

# Investigation of the relationship between childhood traumas, psychological resilience, cognitive flexibility and emotion regulation skills in adults

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## ABSTRACT

**Objectives:** This paper looked into the relation between childhood traumas, resilience, cognitive flexibility, and adult emotion regulation skills in adults.

**Methods:** The sample, which is based on the relational screening model, includes 395 participants (female: 202, male: 193). Sociodemographic Information Form, Childhood Trauma Questionnaire, Connor-Davidson Resilience Scale, Cognitive Flexibility Scale and Cognitive Emotion Regulation Questionnaire were applied to the participants to obtain the research data. Data collection was carried out online (google forms) through convenient sampling. The t-test was used to compare the study's quantitative data, and Pearson Correlation analysis was utilized to test the relationship between the scales. Multiple Linear Regression analysis was used for predictive analysis and finally PROCESS was used for mediator role analysis.

**Results:** The investigation's findings revealed that there is a statistically significant difference between the scores of the two groups compared. Findings showed that there is a moderately positive correlation between acceptance and CTQ scores, a weak positive correlation between acceptance and emotional abuse scores, a weak positive correlation with physical abuse scores, a weak positive correlation with physical neglect scores, a weak positive correlation with emotional neglect scores and weak positive correlation with sexual abuse scores. A weak and negative correlation exists between Putting into Perspective and the CTQ, an even weaker and negative correlation exists between Putting into Perspective and the Emotional Neglect and Sexual Abuse scores. Rumination scores have a weak and negative relationship with emotional abuse scores.

**Conclusions:** In order to prevent them from serving as the foundation for difficulties with adult mental health, it is crucial to understand the relationship between traumatic childhood events and psychological resilience, cognitive flexibility, and cognitive emotion regulation techniques. In order to assist people, analyze their thoughts and feelings, be aware of negative coping mechanisms, rigid, inflexible cognitive styles, and negative thinking patterns, clinical psychology practices will benefit from research on these characteristics.

**Keywords:** Childhood traumas, psychological resilience, cognitive flexibility, emotion regulation skills

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The concept of “childhood trauma” includes various traumatic experiences such as social and domestic violence, natural disasters, traffic accidents, child neglect, and emotional, physical, and sexual abuse [1-3]. Any behavior that harms the physical, emotional, mental, and social development of children under 18 years old is considered as abuse; failure to meet their needs such as nutrition, care, supervision and education is considered neglect. Abuse, and neglect in childhood or young adulthood are all examples of childhood trauma. Childhood traumas are behaviors that are intentionally or unintentionally done by an adult and negatively affect a child’s health, physical and psychosocial development. In this context, the important thing is not the intention of the adult but the long-term effects of the action on the child in the early period and the adult period.

Most studies on childhood trauma focused on the effect and treatment of sexual abuse but with less emphasis on child physical abuse [4]. Several community and clinical studies have discovered a link between recollected traumatic experiences from childhood and adult psychiatric disease [5, 6]. Recent studies have established that post-traumatic stress disorder (PTSD) and its inherent comorbidity affect children of all ages as well as adult victims of terrible life experiences [7, 8].

Today, researchers agree that early childhood traumas underlie long-term depression and anxiety disorders, as well as many emotional and psychological disorders. Adult PTSD is connected to childhood abuse and other cumulative traumas. Compared to those without PTSD, those with PTSD had higher rates of childhood maltreatment and abuse [5, 8, 9]. Nevertheless, research has revealed that repeated traumas are linked to greater rates of anxiety, suicidality, divorce, personality disorders, drug misuse, physical sickness, and interpersonal issues [10-14].

A wealth of research-based evidence has shown that childhood trauma reveals neural structure and function, predisposing the individual to later cognitive deficits and psychiatric illnesses such as schizophrenia, major depression, bipolar disorder, post-traumatic stress disorder (PTSD), and substance abuse [15-18]. As a result of micro-traumatic impacts, negative parental attitudes (including a carelessness and excessive protection) have been linked to an increased prevalence of anxiety disorders [6]. Finkelhor and colleagues have proposed that victimization is a "situa-

tion" rather than an "event" due to mounting evidence demonstrating the prevalence of collective exposure to violence, maltreatment, and abuse [19].

