



# Childhood psychological maltreatment, optimism, aversion to happiness, and psychological adjustment among college students

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## Abstract

Although there is increasing empirical evidence of the negative impact of childhood maltreatment on adult mental health and well-being, little is known about the underlying factors that mitigate the link between psychological maltreatment and psychological adjustment. A critical step is to examine these mechanisms to develop prevention and intervention strategies to decrease the adverse impacts of child maltreatment on psychological adjustment and well-being among young adults. The presented study aimed to explore the association between childhood psychological maltreatment and young adults' psychological adjustment through aversion to happiness, optimism, and pessimism. The sample of this study comprised 511 college students. Participants included 64% female, with ranging in age between 18 and 39 years ( $M=21.36$ ,  $SD=2.55$ ). Findings from the study indicated that aversion to happiness was a significant mediator in the association of psychological maltreatment with pessimism, optimism, and psychological adjustment. Further, optimism and pessimism mitigated the link of both aversion to happiness and psychological maltreatment with psychological adjustment. The findings indicate that optimism-based strategies are key to fostering psychological adjustment and could help to reduce the negative impacts of aversion to happiness and child maltreatment on young adults' adjustment and wellbeing.

**Keywords** Psychological maltreatment · Aversion to happiness · Optimism · Psychological adjustment · College students

There is increasing empirical evidence of the negative impacts of child maltreatment on adult psychological adjustment. Childhood psychological maltreatment has been linked to an increased risk of psychosocial and behavioral impairments (Herrenkohl et al., 2012; Kim & Cicchetti 2004). Psychological adjustment is broadly defined as people's subjective sense of psychological distress and ability to function in daily life (Cruz et al., 2020). People with high levels of psychological maltreatment tend to negatively function in their daily lives and experience more psychological distress. Hence, it is essential to investigate factors, such as optimism that may help to explore the association between psychological maltreatment and psychological adjustment.

Previous studies showed that psychological maltreatment was associated with greater internalized symptoms, such as depression, stress, and externalized behaviors, including partner violence, and delinquency (Abajobir et al., 2017; Brodski & Hutz, 2012; Egeland et al., 2002; Gross & Keller, 1992; Infurna et al., 2016; Strathearn et al., 2020). Although psychological maltreatment is negatively related to a variety of adjustment indicators, little is known about the underlying factors that mediate this association. Thereby, a critical step is to explore these mechanisms to develop prevention and intervention strategies to decrease the adverse impacts of child maltreatment on psychological adjustment and well-being among emerging adults.

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## Aversion to happiness

Previous evidence has emphasized many internal and external factors related to psychological adjustment among college students, such as aversion to happiness. People develop an understanding of their own and others' feelings and

internalize and identify norms during childhood (Tsai et al., 2007). Parents also play an essential role in the forming of one's emotions, thoughts, and behaviors in this developmental stage (López Turley et al., 2010), and children growing up in dysfunctional families and exposed to negative parental behaviors (e.g., psychologically maltreated patterns) are likely to develop beliefs (e.g., happiness will lead to bad things to happen) toward happiness, including aversion to happiness (Arslan, 2021a). Aversion to happiness, also called fear of happiness, is one's belief that happiness may cause negative consequences (Joshanloo, 2013) and should be avoided because it leads to bad things happening (Joshanloo, 2018; Joshanloo & Weijers, 2014).

Previous research reported that psychological maltreatment had a positive association with aversion to happiness (Lazić & Petrović, 2020; Sar et al., 2019), and young adults with insecure attachments also reported greater aversion to happiness (Joshanloo, 2018). Additionally, aversion to happiness was linked to depressive symptoms (Jordan et al., 2020), resilience (Yildirim, 2019), the externality of happiness (Yildirim et al., 2018), dispositional hope (Belen et al., 2020), subjective happiness (Joshanloo & Weijers, 2014), and subjective, emotional, and psychological wellbeing (Joshanloo, 2013, 2018; Yildirim, 2019; Yildirim & Belen, 2018). Aversion to happiness was for example reported as a mediator in the relationship between attachment styles and subjective well-being among young adults (Joshanloo, 2018). Existing evidence has emphasized that psychological maltreatment is related to feelings and thoughts that can adversely influence people's beliefs about happiness (i.e., aversion to happiness), which in turn reduces psychological adjustment and wellbeing (Arslan, 2021a). Additionally, individuals with lower levels of aversion to happiness are likely to have an optimistic view and experience higher psychological adjustment (Lambert et al., 2022). People with a higher aversion to happiness may develop expectations that things do not go their way, which in turn take a pessimistic view of their lives as something beyond their control. Thereby, individuals with greater psychological maltreatment are more likely to report higher levels of aversion to happiness, which in turn have less optimism and psychological adjustment.

