

Predictors of Post-Traumatic Stress Disorder in Adolescents: Loneliness and Self-Compassion

Çiğdem Sesliⁱ
Gaziantep University

Ali Çekiçⁱⁱ
Gaziantep University

Abstract

This study investigated the associations between adolescents' self-compassion, loneliness, and post-traumatic stress levels. The study also revealed the predictive role of self-compassion and loneliness on post-traumatic stress. Additionally, post-traumatic stress levels in adolescents were compared by gender, exposure to or witnessing trauma, and whether the individuals previously sought psychological assistance. Adopting a correlational design, the study population included adolescents aged 14-18 living in Türkiye. On the other hand, the study group consisted of 351 adolescents who were reached through simple random sampling. The participants lived in various parts of Türkiye and were exposed to or witnessed traumatic experiences. They responded to the scales online. Posttraumatic Stress Disorder Checklist for DSM-5, Self-compassion Scale for Adolescents, UCLA Loneliness Scale and Demographic Survey Form were used as data collection tools. The significance level was .05. The study concluded that higher levels of self-compassion indicate lower post-traumatic stress. Additionally, lower levels of loneliness indicate higher levels of post-traumatic stress. Self-compassion and loneliness significantly predicted post-traumatic stress in adolescents. The findings suggested that females had significantly higher levels of post-traumatic stress. Lastly, it was concluded that adolescents who sought psychological assistance and had exposure to trauma had significantly higher levels of post-traumatic stress.

Keywords: Adolescence, Posttraumatic Stress, Self-Compassion, Loneliness.

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ⁱ Çiğdem Sesli, Psychological Counselling and Guidance, Gaziantep University

ⁱⁱ Ali Çekiç, Assist. Prof. Dr., Psychological Counselling, Gaziantep University, ORCID: 0000-0002-7893-268X

Correspondence: alicekic79@gmail.com

INTRODUCTION

Traumatic life events lead to significant mental health problems in children and adolescents, and these adverse effects last long (Karakaya et al., 2004). Post-traumatic stress reactions in adolescents are identity crises, grief, guilt and shame, depression, anxiety, social withdrawal, aggression, decreased faith in life and the world, hopelessness, self-harm, loss of interest in school activities, lower self-confidence and self-esteem, challenging authority, academic failure, risky behaviors, and drug use (Qllgaard, 2017; Cohen, 2003).

However, research suggests that some protective factors might reduce or prevent the effect of trauma in possible post-traumatic stress disorders. Some adolescents experience shorter-term adjustment disorders, mild depression, or non-severe mental problems after a challenging life event (Baştuğ, 2017). For example, in a study conducted with adolescents aged 14-18 who survived an explosion in Iran, 25.6% had post-traumatic stress symptoms (Hemmati et al., 2015).

Self-compassion, which results in higher psychological resilience and is one of the variables dealt with in this study, also has a protective effect on individuals' mental health (Neff et al., 2007). It also protects individuals from anxiety and depression. Applying self-compassion-based cognitive-behavioral therapies following traumatic experiences significantly improves post-traumatic stress symptoms (Macbeth & Gumley, 2012; Valdez & Lilly, 2016).

This study investigates the association between adolescents' post-traumatic stress level (PTSD) and loneliness, which has recently become more common in adolescents and adults. Although loneliness can be defined as the isolation of the individual by the social environment, it can also be conceptualized as self-isolation due to mental health based on life experiences (Erözkan, 2009). Adolescence is the stage when loneliness is experienced most frequently by individuals (Brennan, 1982). Adolescents facing difficult life events may feel lonely when they cannot find the support they are looking for (Avcı & Yıldırım, 2014).

There is limited research on post-traumatic stress in adolescents. Teke and Avşaroğlu (2020) suggested that only one study was conducted on post-traumatic stress in adolescents in Türkiye. In this sense, it is anticipated that the current study can have significant implications for psychological assistance services and psychoeducation interventions to improve and protect adolescents' mental health. The findings of this study will also contribute to the limited knowledge base in the literature. This study hypothesized loneliness and self-compassion as predictors of adolescents' post-traumatic stress levels. The study sought answers to the following questions:

1. Are there statistically significant associations between PTSD, self-compassion, and loneliness in adolescents exposed to trauma?
2. Do self-compassion and loneliness significantly predict PTSD?
3. Do post-traumatic stress levels of adolescents statistically significantly differ by gender, exposure to trauma or witnessing trauma and whether they have had psychological assistance before?

METHOD

Research Design

The current study adopted a correlational design to investigate the correlations and predictive associations between variables. The correlational design aims to measure the presence of co-variation among several variables (Karasar, 1999, s. 81-82).