Compared to cumulative trauma, single event trauma has a different impact. According to studies, up to 87 % of youngsters suffer from PTSD as a result of natural disaster traumas [20, 21]. It has also been proven that childhood maltreatment and abuse have a higher tendency to cause anxiety disorders in adulthood and single event traumas to cause acute PTSD [22].

Emotional regulation is a term that refers to the emotions people experience, when such emotions occur, how the experience is, and the expression of such [23]. Thus, emotional regulation is challenging and it is characterized by awareness, identification and expression of emotional experiences, the ability to pay attention to contextual signals, impulse control, and the use of strategies to regulate emotions in response to emotional state triggers [24].

Deficiencies in emotional regulation skills are associated with greater negative affect, decreased positive affect, and ineffectiveness in managing one's emotions [25]. Individuals' psychological resilience is a dynamic process in which they adjust successfully despite extensive stress or trauma. In regard to childhood experiences, resilience is a complex combination of genetic predispositions, individual, family-related, and environmental risk and protective factors [26, 27]. The literature supporting the significance of protective psychological factors in preventing the negative consequences of childhood traumas is extensive [28]. Children who have experienced various forms of trauma frequently exhibit resilience in the form of protective characteristics that take a variety of different trajectories to promote their healthy development [26, 29, 30]. Psychological resilience is characterized by positive self-esteem, ego flexibility and being able to exert control over the ego [31, 32].

Cognitive flexibility is the ability to switch between rules and concepts even as they change and adapt to the situation. In other words, Individuals' ability to adapt to a continually changing environment is aided by cognitive flexibility and it is at the center of goal-directed behavior. Denis and Vander Wal see cognitive flexibility as a three-dimensional process where the tendency to perceive difficult situations as manageable, the ability to recognize that there may be many alternative explanations for human behavior and

events that occur throughout life, and the ability to produce alternative solutions in the face of difficult situations [33]. Recent research has shown increasing interest in understanding factors, including genetics and early life experiences, that may contribute to individual differences in this ability. Being cognitively flexible is necessary to be able to respond appropriately to new situations in the face of problems [34].

This study discussed whether childhood traumas differ in psychological resilience levels, cognitive flexibility and cognitive emotion regulation strategies of adults. It is important for researchers to identify the characteristics, protective factors, cognitive flexibility and emotion regulation strategies that enable those who have experienced childhood traumas, especially sexual abuse, to develop psychological resilience.

## METHODS

### Design

Sociodemographic Information Form, Childhood Trauma Questionnaire, Connor-Davidson Resilience Scale, Cognitive Flexibility Scale and Cognitive Emotion Regulation Questionnaire were applied to the participants ( $n = 395$ ) who constituted the sample of this study. Data collection was carried out online (google forms) through convenience sampling. The association between childhood traumas, psychological resilience, cognitive flexibility, and emotion regulation skills in adults was investigated using a relational screening model.

### Participants

The participants in the study are individuals over the age of 18. The study's sample includes 395 adults ranging in age from 18 to 63 years ( $35 \pm 10$  years). Two hundred and two (51.1%) participants were female, 48.9% male, 6.6% primary school graduate, 6.8% secondary school graduate, 14.9% high school graduate, 58.5% university graduate, 13.2% postgraduate and above, 52.2% are married, 47.8% are single.

### Measures

#### *Sociodemographic Information Form*

The form created by the researchers includes information such as age, gender, education level and marital status.

#### *Childhood Trauma Questionnaire (CTQ)*

It is a self-report scale developed by Bernstein *et al.* [35]. The scale consists of 28 items, three of which measure denial of trauma, and participants rate each item on a 5-point Likert-type scale. The scale includes five sub-dimensions related to childhood abuse: sexual, physical, emotional abuse and emotional and physical neglect [36]. The accuracy and reliability of the Turkish version of the scale were evaluated, Cronbach's alpha and half-test (Guttman formula) methods were used to measure internal consistency [37]. The Cronbach's alpha value, which shows the internal consistency of the scale, was found to be 0.93 for the group consisting of all participants ( $n=123$ ), while the Guttman half-test coefficient was 0.97 [36]. In this group, correlations between each item and the total score were found by calculating the Pearson Product Moments Correlation coefficient. Except for item 4 ( $r=.17$ ), all results were above .30 and most were above .50 [36]. These results show that the internal consistency of the scale is high. The test-retest correlation coefficient of the total score of the CTQ performed on clinical and non-clinical participants at 2-week intervals was 0.90 (in the explanatory factor analysis of p validity, five factors were examined in accordance with the original form of the scale. The CTQ has been verified to be valid and accurate [37].