## Optimism-pessimism

Adverse life experiences might cause individuals to be more pessimistic about their life and future and are more likely to report greater psychological adjustment challenges including social withdrawal, anxiety, and depression (Dempsey & Burke, 2021; Majercakov- Albertova & Bolekova, 2022; Turhan, 2022). Research emphasizes the importance of

strengths and resources (e.g., optimism) for thriving and adjustment, especially in the face of adversity (Arslan & Wong, 2021; Yıldırım et al., 2021). Optimism vs. pessimism is conceptualized as dispositional traits to expect positive vs. negative consequences in one's life (Carver et al., 2010; Scheier & Carver, 1992). Optimism involves expectations and beliefs that good rather than bad things will happen, whereas pessimism generally refers to expectations that things do not go their way (Scheier & Carver, 1985). These personal characteristics have been related to the expectancies of good and bad consequences and help people to regulate their behaviors (Arslan et al., 2020; Scheier & Carver, 1985). In addition, it is important to note that pessimism and aversion to happiness may be considered as forms of maladaptive beliefs. However, pessimism is a general tendency to expect the worst outcomes about the events or believe that the worst thing will happen while aversion to happiness is a domain-specific belief about bad things happens to one's happiness.

Previous research has well-established the association between optimism-pessimism and a variety of psychological adjustment outcomes. For example, empirical evidence indicated that optimism and pessimism were significantly associated with various wellbeing indicators, such as hope, self-esteem, and flourishing (Foster & Dupuis, 2020; Gallagher & Lopez, 2009; Ho et al., 2010), as well as psychological adjustment problems, including depression, stress, and posttraumatic growth (Arslan et al., 2020; Arslan & Yıldırım, 2021; Carbone & Echols, 2017; Jones et al., 2017; Solberg Nes, 2016). Some research found that pessimism was positively associated with greater depressive symptoms and anxiety (Faye-Schjøll & Schou-Bredal, 2019), and optimism mitigated the negative effects of adverse life events (e.g., child maltreatment, coronavirus stress) on various mental health and wellbeing indicators (Arslan et al., 2020; Arslan & Yıldırım, 2021; Brodhagen & Wise, 2008; Chen et al., 2021; Kuhlman et al., 2017). These results emphasize the essential role of optimism in an individual's life when psychological maltreatment and the outcomes are highly present and suggest that lower levels of pessimism and higher levels of optimism improve people's psychological adjustment and well-being.

## Present Study

Theoretically, the risk and resilience framework has emphasized the importance of the individual, family, and social factors which reduce the influences of risk in an individual's life and promote people's healthy development and wellbeing (e.g., Jensen & Fraser 2015; Masten, 2011; 2013). According to this framework, risk factors are any experience

**Table 1** Demographic characteristics of participants (N = 511)

Demographic variable	
Gender	
Female	64%
Male	36%
Age	
Range	18–39
Mean ( <i>SD</i> )	21.36 (2.55)
Socioeconomic status (SES)	
Low SES	24.3%
Moderate SES	50.5%
Upper SES	125.2%
Health status	
Healthy	93%
Were infected with the COVID-19	7%
COVID-19 limitations	
Quarantine or were imposed to stay-at-home	38%
Self-isolation with the ability to move and social contacts	62%
Psychological health status	
Have a psychological disorder and treatment history	6.3%
Have no psychological disorder	93.7%

or condition that increases the likelihood that an individual will experience psychosocial problems (Arslan, 2018; Jensen & Fraser 2015). Protective and promotive factors minimize the impact of adversity and promote mental health and well-being (Arslan, 2018). Building on this framework, the present study posits that promotive factors (e.g., optimism) can decrease the influence of risk factors (e.g., psychological maltreatment) and improve young adults' psychological adjustment. Given that the impacts of child maltreatment have become a major public concern internationally, a critical step is also to focus on the improvement of individuals' psychological adjustment to develop prevention strategies. As documented above, optimism, pessimism, and aversion to happiness may serve as significant mediators in this association. Therefore, the present paper sought to investigate whether aversion to happiness mediated the relationship of psychological maltreatment with optimism-pessimism and psychological adjustment and whether optimism-pessimism mediated the relationship between psychological maltreatment and adjustment.