Study Group

The population of the study consists of adolescents aged 14-18. On the other hand, adolescents exposed to trauma or witnessed traumatic experiences were included in the study through random sampling. The participants lived in different parts of Türkiye and responded to the scales online. The online data collection procedure was preferred to reach the participants more easily. The online link included data collection tools, participation approval, and an informed consent form. The link was delivered to 936 adolescents; 917 voluntarily accepted to participate in the study. Among them, 351 declared that they had experienced or witnessed traumatic experiences. In conclusion, data analysis was conducted on a data set collected from 351 adolescents. Table 1 presents the demographic characteristics of the participants.

Table 1. Demographic characteristics of the participants

		<i>f</i>	%
Gender	Female	250	71.2
	Male	101	28.8
	Total	351	100.0
Age	14	54	15.4
	15	96	27.4
	16	98	27.9
	17	75	21.4
	18	28	8.0
	Total	351	100.0
Mother's education	Illiterate	6	1.7
	Primary school	85	24.2
	Secondary school	78	22.2
	High school	120	34.2
	University	50	14.2
	Graduate	12	3.4
	Total	351	100.0
Father's education	Illiterate	2	.6
	Primary school	53	15.1
	Secondary school	55	15.7
	High school	116	33.0
	University	112	31.9
	Graduate	13	3.7
Income level	Low	120	34.2
	Middle	206	58.7
	High	25	7.1
	Total	351	100.0

Table 1 presents the frequency distribution of the adolescents in the study group by gender, age, mother's and father's education, and monthly income level.

Data Collection Tools

We used Post-traumatic Stress Disorder Checklist for DSM-5, Self-compassion Scale for Adolescents, UCLA Loneliness Scale, and Demographic Survey Form to collect data. Below is detailed information about these tools.

Post-traumatic Stress Disorder Checklist for DSM-5

The Post-traumatic Stress Disorder Checklist for DSM-5 is 20 item measure. The options are responded to on a 5-point Likert-type scale, with 0 corresponding to "Not at all" and 4 "Extremely." It assesses the presence and severity of DSM-5 symptoms of PTSD. Responding to the items, the participants think about a bothering experience occupying their minds, and they indicate how often they had the symptoms of post-traumatic stress over the last month. The cutoff score is 47 to diagnose the disorder. Blevins et al. (2015) reported Cronbach's Alpha coefficient as $\alpha=.94$ and test-retest

reliability coefficient as .82. Boysan et al. (2017) adapted the scale into Turkish, and this version had a consistent factor structure with the original one (flashbacks, avoidance, negative alterations, and hyper-arousal). Cronbach's Alpha coefficients ranged between $\alpha=.73$ and $\alpha=.94$, and test-retest reliability between .64 and .78 for the dimensions and the overall scale. On the other hand, the sensitivity and specificity of the scale were .76 and .69, respectively.

Self-Compassion Scale for Adolescents

The short form of the self-compassion scale for adolescents with 12 items loading on two dimensions was used. Turkish adaptation of this form was conducted by Büyüköksüz and Erözkan (2021). It is a 5-point Likert-type scale, with "1" corresponding to "Almost Never" and 5 to "Almost Always." It is a self-report scale to measure self-compassion level. The negatively phrased items are reverse-coded (1,4,8,9,11, and 12), which should be recoded to calculate the total score (1=5; 2=4; 4=2; 5=1). The total score ranges from 12 to 60; higher scores indicate higher self-compassion. Cronbach's Alpha coefficient was $\alpha=.80$, and Pearson's Correlation coefficient was ($r=.87$), revealing the test-retest reliability.

UCLA Loneliness Scale

The scale was developed by Russell, Peplau, and Ferguson (1978), and subsequently revised by Russell, Peplau, and Cutrona (1980). Demir (1989) conducted Turkish adaptation of the scale. Cronbach's Alpha coefficient was reported as $\alpha=.96$, and test-retest reliability was $r=.94$. There are 20 items on the scale, ten reversely coded. The items include feelings or thoughts about interactions, and participants are asked to indicate how often they thought or felt this way. This is a 4-point Likert-type scale. The positively phrased items (1,4,5,6,9,10,15,16,19, and 20) are scored as "4=I often feel this way, 3=I sometimes feel this way, 2=I rarely feel this way, and 1=I never feel this way". On the other hand, negatively phrased items (2,3,7,8,11,12,13,14,17, and 18) are scored as "1=I often feel this way, 2=I sometimes feel this way, 3=I rarely feel this way, and 4= I never feel this way". The scores of each item are summed to obtain a total score. The score ranges from 20 to 80, and higher scores indicate more loneliness (Demir, 1989).