#### *Connor-Davidson Resilience Scale (CD-RISC)*

The scale developed by Connor and Davidson [38] was adapted into Turkish by Karairmak [39]. CD-RISC consists of 25 items and participants rate each item on a 5-point Likert-type scale. The scale consists of three factors: tenacity and personal competence, tolerance of negative affect, and spiritual influences. It was stated that these three factors explained 52% of the total variance. Higher scores from CD-RISC indicate higher psychological resilience. The reliability of the scale was calculated with the Cronbach's alpha internal consistency method and was found to be .92 for the whole scale. Cronbach's alpha internal consistency coefficient was found to be .94 in this investigation.

#### *Cognitive Flexibility Scale (CFS)*

The 12-item scale was created by Martin and Rubin [40] and translated into Turkish by Altunkol [41]. It is a 6-point Likert type (1-Strongly Disagree, 6-Strongly Agree) scale developed to determine the

cognitive flexibility level of an individual. The total score is obtained by summing the answers given to each item. The scale's lowest possible score is 12 and its highest possible score is 72. High scores indicate high cognitive flexibility, while low scores indicate low cognitive flexibility. The Cronbach's alpha coefficients obtained in different studies on the scale range from .72 to .87. It was reported that the test-retest reliability coefficient of the scale was .83 as a result of two applications performed with a one-week interval [40]. The scale is widely used in studies where the level of cognitive flexibility is variable. The Cronbach's alpha coefficient obtained in the adaptation studies of the scale is .81. Again, within the scope of this study, the test-retest correlation coefficient obtained in the application to determine the continuity coefficient of the scale was discovered to be .73. Within the scope of validity studies, criterion-related validity and construct validity studies were conducted and it was seen that the scale met the validity criteria [41].

### **Cognitive Emotion Regulation Questionnaire (CERQ)**

Garnefski *et al.* [42] developed the scale to measure the cognitive emotion regulation strategies that people use after stressful life events or to regulate their emotions in general. It is a self-report scale that can be applied to both clinical and non-clinical samples. The scale is a 5-point Likert type that has 9 subscales, 4 items in each subscale and a total of 36 items. The subscales that make up the scale are "Self-blame", "Acceptance", "Rumination", "Positive refocusing", "Refocus on planning", "Positive reappraisal", "Putting into perspective", "Catastrophizing" and "Blaming others". Each subscale score can range from 4 to 20. Evaluation is made with the scores obtained from the subscales. The Turkish adaptation, validity and reliability of the scale was made by Onat and Otrar [43]. As a result of the statistical analyzes of the study, the test-retest reliability coefficient was found to be " $r = 1.00$ " and the Cronbach Alpha value as " $a = 0.784$ ".

### **Statistical Analysis**

Statistical evaluations were analyzed using SPSS (Statistical Package for Social Sciences) 25.0 package program. The kurtosis and skewness values were checked to determine the normality of the distribution.

According to George and Mallery [44] skewness and kurtosis values between -2 and +2; and according to Groeneveld and Meeden [45], Moors [46], Hopkins and Weeks [47], and De Carlo [48], skewness and kurtosis values between -3 and +3 are sufficient to meet the normal distribution condition.

After deciding on the normal distribution, it was decided to use parametric analyzes. Descriptive statistical analysis for the demographic variables employed in this study was immediately determined after the normality analysis. The relationship between Pearson Correlation analysis and Childhood Trauma Questionnaire, Connor-Davidson Resilience Scale, Cognitive Flexibility Scale and Cognitive Emotion Regulation Questionnaire were investigated.

For predictive analysis, Multiple Linear Regression analysis and mediation analyses were performed with PROCESS. The confidence interval used for all analyses was determined as 95%.