## Method

### Participants

The current study sample comprised 511 college students attending a state university in an urban city, Turkey. The sample included 36% male and 64% female, ranging in age from 18 to 39 years ( $M=21.36$ ,  $SD=2.55$ ), as seen in Table 1. The study data was gathered using a web-based

survey that included the study measures and sociodemographic questions. Students were given a consent form that presented scales included in, and the objectives of, the study. The data was collected during online distance education. The present study was also approved by Mehmet Akif Ersoy University's Institutional Review Board.

## Measures

**Childhood Psychological Maltreatment** The Psychological Maltreatment Questionnaire–Short Form (PMQ) is a 12-item self-report tool (e.g., “My parent would threaten me with hurting someone or something I love.”) utilized to measure childhood psychologically abusive parental acts in Turkish adolescents and adults (Arslan, 2015, 2017b, 2021). The items are rated using a 4-point rating scale (1 = *almost never* to 4 = *almost always*). The scale had strong internal reliability estimates with Turkish samples Arslan 2017a, 2021). Cronbach's alpha with the sample of this study was 0.89.

**Psychological Adjustment** The Brief Adjustment Scale-6 (BASE) is a 6-item self-report survey (e.g., “To what extent have you felt irritable, angry, and/or resentful this week?”) developed to measure the psychological adjustment of people (Cruz et al., 2020). The items of the scale are scored based on a 7-point rating scale (1 = not at all to 7 = extremely). The Turkish version of the scale revealed strong internal reliability coefficients (Yildirim & Solmaz, 2021). In the present study, higher scores represent lower psychological distress, and Cronbach's alpha of the scale was 0.92.

**Aversion to happiness** The Fear of Happiness Scale (FHS) is a 5-item self-report measure (e.g., I prefer not to be too joyful, because usually joy is followed by sadness) used to assess individuals' aversion to happiness (Joshano, 2013). The items are scored based on a 7-point rating scale (1 = *strongly disagree* to 7 = *strongly agree*). Yildirim and Aziz (2017) examined the psychometric properties of the scale with Turkish people, indicating an adequate internal reliability estimate (Yildirim & Aziz, 2017). Cronbach's alpha with this study sample was 0.93.

**Optimism and Pessimism** The Optimism and Pessimism Questionnaire (OPQ) is a 6-item self-report tool (e.g., I hope many things will be better in the future”) developed to assess pessimism and optimism among Turkish young adults (Arslan & Yildirim, 2021). All items are scored based on a 5-point rating scale (1 = *strongly disagree* to 5 = *strongly agree*). The OPM provided strong internal reliability

**Table 2** Observed scale characteristics and correlation results

Scales	Descriptive statistics					Correlation coefficients ( <i>r</i> )				
	$\alpha$	<i>M</i>	<i>SD</i>	$g_1$	$g_2$	1.	2.	3.	4.	
1. Psychological maltreatment	0.82	19.65	6.55	1.17	1.27	—	0.19**	-0.30**	0.28**	-0.20**
2. Aversion to happiness	0.93	13.98	8.46	0.87	-0.26		—	-0.29**	0.56**	-0.36**
3. Optimism	0.90	11.03	2.77	-0.52	-0.44			—	-0.41**	0.32**
4. Pessimism	0.88	6.73	2.91	0.88	0.55				—	-0.41**
5. Psychological adjustment	0.86	24.26	9.95	-0.04	-0.97					—

Note.  $g_1$ =skewness,  $g_2$ =kurtosis. \*\*Correlation is significant at the 0.001 level (2-tailed)

estimates with Turkish samples (Arslan & Yıldırım, 2021). In this study, Cronbach's alpha estimates were 0.79 and 0.81.