Demographic Survey Form

The form collects participants' demographic data such as gender, age, mother's and father's education, socio-economic level, whether the participants sought psychological/psychiatric assistance, and whether the participants experienced or witnessed traumatic experiences.

Data Analysis

The data analysis was conducted through SPSS 22 and the confidence interval was 95%. Descriptive statistics such as frequencies and percentages were used to reveal the demographic characteristics of participants. The data distribution was checked to decide whether to use parametric or non-parametric tests, calculating skewness and kurtosis coefficients. Table 2 presents the findings.

Table 2. Descriptive statistics and Skewness-Kurtosis coefficients

Variables	N	Mean	Sd	Skewness		Kurtosis	
	Statistics	Statistics	Statistics	Statistics	SE	Statistics	SE
Post-traumatic Stress	351	2,40	,95	-,566	,130	-,384	,260
Self-compassion	351	2,68	,60	,294	,130	-,296	,260
Loneliness	351	3,05	,35	,137	,130	-,662	,260

As Table 2 presents, skewness, and kurtosis coefficients range between -1.5 and +1.5, indicating the data's normal distribution (Tabachnick & Fidell, 2013). Based on these findings, to compare adolescents' PTSD scores by gender, whether the participants sought psychological/psychiatric assistance, and whether the participants experienced or witnessed traumatic

experiences, t-test was conducted. Additionally, the Pearson Correlation coefficient was computed to reveal the associations between PTSD, self-compassion, and loneliness, and for predictive relationships, Multiple Linear Regression analysis was conducted.

FINDINGS

This section presents the findings regarding the research questions.

Table 3. Comparison of adolescents' post-traumatic stress levels by gender

Variable	Gender	N	Mean	Sd	t	p
Post-traumatic stress level	Female	250	51,52	17,45	6,05	,000
	Male	101	38,69	19,21		

Table 3 presents t-test findings regarding the comparison of adolescents' post-traumatic stress levels by gender. The findings suggested that there was a statistically significant difference between females and males ($p=.00$; $p<.05$). The findings indicated that female adolescents' mean scores ($x=51.52$; $Sd=17.45$) were statistically significantly higher than male adolescents' ($x=38.69$; $Sd=19.21$) which suggested females' post-traumatic stress level were higher than males.

Table 4. Comparison of adolescents' post-traumatic stress levels by seeking psychological/psychiatric assistance

Variable	psychological/psychiatric assistance	N	Mean	Sd	t	p
Post-traumatic stress level	Yes	74	54.08	16.11	3.25	,001
	No	277	46.15	19.22		

Table 4 presents t-test findings regarding the comparison of adolescents' post-traumatic stress levels by seeking psychological/psychiatric assistance or not. The findings suggested that there was a statistically significant difference between adolescents' post-traumatic stress levels by seeking psychological/psychiatric assistance or not ($p=.001$; $p<.05$). Post-traumatic stress levels of adolescents who sought psychological/psychiatric assistance ($x=54.08$; $Sd=16.11$) were statistically higher than of those who did not ($x=46.15$; $Sd=19.22$).

Table 5. Comparison of adolescents' post-traumatic stress levels by exposure to trauma or witnessing trauma

Variable	Traumatic experience	N	Mean	Sd	t	p
Post-traumatic stress level	Exposure to trauma	211	51,3	17,9	4,46	,000
	Witnessed trauma	140	42,4	19,0		

Table 5 presents t-test findings regarding the comparison of adolescents' post-traumatic stress levels by exposure to or witnessing trauma. The findings showed that there was a statistically significant difference between the two groups ($p=.000$; $p<.05$). Post-traumatic stress level of adolescents who had direct exposure to trauma ($x=51.3$; $Sd=17.9$) was statistically higher than those who witnessed trauma ($x=42.4$; $Sd=19.0$).

Table 6. The correlations between adolescents' post-traumatic stress, self-compassion, and loneliness

		1	2	3
1. Post-traumatic stress	r	1		
	p			
2. Self-compassion	r	-,372**	1	
	p	,000		
3. Loneliness	r	,373**	-,319**	1
	p	,000	,000	
N		351	351	351

**Correlation is significant at the .01 level (2-tailed).

As Table 6 shows, there is a statistically significant negative association between adolescents' post-traumatic stress and self-compassion levels ($r=-.372$; $p=.00$; $p<.05$); a statistically significant positive association between adolescents' post-traumatic stress and loneliness levels ($r=.373$; $p=.00$; $p<.05$). These findings imply that as adolescents post-traumatic stress levels increase, their self-compassion decrease and as their loneliness levels increase their post-traumatic stress levels increase.