It has been observed that the Childhood Trauma Questionnaire is (mean±standard deviation [44.30±17.04]), Emotional Abuse subscale is (8.33±3.66), Physical Abuse subscale (8.72±3.85), Physical Neglect subscale (9.30±4.43), Emotional Neglect subscale (9.71±4.86), Sexual Abuse subscale (8.23±3.78), Connor-Davidson Resilience Scale is (67.99±18.20), Tenacity and Personal Competence subscale is (42.30±11.87), Tolerance of Negative Affect subscale is (18.28±5.46), Spiritual Influences subscale is (7.42±2.93), Cognitive Flexibility Scale is (53.86±9.19), Acceptance subscale is (12.83±3.57), Positive Refocusing subscale is (12.59±3.41), Refocus on Planning subscale is (15.16±3.19), Positive Reappraisal subscale is (14.75±3.22), Putting into Perspective subscale is (13.13±3.57), Rumination subscale is (14.37±3.24), Self-blame subscale is (11.29±3.14), Catastrophizing subscale is (10.33±3.87), Blaming Others subscale is (11.02±3.42).

## **RESULTS**

The findings revealed a moderate, positive relationship between Acceptance and CTQ scores ( $r=.328$ ,  $P<0.01$ ), a weak, positive relationship between Acceptance and Emotional Abuse scores ( $r=.296$ ,  $P<0.01$ ), a weak, Physical Abuse scores ( $r=.275$ ,  $P<0.01$ ), Physical Neglect scores ( $r=.280$ ,  $P<0.01$ ),

**Table 1.** The relation between Cognitive Emotion Regulation Questionnaire and Childhood Trauma Questionnaire

	CTQ	Emotional abuse	Physical abuse	Physical neglect	Emotional neglect	Sexual abuse
Acceptance	.328**	.296**	.275**	.280**	.274**	.232**
Positive refocusing	-0.046	-0.005	-0.048	-0.060	-0.041	-0.031
Refocus on planning	-.310**	-.170**	-.199**	-.325**	-.363**	-.182**
Positive reappraisal	-.289**	-.166**	-.191**	-.279**	-.380**	-.134**
Putting into perspective	-.114*	-0.070	-0.079	-0.069	-.128*	-.121*
Rumination	0.049	.107*	0.061	-0.002	0.015	0.038
Self-blame	.255**	.229**	.217**	.217**	.213**	.179**
Catastrophizing	.407**	.363**	.298**	.377**	.381**	.249**
Blaming others	.276**	.234**	.181**	.252**	.278**	.182**

CTQ= Childhood Trauma Questionnaire, \*\*P<0.01, \*P<0.05 Pearson correlation test

Emotional Neglect scores ( $r=.274$ ,  $P<0.01$ ), and Sexual Abuse scores ( $r=.232$ ,  $P<0.01$ ) (Table 1).

There is a moderate, negative relation between Refocus on Planning and CTQ scores ( $r=-.310$ ,  $P<0.01$ ), a weak, negative relationship between Refocus on Planning and Emotional Abuse scores ( $r=-.170$ ,  $P<0.01$ ), Physical Abuse scores ( $r=-.199$ ,  $P<0.01$ ), and Sexual Abuse scores ( $r=-.182$ ,  $P<0.01$ ). A moderate, negative relationship between Refocus on Planning and Physical Neglect scores ( $r=-.325$ ,  $P<0.01$ ), and Emotional Neglect scores ( $r=-.363$ ,  $P<0.01$ ) (Table 1).

There is a weak, negative relationship between Positive Reappraisal and CTQ scores ( $r=-.289$ ,  $P<0.01$ ), a weak, negative relationship between Positive Reappraisal and Emotional Abuse scores ( $r=-.166$ ,  $P<0.01$ ), Physical Abuse scores ( $r=-.191$ ,  $P<0.01$ ), Physical Neglect scores ( $r=-.279$ ,  $P<0.01$ ), and Sexual Abuse scores ( $r=-.134$ ,  $P<0.01$ ). A moderate, negative relationship between Positive Reappraisal and Emotional Neglect scores ( $r=-.380$ ,  $P<0.01$ ) (Table 1). There is a weak, negative relationship between Putting into Perspective and CTQ scores ( $r=-.114$ ,  $P<0.01$ ), Emotional Neglect scores ( $r=-.128$ ,  $P<0.01$ ), and Sex-