## Data analyses

We first examined observed scale characteristics and the assumptions of analyses. Normality assumption was examined utilizing kurtosis and skewness scores with their decision points (D'Agostino et al., 1990). Then, correlation estimates were subsequently investigated to examine the relationships between the measures of the study. Following conducting these analyses, a mediation model was carried out to explore the role of mediators (i.e., optimism, pessimism, and aversion to happiness) in the association between psychological maltreatment and psychological adjustment utilizing the PROCESS macro v3.5 (Model 81) for SPSS (Hayes, 2018). The bootstrap (95% confidence intervals [CI]) method was finally examined to understand the significance of indirect effects with 5000 resamples to estimate (Hayes, 2018; Preacher & Hayes, 2008). All data analyses in the study in the study were established utilizing SPSS v25.

## Results

### Preliminary analyses

Correlations results and observed scale characteristics are shown in Table 2. Regarding demographic and coronavirus experiences, a significant difference was found on the score of psychological adjustment ( $t = -5.17, p < .001$ ; Cohen's  $d = 0.48$ ) based on the gender of young adults, showing that males reported greater psychological adjustment than females. A non-significant difference was also found on psychological maltreatment ( $t = -1.23, p = .219$ ), optimism ( $t = 0.34, p = .736$ ), pessimism ( $t = -1.75, p = .082$ ), and aversion to happiness ( $t = 0.39, p = .699$ ). A significant difference was also found on psychological maltreatment ( $t = 2.61, p = .009$ ; Cohen's  $d = 0.45$ ), pessimism ( $t = 2.30, p = .022$ ;

Cohen's  $d = 0.40$ ), and aversion to happiness ( $t = 2.25, p = .025$ ; Cohen's  $d = 0.39$ ) based on the COVID-19-related health status of participants. A non-significant difference was also found on psychological adjustment ( $t = -1.02, p = .308$ ) and optimism ( $t = 0.27, p = .786$ ). People who were infected with the COVID-19 reported greater childhood psychological maltreatment, pessimism, and aversion to happiness than those who were healthy. Finally, a significant difference was found on the score of psychological maltreatment ( $t = -2.61, p = .009$ ; Cohen's  $d = 0.48$ ), pessimism ( $t = -2.94, p = .003$ ; Cohen's  $d = 0.54$ ), optimism ( $t = 3.27, p < .001$ ; Cohen's  $d = 0.60$ ), and psychological adjustment ( $t = 2.40, p = .017$ ; Cohen's  $d = 0.48$ ) based on the psychological health status of participants. However, a non-significant difference was reported on the scores of aversion to happiness ( $t = -1.28, p = .200$ ). People with a psychological disorder reported higher levels of childhood psychological maltreatment and pessimism and fewer optimism and psychological adjustment than those without a disorder.

### Primary analyses

After examining observed scale characteristics, the mediation model was established to explore the role of mediators in the association between childhood psychological maltreatment and young adults' psychological adjustment. Findings from mediation analysis revealed that psychological maltreatment was significantly predictive of aversion to happiness, optimism, and pessimism. Aversion to happiness also significantly predicted optimism and pessimism. Aversion to happiness mediated the predictive effect of psychological maltreatment on both optimism and pessimism. Psychological maltreatment explained 4% of the variance in aversion to happiness, and psychological maltreatment and aversion to happiness together accounted for 15% of the variance in optimism and 35% of the variance in pessimism, as seen in Table 3.

Subsequently, the results demonstrated that psychological maltreatment did not significantly predict psychological adjustment. However, optimism, pessimism, and aversion to happiness had significant predictive effects on psychological adjustment. All variables included in the model

