doi.org/10.1001/jama.290.5.603

Tugade, M. M., & Fredrickson, B. L. (2007). Psychological resilience and positive emotional granularity: Examining the benefits of positive emotions on coping and health. *Journal of Personality, 72*(6), 1161–1190. https://doi.org/10.1111/j.1467-6494.2005.00398.x

Türkçapar, H. (2004). Diagnostic relationships between anxiety disorder and depression. *Clinical Psychiatry,* 4, 12-16.

Wang, W., Wu, X., & Tian, Y. (2022). Resilience and posttraumatic growth in adolescent survivors after the Wenchuan earthquake: A ten-year longitudinal study. *Journal of Affective Disorders*, 315, 288–295. https://doi.org/10.1016/j.jad.2022.06.059

Yıldız, M. A., & Duy, B. (2014). Adaptation of the emotion regulation scale for adolescents to Turkish. *Turkish Psychological Counselling and Guidance Journal,* 5(41), 23-35. https://dergipark.org.tr/en/download/article-file/200288

Yılmaz, S., & Zinnur Kılıç, E. (2015). Validity and reliability study of the Turkish form of the anxiety sensitivity index for children. *Turkish Journal of Psychiatry,* 26(3), 197-203. https://www.turkpsikiyatri.com/PDF/C26S3/06.pdf

Yule, W., Smith, P., & Perrin, S. (2018). The role of resilience in the treatment of post-traumatic stress disorder in children and adolescents. *European Journal of Psychotraumatology*, 9(1), 1558709. https://doi.org/10.1080/20008198.2018.1558709

R. L. Zelkowitz & D. A. Cole (2016). Measures of emotion reactivity and emotion regulation: Convergent and discriminant validity. *Personality and Individual Differences, 102, 123 132.* https://doi.org/10.1016/j.paid.2016.06.045

Phillips, K. F. V. & Power, M. J. (2007). A new self-report measure of emotion regulation in adolescents: The Regulation of Emotions Questionnaire. *Clinical Psychology & Psychotherapy*, 14(2), 145-156. https://doi.org/10.1002/cpp.523