**Table 2.** The relation between Cognitive Emotion Regulation Questionnaire and Connor-Davidson Resilience Scale

	CD-RISC	Tenacity and personal competence	Tolerance of negative affect	Spiritual influences
Acceptance	-.205**	-.224**	-.181**	-0.028
Positive refocusing	0.091	0.080	0.072	.107*
Refocus on planning	.317**	.336**	.252**	.137**
Positive reappraisal	.350**	.359**	.295**	.169**
Putting into perspective	0.079	0.073	0.056	0.091
Rumination	0.061	0.032	0.072	.114*
Self-blame	-.121*	-.158**	-0.089	0.054
Catastrophizing	-.207**	-.253**	-.130**	-0.019
Blaming others	-0.073	-.121*	-0.025	0.080

CD-RISC= Connor-Davidson Resilience Scale, \*\*P<0.01, \*P<0.05 Pearson correlation test

**Table 3. The relation between Cognitive Emotion Regulation Questionnaire and Cognitive Flexibility Scale**

	CFS
Acceptance	-.269**
Positive refocusing	.102*
Refocus on planning	.454**
Positive reappraisal	.419**
Putting into perspective	0.005
Rumination	0.054
Self-blame	-.225**
Catastrophizing	-.365**
Blaming others	-.233**

CFS= Cognitive Flexibility Scale, \*\*P<0.01, \*P<0.05 Pearson correlation test

ual Abuse scores (r=-.121, P<0.01). There is a weak, negative relationship between Rumination and Emotional Abuse scores (r=-.107, P< 0.01). There is a weak, positive relationship between Self-blame and CTQ scores (r=.255, P<0.01), a weak, positive relationship between Self-blame and Emotional Abuse (r=.229, P<0.01), Physical Abuse scores (r=.217, P<0.01), Physical Neglect scores (r=.217, P<0.01), Emotional Neglect scores (r=.213, P<0.01), and Sexual Abuse scores (r=.179, P<0.01) (Table 1).

There is a moderate, positive relationship between Catastrophizing and CTQ scores (r=.407, P<0.01), a moderate, positive relationship between Catastrophizing and Emotional Abuse scores (r=.363, P<0.01), Physical Neglect scores (r=.377, P<0.01), and Emo-

tional Neglect scores (r=.381, P<0.01), a weak, positive relationship between Catastrophizing and Sexual Abuse scores (r=.249, P<0.01) and Physical Abuse scores (r=.298, P<0.01). There is a weak, positive relationship between Blaming Others and CTQ scores (r=.276, P<0.01), a weak, positive relationship between Blaming Others and Emotional Abuse scores (r=.234, P<0.01), Physical Abuse scores (r=.181, P<0.01), Physical Neglect scores (r=.252, P<0.01), Emotional Neglect scores (r=.278, P<0.01), and Sexual Abuse scores (r=.182, P<0.01) (Table 1).

The findings revealed a weak, negative relationship between Acceptance and CD-RISC scores (r=-.205, P<0.01), a weak, negative relationship between Acceptance and Tenacity and Personal Competence scores (r=-.224, P<0.01), and Tolerance of Negative Affect scores (r=-.181, P<0.01) (Table 2). There is a weak, positive relationship between Positive Refocusing and Spiritual Influences scores (r=.107, P<0.01). There is a moderate, positive relationship between Refocus on Planning and CD-RISC scores (r=.317, P<0.01), a moderate, positive relationship between Refocus on Planning and Tenacity and Personal Competence scores (r=.336, P<0.01), a weak, positive relationship between Refocus on Planning and Tolerance of Negative Affect scores (r=.252, P<0.01), and Spiritual Influences scores (r=.137, P<0.01) (Table 2).

There is a moderate, positive relationship between Positive Reappraisal and CD-RISC scores (r=.350, P<0.01), a moderate, positive relationship between Positive Reappraisal and Tenacity and Personal Competence scores (r=.359, P<0.01), a weak, positive relationship between Positive Reappraisal and Tolerance of Negative Affect scores (r=.295, P<0.01), a weak,

**Table 4. The relation between Connor-Davidson Resilience Scale, Cognitive Flexibility Scale and Childhood Trauma Questionnaire**

	CTQ	Emotional abuse	Physical abuse	Physical neglect	Emotional neglect	Sexual abuse
CD-RISC	-.333**	-.207**	-.231**	-.377**	-.361**	-.160**
Tenacity and Personal Competence	-.362**	-.238**	-.226**	-.405**	-.411**	-.170**
Tolerance of Negative Affect	-.254**	-.155**	-.208**	-.283**	-.259**	-.119*
Spiritual Influences	-.128*	-0,032	-.133**	-.174**	-0,096	-0,084
CFS	-.453**	-.298**	-.306**	-.477**	-.518**	-.220**