Table 7. Loneliness and self-compassion in adolescents as predictors of post-traumatic stress levels

Model	B	SE	β	t	p	Binary r	Partial r
(Constant)	49.35	6.69		7.372	.000	49.35	6.69
Loneliness	-.73	.13	-.282	-5.615	.000	-.73	.13
Self-compassion	.49	.08	.283	5.637	.000	.49	.08
R=.459 ^a	R ² =.206						
F=46.46	p=.000 ^b						

Table 7 presents the findings regarding the multiple regression model in which loneliness and self-compassion were predictors of post-traumatic stress levels in adolescents. The findings suggested that self-compassion and loneliness significantly predicted adolescents' post-traumatic stress levels ($R=.459^a$; $R^2=.206$; $F=46.46$ $p=.000^b$; $p<.005$). Independent variables (loneliness and self-compassion) explained 20% of the variance in the dependent variable (post-traumatic stress level). Both loneliness and self-compassion significantly contributed to the model. Based on the standardized regression coefficients (β), the relative importance order of independent variables on the dependent variable is self-compassion ($\beta=.283$) and loneliness ($\beta=-.282$). Drawing on these findings, it can be said that self-compassion and loneliness are statistically significant predictors of post-traumatic stress levels in adolescents.

DISCUSSION, CONCLUSION, AND SUGGESTIONS

This study compared adolescents' post-traumatic stress levels by some demographic characteristics and investigated the associations between loneliness, self-compassion, and post-traumatic stress. This section discusses the findings based on the previous literature and provides suggestions.

Firstly, the findings suggested that females' post-traumatic stress levels were higher than males. Previous research suggested inconsistent findings. While some studies demonstrated that post-traumatic stress levels in females were statistically significantly higher than in males (Lehavot et al., 2018; Ashraf et al., 2019; Xue et al., 2015; Baştuğ & Aslantaş, 2021; Kilpatrick et al., 2000; Ünver & Karakaya, 2019; Trickey et al., 2012; Karalalı, 2021); some other found no significant difference between females' and males' post-traumatic stress levels (Bulut, 2009; Liv et al., 2016; Kar et al., 2006). Olf (2017) associated this difference in PTSD by gender with biological and psychosocial factors. The author suggested that females' post-traumatic stress levels are higher because their

oxytocin levels are higher, and females face more high-impact traumas (e.g., sexual trauma) than males during their lifetime. On the other hand, Gavranidou and Rosner (2003) stressed that females' coping strategies with stress differ from males' and that females use more emotion-focused coping strategies, which are more associated with depression, anxiety, and panic leading to more post-traumatic stress symptoms. From a cultural perspective, because of the social roles and expectations attributed to them, males have to struggle more and suppress their emotions, while females are more sensitive and emotional, which might create a difference in their post-traumatic stress levels (Ediz & Gülbahçe, 2019).

Secondly, this study investigated the effect of seeking psychological assistance on adolescents' post-traumatic stress levels. The findings suggested that adolescents who did not seek psychological assistance had a higher level of post-traumatic stress than those who did. However, to our best knowledge, no previous research has investigated the role of seeking psychological assistance on post-traumatic stress levels. Children and adolescents exposed to traumatic experiences and have more post-traumatic stress symptoms have psychological needs such as being supported, listened to, and understood to cope with these traumatic events (Zara, 2011). How the individual perceives, and the perceived severity of the problem arouses assistance-seeking behavior (Yelpaze, 2016). If the individual had sought assistance before and received assistance, this would positively contribute to psychological assistance-seeking behavior (Meydan & Lüleci, 2013). Drawing on these, the fact that individuals who sought psychological assistance had higher levels of post-traumatic stress can be attributed to the perceived severity of stress, having more symptoms of post-traumatic stress, noticing that something goes wrong, and having difficulty coping with stress. It can also be concluded that such a challenging situation might lead them to seek psychological assistance.

Thirdly, the study investigated whether exposure to or witnessing trauma created a statistically significant difference in adolescents' post-traumatic stress levels. The findings suggested that adolescents who had direct exposure to trauma had statistically significantly higher levels of post-traumatic stress than those who witnessed trauma. However, previous research showed that exposure to and witnessing trauma similarly affected post-traumatic reactions. For example, Erden and Gürdil (2009) found that those directly involved in war situations and witnessed them had similar severe stress reactions. They also pointed out that even if they are not directly involved in the war, individuals who witness war on broadcasts like TV show post-traumatic stress reactions. Another study by Dürü (2006) revealed that traumatic reactions were observed not only in those who directly experienced it but also in those who witnessed the event. Baştuğ and Arslantaş (2021), on the other hand, stated that the type and proximity of the event were also influential on trauma. The studies conducted on the victims of war and terrorism suggested that physical harm and the severity of physical harm are also significant in terms of post-traumatic stress (Abenhaim et al., 1992; Verger et al., 2004). Drawing on these, it can be concluded that exposure to or witnessing trauma did not create a statistically significant difference in post-traumatic stress. Some factors lead to higher post-traumatic stress levels in individuals exposed to trauma than those who witnessed it. The nature and severity of the traumatic event and the perception of a higher physical or psychological threat risk originating from traumatic events are among these factors.