**Table 3** Unstandardized coefficients for the mediation model

	Consequent			
	<i>M</i> <sub>1</sub> (Fear of happiness)			
Antecedent	Coeff.	SE	<i>t</i>	<i>p</i>
<i>X</i> (Psychological maltreatment)	0.24	0.06	4.24	<0.001
Constant	9.30	1.16	7.98	<0.001
	<i>R</i> <sup>2</sup> = 0.04 <i>F</i> = 17.99; <i>p</i> < .001			
	<i>M</i> <sub>2</sub> (Optimism)			
<i>X</i> (Psychological maltreatment)	-0.11	0.02	-6.11	<0.001
<i>M</i> <sub>1</sub> (Aversion to happiness)	-0.08	0.01	-5.87	<0.001
Constant	14.28	0.38	37.45	<0.001
	<i>R</i> <sup>2</sup> = 0.15 <i>F</i> = 44.07; <i>p</i> < .001			
	<i>M</i> <sub>3</sub> (Pessimism)			
<i>X</i> (Psychological maltreatment)	0.08	0.02	4.95	<0.001
<i>M</i> <sub>1</sub> (Aversion to happiness)	0.18	0.01	14.46	<0.001
Constant	2.60	0.35	7.43	<0.001
	<i>R</i> <sup>2</sup> = 0.35 <i>F</i> = 134.55; <i>p</i> < .001			
	<i>Y</i> (Psychological adjustment)			
<i>X</i> (Psychological maltreatment)	-0.08	0.06	7.89	0.228
<i>M</i> <sub>1</sub> (Aversion to happiness)	-0.21	0.06	-1.20	<0.001
<i>M</i> <sub>2</sub> (Optimism)	0.56	0.16	-3.74	<0.001
<i>M</i> <sub>3</sub> (Pessimism)	-0.79	0.17	3.55	<0.001
Constant	27.84	2.75	10.12	<0.001
	<i>R</i> <sup>2</sup> = 0.22 <i>F</i> = 35.61; <i>p</i> < .001			

Note. Coeff = unstandardized coefficient; SE = standard error

together accounted for 22% of the variance in students' psychological adjustment. These results indicated that aversion to happiness, pessimism, and optimism mediated the impact of childhood psychological maltreatment on psychological adjustment, as shown in Fig. 1. Psychological maltreatment was significantly and indirectly related to psychological adjustment through aversion to happiness, pessimism, and optimism. Standardized indirect effects of psychological maltreatment on psychological adjustment with the number of bootstrap samples for percentile bootstrap confidence intervals are presented in Table 4.