CTQ= Childhood Trauma Questionnaire, CD-RISC= Connor-Davidson Resilience Scale, CFS= Cognitive Flexibility Scale, \*\*P<0.01, \*P<0.05 Pearson correlation test

positive relationship between Positive Reappraisal and Spiritual Influences scores ( $r = .169, P < 0.01$ ). There is a weak, positive relationship between Rumination and Spiritual Influences scores ( $r = .114, P < 0.01$ ). There is a weak, negative relationship between Self-blame and CD-RISC scores ( $r = -.121, P < 0.01$ ), a weak, negative relationship between Self-blame and Tenacity and Personal Competence scores ( $r = -.158, P < 0.01$ ). There is a weak, negative relationship between Catastrophizing and CD-RISC scores ( $r = -.207, P < 0.01$ ), a weak, negative relationship between Catastrophizing and Tenacity and Personal Competence scores ( $r = -.253, P < 0.01$ ), and Tolerance of Negative Affect scores ( $r = -.130, P < 0.01$ ). There is a weak, negative relationship between Blaming Others and Tenacity and Personal Competence scores ( $r = -.121, P < 0.01$ ) (Table 2).

There is a weak, negative relationship between CFS and Acceptance scores ( $r = -.269, P < 0.01$ ), a weak, positive relationship between CFS and Positive Refocusing scores ( $r = .102, P < 0.01$ ), a moderate, positive relationship between CFS and Refocus on Planning scores ( $r = .454, P < 0.01$ ), a moderate, positive relationship between CFS and Positive Reappraisal scores ( $r = .419, P < 0.01$ ), a weak, negative relationship between CFS and Self-blame scores ( $r = -.225, P < 0.01$ ), a moderate, negative relationship between CFS and Catastrophizing scores ( $r = -.365, P < 0.01$ ), a weak, negative relationship between CFS and Blaming Others scores ( $r = -.233, P < 0.01$ ) (Table 3).

The findings revealed a negative relationship between CD-RISC and CTQ scores ( $r = -.333, P < 0.01$ ), negative relationship between CD-RISC and Emotional Abuse scores ( $r = -.207, P < 0.01$ ), Physical Abuse scores ( $r = -.231, P < 0.01$ ), Physical Neglect scores ( $r = -.377, P < 0.01$ ), Emotional Neglect scores ( $r = -.361, P < 0.01$ ), and Sexual Abuse scores ( $r = -.160, P < 0.01$ ) (Table 4). There is negative relationship between Tenacity and Personal Competence and CTQ scores ( $r = -.362, P < 0.01$ ), negative relationship between Tenacity and Personal Competence and Emotional Abuse scores ( $r = -.238, P < 0.01$ ), Physical Abuse scores ( $r = -.226, P < 0.01$ ), and Physical Neglect scores ( $r = -.405, P < 0.01$ ), Emotional Neglect scores ( $r = -.411, P < 0.01$ ), and Sexual Abuse scores ( $r = -.170, P < 0.01$ ). There is a weak, negative relationship between Tolerance of Negative Affect and CTQ scores ( $r = -.254, P < 0.01$ ), a weak, negative relationship between Tolerance of Negative Affect and Emotional Abuse scores ( $r = -.155,$

**Table 5. The relation between Connor-Davidson Resilience Scale and Cognitive Flexibility Scale**

	CFS
<b>CD-RISC</b>	.515**
<b>Tenacity and personal competence</b>	.519**
<b>Tolerance of negative affect</b>	.478**
<b>Spiritual influences</b>	.202**

CD-RISC= Connor-Davidson Resilience Scale, CFS= Cognitive Flexibility Scale, \*\* $P < 0.01$  Pearson correlation test