This study also dealt with self-compassion and loneliness, which were anticipated to be associated with adolescent post-traumatic stress. Additionally, the study aimed to determine the predictive strength of self-compassion and loneliness in post-traumatic stress. It concluded that higher levels of post-traumatic stress indicate lower self-compassion and higher loneliness in adolescents. On the other hand, self-compassion and loneliness explained 20% of the variance in post-traumatic stress. These findings are consistent with the previous literature. A thorough literature review yielded very few international and no national studies (in Türkiye) investigating the association between post-traumatic stress disorder and adolescent self-compassion. A study on adults in Türkiye by Tekcan (2018) revealed a negative relationship between post-traumatic stress and self-compassion. Gökmen and Deniz (2020) examined the relationship between self-insight and post-traumatic growth, which is expected to emerge following a trauma. They found that lower self-insight scores indicate lower post-traumatic growth. On the other hand, international research on adults suggested that higher levels of

self-compassion might result in lower post-traumatic stress levels (Hoffart et al., 2015; Leary et al., 2007; Maheux & Price, 2016; Tomson & Waltz, 2008). An experimental study conducted by Bulth et al. (2016) on adolescents aged 13-18 revealed that self-compassion had a protective effect against stress. Liu, Wang, and Wu (2020, 2021) concluded that self-compassion had a mediating role in post-traumatic stress and reduced post-traumatic stress symptoms. Lastly, Barlow, Turow, and Gerhart (2017) examined the associations between students' post-traumatic stress levels, childhood traumas, and self-compassion, showing that self-compassion mediated post-traumatic stress levels.

Although we could not reach a study conducted in Türkiye investigating the association between post-traumatic stress and loneliness, some studies examined the association between factors defined as post-traumatic stress symptoms and loneliness. For instance, Şahin et al. (2020) studied the relationship between the traumatic experiences of refugee university students and depression, loneliness, anxiety, post-traumatic growth, and pain. This study concluded that the excessiveness of traumatic experiences was positively related to loneliness and post-traumatic growth was negatively related to loneliness. In another study, it was reported that individuals with childhood trauma experienced more loneliness than those who did not have a sexual abuse experience (Shevlin et al., 2014). Some other studies suggested that sexual traumas led to experiencing more intense loneliness (Başoğlu, 2019; Gibson & Hartshorne, 1996). Çivitçi et al. (2009) and Akyol (2013) found that adolescents whose parents got divorced, which can be regarded as a traumatic experience, had a higher loneliness level. Güler Yılmaz (2012) revealed a positive association between shyness and loneliness. Adolescents, who tend towards violence, experience more loneliness (Haskan- Avcı & Yıldırım, 2014). Cauberghe et al. (2021) investigated how adolescents aged 13-19 used social media to relieve their loneliness and anxiety during the COVID-19 pandemic and found that loneliness had an adverse impact on happiness, and they actively used social media to cope with negative emotions. Drawing on these findings, it can be concluded that loneliness is not an antecedent but an outcome of traumatic experiences. Additionally, particularly for adolescents, post-traumatic symptoms such as distrust in the world and people, the feeling that they are the only person who experienced the trauma considering the type of the event, and the perception that it is guilt and shame might be influential on loneliness.

Lastly, another factor associated with adolescents' post-traumatic stress levels is self-compassion. Previous research showed that higher levels of self-compassion indicated lower PTSD, and self-compassion development programs or self-compassion-based psychotherapies would positively contribute to protection against PTSD (Valdez & Lilly, 2016; Karaoğlu & Erzi, 2019; Tomson & Waltz, 2008; Leary, 2007; Hoffart et al., 2015; Maheux & Price 2016; Bulth, 2016; LiuWang & Wu, 2020; LiuWang & Wu, 2021). Based on the findings in the literature and this study, we can conclude that self-compassion reduces post-traumatic stress because it facilitates accepting the pain, being aware of the fact that pain is a common phenomenon, approaching oneself with kindness in painful experiences which helps individuals cope with the destructive effect of traumas.

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