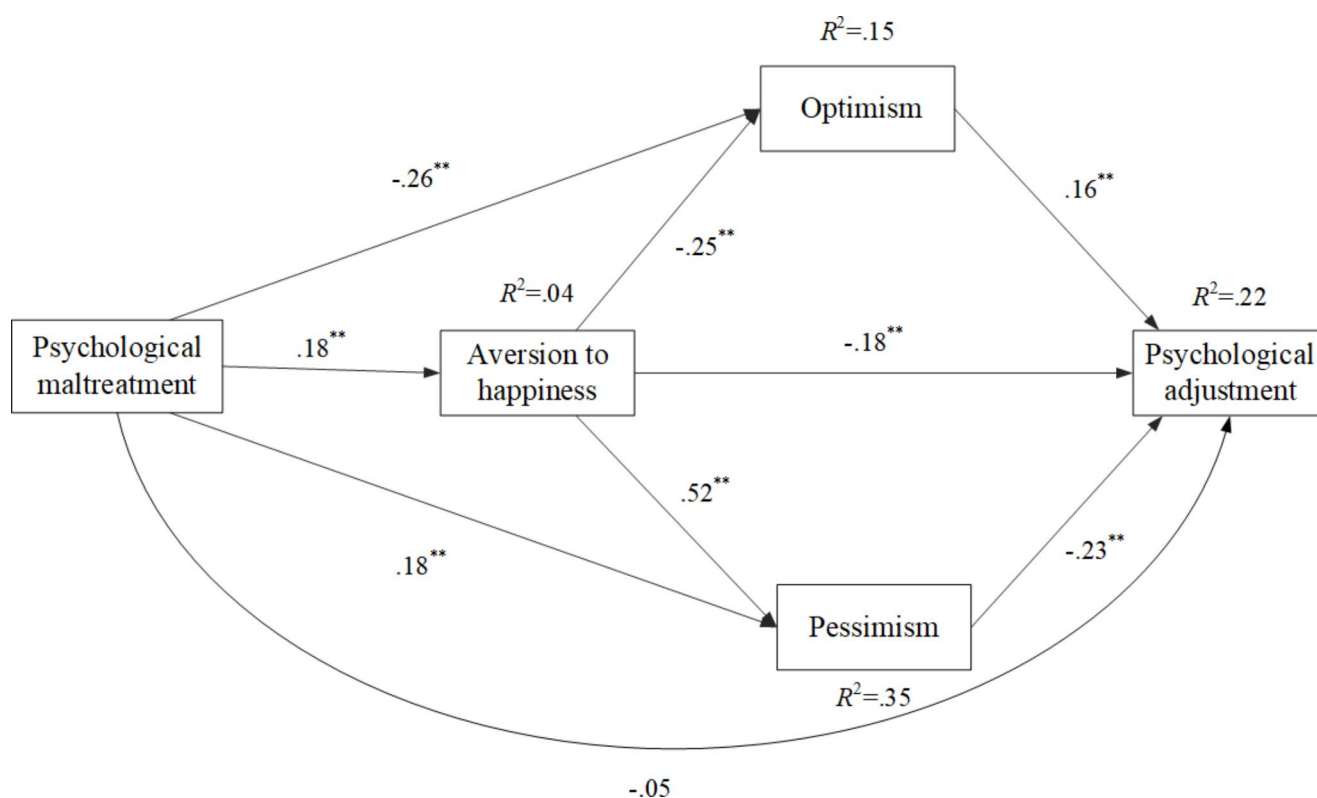
## Discussion

The present paper aimed to examine whether aversion to happiness mediated the association of psychological maltreatment with optimism-pessimism and psychological adjustment and whether optimism-pessimism mediated the relationship between psychological maltreatment and adjustment. Previous research reported that psychological maltreatment was associated with various internalized and externalized symptoms, including depression. Individuals reporting psychological maltreatment also exhibited

higher levels of psychological adjustment difficulties and functional impairment compared with sexually or physically maltreated individuals (Egeland et al., 2002; Glaser, 2002; Gross & Keller, 1992; Strathearn et al., 2020). Psychologically maltreated children and adolescents are more likely to exhibit psychological adjustment problems in the later developmental stages including emerging adulthood. Despite its negative impacts on people's psychological adjustment and health, psychological maltreatment was rarely the focus of mental health intervention in emerging adulthood. Hence, a critical step is to examine and identify mitigating and vulnerability factors to develop prevention and intervention strategies to decrease the adverse impacts of psychological maltreatment on adjustment and health in emerging adults.

Results from the study revealed that people exposed to psychological maltreatment reported greater aversion to happiness and pessimism, while less optimism. Aversion to happiness also mediated the predictive effect of psychological maltreatment on both pessimism and optimism. These results suggest that individuals with childhood psychological maltreatment experience greater aversion to happiness, which in turn might reduce optimism and increase pessimism. Consistent with the findings, psychological maltreatment was found to be related to higher aversion to happiness and pessimism as well as lower optimism (Brodhagen & Wise, 2008; Kuhlman et al., 2017; Lazić & Petrović, 2020; Sar et al., 2019). Some research also reported that aversion to happiness was positively associated with fewer positive psychological strengths, such as hope, resilience, and gratitude (Barmanpek & Belen, 2020; Belen et al., 2020; Joshanloo, 2013; Yildirim, 2019). Childhood experiences play an essential role in the development of happiness beliefs, and children's emotions and thoughts are closely associated with the quality of interaction with their parents (Arslan, 2021b; López Turley et al., 2010; Tsai et al., 2007). For example, individuals growing up in dysfunctional families are more likely to develop negative thoughts and beliefs about happiness (Arslan, 2021a), which in turn might cause them to avoid happiness (Joshanloo, 2018; Joshanloo & Weijers, 2014). Moreover, people with these beliefs toward happiness reported greater pessimism and less optimism and psychological adjustment, which suggests that aversion to happiness may be a risk factor for people's expectations that good things will happen and adjustment. Consistent with these results, Joshanloo (2018) reported the mediating effect of aversion to happiness in the association between insecure attachment and subjective well-being among young adults.

Findings from this study further showed that aversion to happiness, optimism, and pessimism had mediation effects on the link between childhood maltreatment and psychological adjustment. Optimism and pessimism also mediated the



**Fig. 1** The role of mediators in the association between psychological maltreatment and adjustment. (Note. \*\* $p < .001$ )

**Table 4** Standardized indirect effects

Path	Effect	SE	BootLLCI	BootULCI
Total indirect effect	-0.14	0.02	-0.19	-0.10
Maltreatment→ Aversion to happiness→ Adjustment	-0.03	0.01	-0.06	-0.01
Maltreatment→ Optimism→ Adjustment	-0.04	0.01	-0.07	-0.02
Maltreatment→ Pessimism→ Adjustment	-0.04	0.01	-0.07	-0.02
Maltreatment→ Happiness → Optimism→ Adjustment	-0.01	0.01	-0.01	-0.01
Maltreatment→ Happiness → Pessimism→ Adjustment	-0.02	0.01	-0.04	-0.01