$p < 0.01$ ), Physical Abuse scores ( $r = -.208, p < 0.01$ ), Physical Neglect scores ( $r = -.283, P < 0.01$ ), Emotional Neglect scores ( $r = -.259, P < 0.01$ ), and Sexual Abuse scores ( $r = -.119, P < 0.01$ ). There is a weak, negative relationship between Spiritual Influences and CTQ scores ( $r = -.128, P < 0.01$ ), a weak, negative relationship between Spiritual Influences and Physical Abuse scores ( $r = -.133, P < 0.01$ ), and Physical Neglect scores ( $r = -.174, P < 0.01$ ). There is a negative relationship between CFS, CD-RISC and CTQ scores ( $r = -.453, P < 0.01$ ), negative relationship between CFS and Emotional Abuse scores ( $r = -.298, P < 0.01$ ), Physical Abuse scores ( $r = -.306, P < 0.01$ ), Physical Neglect scores ( $r = -.477, P < 0.01$ ), Emotional Neglect scores ( $r = -.518, P < 0.01$ ), and Sexual Abuse scores ( $r = -.220, P < 0.01$ ) (Table 4).

The findings revealed positive relationship between CFS and CD-RISC scores ( $r = .515, P < 0.01$ ), positive relationship between CFS and Tenacity and Personal Competence scores ( $r = .519, P < 0.01$ ), Tolerance of Negative Affect scores ( $r = .478, P < 0.01$ ), and Spiritual Influences scores ( $r = .202, P < 0.01$ ) (Table 5).

## DISCUSSION

Significant results were found in the study, which examined whether childhood traumas differed in psychological resilience levels, cognitive flexibility and cognitive emotion regulation strategies of adult individuals in a non-clinical sample. There a significant positive relation between childhood traumas and acceptance subscale of cognitive emotion regulation was discovered. Also, a significant positive relation with catastrophizing and a significant negative relation with refocus on planning was discovered. Memory, deci-

sion-making, behavioral, and relational decisions are all influenced by emotion. Social problems, physical sickness, and a number of psychopathological illnesses can all be caused by emotional dysregulation [49]. It may be possible to buffer people who have experienced childhood trauma from stressors by using more adaptive emotion management techniques (acceptance and refocusing on planning) and fewer maladaptive ones (catastrophizing).

Childhood trauma is known to increase the likelihood of developing PTSD as a result of subsequent events. Numerous studies have examined the relationship between earlier traumatic exposure and PTSD brought on by more recent trauma [50, 51]. It has been documented that early victimization in life has a detrimental impact on a raped woman's likelihood of developing PTSD and how long it will last. Similar results have been observed in soldiers engaged in war [1, 52]. A meta-analysis of 77 studies also revealed a study on PTSD risk factors, showing a history of childhood trauma as a risk factor after adult trauma. Regardless of gender, trauma type, or population analyzed, the meta-analysis found a positive association between populations [53]. Mostly, people with PTSD frequently diagnosed a variety of emotional issues. When recalling the traumatic experience, individuals first express negative emotional reactions like grief, shame, guilt, or rage, and these feelings are taken into consideration as diagnostic criteria [54]. Second, evidence backs up the link between PTSD and emotional value constructs. For example, regression, experiential avoidance, alexithymia, and dissociation have proven to be a relevant predictor of resilience [55-59].

A significant positive relation was found between refocus on planning subscale of cognitive emotion regulation and psychological resilience, and between refocus on planning and tenacity and personal competence subscale of psychological resilience. A significant positive relationship was also discovered between positive reappraisal subscale of cognitive emotion regulation and psychological resilience, and between positive reappraisal and tenacity and personal competence subscale of psychological resilience. This study lends to the theory that resilience has multiple dimensions and that a person can simultaneously be complexly traumatized and resilient [60]. Strategies of psychological resilience and emotion regulation make it easier for most individuals to lead a purposeful life

despite the difficult conditions, experiences, and past traumatic experiences.

A significant positive relation was found between refocus of planning and positive reappraisal subscales of cognitive emotion regulation and cognitive flexibility, and a significant negative relation between catastrophizing subscale of cognitive emotion regulation and cognitive flexibility. The relation between cognitive flexibility subscales as the ability of an individual to change thoughts and actions in response to demands arising from situations [61] and functional and dysfunctional subscales of cognitive emotion regulation was also found in our study. Cognitive emotion regulation improves an individual's ability to organize and adapt to living conditions. Cognitive emotion regulation skills include self-blame, acceptance, rumination, positive refocusing, refocus on planning, positive reappraisal, putting into perspective, catastrophizing and blaming others as a cognitive method of controlling emotions and coping strategies. Before people react emotionally to the events they encounter, they reflect their emotions by going through a cognitive process. Difficulty in regulating emotional experience and expression according to contextual situations refers to a sense of difficulty in controlling the effects of emotional arousal, thoughts, behaviors, and interactions on order and quality [62].

Difficulties in emotion control were discovered to buffer the relationship between the severity of PTSD symptoms and substance usage in individuals who had experienced childhood maltreatment [63]. Similar to this, numerous studies have shown that the severity of PTSD symptoms is positively correlated with higher levels of overall emotion dysregulation as well as with particular dimensions like non-acceptance of emotions, difficulty engaging in goal-directed behavior in the face of challenging life circumstances, difficulty controlling behaviors in the face of distress, limited access to efficient emotion regulation strategies, and lack of emotional clarity [64-66]. These data indicate the link between PTSD symptoms and emotional dysregulation. Additionally, studies have demonstrated that childhood trauma can result in the development of maladaptive emotion regulation mechanisms that establish the foundation for the onset and maintenance of depression [67]. Evidence also suggests that the capacity to control emotions is developed early in life [68]. The relationship between maladaptive emotion

regulation mechanisms and depression in response to childhood trauma has been examined in research on the mediating role of emotion regulation [69, 70]. A study showed that there is a connection between negative childhood experiences and cognitive emotional regulation and cognitive function [71]. Another study confirmed the assumption that negative childhood experiences affect children's general cognitive abilities and executive functioning [72].

According to the research findings, A significant negative relationship was discovered between psychological resilience and childhood traumas, and emotional neglect, physical neglect subscales. There's also a significant negative correlation between childhood trauma subscales and tenacity and personal competence subscale of psychological resilience, and between cognitive flexibility and psychological resilience. Social acceptance, social support, good relationships, and secure living situations during adolescence are environmental elements that presumably promote good mental health and shield against PTSD despite traumatic experiences [29, 73-75]. Positive family traits are linked to successful post-traumatic kid adjustment. One of the most effective protective factors against early life traumas has been good parenting [76]. It has also been highlighted that hope is an important variable in resilience [77].

A significant negative relation was found between cognitive flexibility and emotional abuse, physical abuse, and neglect subscales. A significant positive relation was found between cognitive flexibility and psychological resilience subscales. The incidence of adverse childhood experiences is high, and cognitive flexibility is significantly affected by negative childhood experiences [78]. Negative childhood experiences can also be described as triggers for poor emotion regulation [79]. Research findings are consistent with evidence for a link between negative childhood experiences and emotional regulation problems and decreased emotional awareness [80]. It was found that there is a significant relation between childhood distress and emotion regulation [81].

### Limitations

The limitations of this study are that 395 people living in Turkey constitute the sample of this study and that the research data only consists of the data obtained from the measurement tools used. Studies on child-

hood traumas and their results show that psychological resilience, cognitive flexibility and emotion regulation skills are determinants in the context of risk and protective factors in evaluating mental health.

### CONCLUSION

From this point of view, it is important to reveal the relation between traumatic childhood experiences and psychological resilience, cognitive flexibility and cognitive emotion regulation strategies so that they do not form the basis of adult mental health problems. Research on these variables will contribute to clinical psychology practices in terms of helping individuals to examine their thoughts and emotions, and to be aware of negative coping and rigid, inflexible cognitive styles and negative thinking patterns. Research findings in the context of psychological resilience, cognitive flexibility and emotion regulation concepts and processes will be guiding instead of ineffective coping strategies of past experiences in the face of negative and stressful life events.

### Authors' Contribution

Study Conception: KG; Study Design: KG, ZGD; Supervision: KG, ZGD; Funding: N/A; Materials: N/A; Data Collection and/or Processing: CSY; Statistical Analysis and/or Data Interpretation: KG; Literature Review: KG, ZGD, CSY; Manuscript Preparation: CSY and Critical Review: KG.

### Conflict of interest

The authors disclosed no conflict of interest during the preparation or publication of this manuscript.

### Financing

The authors disclosed that they did not receive any grant during conduction or writing of this study.

### Ethics Approval and Consent to Participate

The 1964 Declaration of Helsinki and its updates, as well as any other relevant ethical principles, are followed in all techniques employed in studies involving human beings. Participants in this study gave their full, informed permission. This study approved by Üsküdar University Non-interventional Research Ethics Committee (Date: 26.03.2021, Decision no. 2021-45).

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