Note. Number of bootstrap samples: 5000

association between aversion to happiness and psychological adjustment. Childhood psychological maltreatment may cause greater fear of happiness and pessimism and lower optimism which in turn, reduce the psychological adjustment of young adults. Optimist and pessimist people differ in how they emphasize and approach challenges, and these resources help them to cope with adverse events (Arslan et al., 2020; Carver, 2014). Given certain theoretical models (e.g., expectancy-value theories), optimist people tend to be persistent and confident, which helps them to reach positive outcomes in the face of adversities (Carver et al., 2010). Optimism is an essential resource for people to

regulate their behaviors and enhance their motivation to continue goal-oriented behaviors (Scheier & Carver, 1985). Previous research was consistent with the findings of this study, indicating that optimism was positively associated with greater well-being and adaptive outcomes, such as self-esteem, and life satisfaction (Andersson, 1996; Foster & Dupuis, 2020), while pessimism was correlated with maladaptive outcomes, including anxiety, depression (Arslan et al., 2020; Arslan & Yıldırım, 2021; Carbone & Echols, 2017). Research also reported that optimism mitigated the negative effects of adverse life experiences (e.g., child maltreatment) on various psychological adjustment indicators (Arslan et al., 2020; Brodhagen & Wise, 2008; Kuhlman et al., 2017). Optimist people have been found to utilize more problem-focused and adaptive coping strategies, which improve their adjustment in the face of adverse experiences than those who are pessimists (Solberg Nes & Segerstrom, 2006). These results suggest that optimist individuals tend to use more adaptive coping skills and adjust their coping strategies depending on adversity, which in turn influences their psychological adjustment.

## Implications and Limitations

Results from the current paper provide some significant implications for future research and practice. First, aversion to happiness was found as a mediator in the relationship of psychological maltreatment with pessimism, optimism, and psychological adjustment. These results suggest that aversion to happiness is key to understanding the association of psychological maltreatment with psychological resources (i.e., optimism and pessimism) and positive adjustment among young adults. Mental health providers and other professionals could thus develop intervention strategies to change these beliefs for helping young adults to cope with the impairment effects of childhood maltreatment and promote psychological adjustment and positive psychological resources. Helping individuals to build adaptive beliefs about positive emotions or happiness could be an essential component of positive psychology-based interventions (Lambert et al., 2019) and other therapeutic approaches that create spaces for understanding the function of such difficult experiences to improve psychological adjustment and wellbeing (Arslan, 2021b; Arslan et al., 2021; Genç, 2021; Joshanloo, 2018). For instance, cognitive-behavioral techniques and strategies could be utilized to modify one's maladaptive beliefs about happiness and improve positive psychological resources (e.g., optimism). Cognitive-behavioral techniques might help individuals to develop more adaptive beliefs about happiness and better coping strategies in dealing with the adverse impacts of childhood maltreatment. In addition, optimism mitigated the predictive effect of both aversion to happiness and psychological maltreatment on student adjustment. These findings indicate that optimism is key to fostering psychosocial health and could help to reduce the effects of aversion to happiness and child maltreatment on young adults' adjustment and wellbeing. Mental health providers could consider the improvement of psychological adjustment by focusing on positive psychological resources including optimism.

Despite these significant implications, the current study needs to consider in light of a few limitations. Firstly, the mediation analysis was examined utilizing a cross-sectional framework that cannot ascertain a causal link between indicators in the study. Further studies are therefore important to present additional insights into the association between the variables utilizing longitudinal approaches. Subsequently, the data of the study was gathered using self-reported instruments, which may be considered a further limitation of the study. Multiple data collection techniques (e.g., quantitative, qualitative) could be useful to provide a more comprehensive picture of the links between study variables in future studies. The sample of the study was undergraduate students from Turkey. Future research could be carried out

using diverse samples (e.g., young people, and older adults) to examine the associations that were found in the current study.

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**Data Availability** The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

## Compliance with Ethical Standards

**Disclosure of potential conflicts of interest** The authors declared no conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Ethical approval** 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.

**Informed consent** Informed Consent was obtained from all participants included in the study.

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