Relationships Between Adverse Childhood Experiences and psychological resilience and Cognitive Emotional Behavioral Regulation in College Students

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Abstract

This study aimed to determine the effects of adverse childhood experiences and childhood experiences on adolescents' psychological resilience and Cognitive Emotional Behavioral regulation. Four hundred thirty-three(n:433) students (18-21 years old) attending a Vocational School of a University in Turkey completed online questionnaires using the Childhood Experiences Scale, the Cognitive Emotion Regulation Scale, the Adult Resilience Scale, and the Negative Childhood Experiences Scale-Turkish version. In the study, it is seen that the psychological resilience of adolescents differs according to age. No significant difference was found between men and women in the study. When cognitive-emotional regulation strategies are examined, it is seen that 18-year-old adolescents are more likely to blame- others than 19- and 20-year-old adolescents. Although there were no differences in psychological resilience in the study, differences were obtained between women and adolescents regarding cognitive and emotional regulation. It was found that female adolescents used the strategies of "self-blame, blame-others, rumination, catastrophizing, and positive refocusing," which are among the Cognitive Emotional Regulation Strategies more than male adolescents. It has been determined that male adolescents use " Putting into perspective " more. As a result of regression analysis, differences in childhood experiences and psychological resistance were obtained according to age. The psychological resistance of 20 -year -old adolescents with a high score of submissiveness, threat, and unvalued was found to be high. In our study, a positive relationship was observed between rumination and adolescents who had an experience of being unvalued and submissive from their childhood experiences. In contrast, those who had less adverse childhood experiences used rumination more.

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Key words: Adverse Childhood Experiences, resilience, Cognitive Emotional Behavioral Regulation, Adolescent, Abuse

İntroduction:

Adverse childhood experiences are traumatic events such as exposure to abuse and witnessing domestic violence. Traumatic events are experiences with a high potential for harm, including actual or threatened death, serious injury, or sexual abuse (McLaughlin, Colich, Rodman & Weissman, 2020). If the parent is in prison, has a substance abuse or mental illness; also if living in unsafe neighborhoods, has in poverty or financial distress; if experiencing bullying or discrimination, all are negative childhood experiences (Bethell, Simpson & Solloway, 2017; Cronholm et al., 2015; Mersky, Janczeewski & Topitzes, 2017). Children exposed to multiple adverse childhood experiences are more likely to suffer from social, emotional, and cognitive disorders. Such disorders increase the risk of engaging in risky behaviors (e.g., alcohol and drug use, unsafe sexual activity) that cause higher levels of physical and mental illness in adulthood (Felitti et al., 1998). Also, Children exposed to trauma have low emotional awareness and difficulties with emotional learning and emotion regulation (Sciaraffa, Zeanah & Zeanah, 2018). While research shows that child maltreatment and trauma can negatively affect the psychosocial functioning of individuals, there is also evidence that many maltreated children manage to overcome some potential consequences that may occur after exposure to this particular form of distress (Klika & Herrenkohl, 2013). However, many young people who encounter traumatic events and challenges succeed despite being exposed to highly stressful conditions (Brooks, 2006). These young people define as having psychological resilience. These are children and adolescents who thrive and improve in traumatic environments (Alvord &Grados, 2005). Psychological Resilience is adapting to maintain an active life despite adversity and stressful events. In other words, it is the ability to patiently solve and overcome difficulties encountered in different areas of life and, while doing so, strengthen one's resistance against future pressures and traumas (Sisto et al., 2019). This process is similar to how microorganisms encounter antibiotics; they develop resistance over time and eventually adapt to survive under the same dose of antibiotics (Hernández et al., 2007). Childhood trauma is an important etiological precursor in the development of psychiatric disorders, especially mood disorders (Gershon et al., 2013; Heim & Nemeroff, 2001). However, studies also show that not all individuals exposed to childhood trauma exhibit these disorders (Spila et al., 2008). Therefore, there may be protective factors that minimize the risk of developing a psychiatric disorder for an individual who has experienced childhood trauma, and psychological resilience may be one of these protective factors. Even if children face difficulties, they can become resilient adults thanks to social support (Dambacher et al., 2021). Not every individual who experiences childhood trauma suffers from psychological problems; indeed, some individuals develop positive psychological traits (e.g., psychological resilience) in coping with adversity (Li, Cao, Cao, & Liu, 2015). When traumatic life events occur at certain levels, it can help to improve the individual's ability to cope with problems and thus strengthen the individual's self. However, when these events occur at an extreme level that prevents individuals from coping, they tend to disrupt the mental balance and lead to the development of mental illnesses (Gustafson & Sarwer, 2004). Psychological resilience is an important protective factor against toxic stress caused by adverse childhood experiences (Werner, 2009). Resistant individuals have better well-being and a lower risk of developing psychopathology (Meng et al., 2018).

Cognitive Emotion Regulation:

Emotion regulation strategies refer to how a person copes with stressful experiences and controls, expresses, and manages the emotions to which they react (Gross, 2002). Positive emotion regulation strategies develop early in life. Secure attachment to the primary caregiver is essential for the child to learn adaptive coping strategies, control himself, and regulate his emotions successfully(Dvir, Ford, Hill, & Frazier, 2014). Early negative childhood experiences, particularly those related to maltreatment such as physical and emotional abuse and neglect, can interrupt these learning experiences and prevent the person from developing adaptive emotion regulation strategies that can affect their psychological health and well-being (Hovens et al.,2015; Heleniak et al., 2016; Kim et al., 2013). Teenagers who have been traumatized exhibit difficulties in identifying and regulating their emotions. Childhood trauma is associated with poor emotional awareness and a decreased ability to identify and distinguish one's emotions. This tendency to low emotional awareness may result in difficulties with emotion regulation, which consistently observe in traumatized children. For example, children exposed to trauma are likelier to report using maladaptive emotion regulation strategies such as rumination, repression, and impulsive responses to distress(McLaughlin et al.,2020). There is some evidence that experiencing particular psychological and physical abuse or neglect by parents during childhood can undermine the development of children's effective emotion-regulation skills and encourage ineffective emotion-regulation strategies with a long-term impact on mental health (Briere & Jordan, 2009; Jennissen et al., 2016; Titelius, 2018). Adverse childhood experiences can define as weak emotion regulation triggers (Luby et al., 2017).

İmportance of research

When the studies on the subject are examined, most literature on adverse childhood experiences has focused on children and adults. During adolescence, a critical period for personality development, adolescents (11 to 21 years old) experience physical and sexual maturation, develop more abstract and long-term thinking and show risk-taking behaviors while establishing independence. Adolescents with adverse childhood experiences may not be able to overcome the harmful effects of traumatic experiences on their emotional and cognitive development due to the lack of or limited positive support (Soleimanpour, Geierstanger & Brindis, 2017). The prevalence of these adverse effects is much higher among adolescents who have experienced more than one adverse childhood. Exposure to childhood trauma can lead to psychological and physical negative consequences, especially in adolescence, such as depression, anxiety disorder, and substance use/addiction(Chang et al., 2021; Heleniak et al., 2016; Thurston, Bell & Induni, 2018; Luby et al., 2017). Given the high prevalence and negative consequences of adverse childhood experiences, understanding their impact on adolescent resilience and Cognitive and emotional behavior is critical. More research is needed before concluding whether negative childhood experiences affect resilience and cognitive-emotional behavior can be generalized to adolescents.

Aims of research:

Therefore, this study aimed to determine the effects of adverse childhood experiences and childhood experiences on adolescents' psychological resilience and Cognitive Emotional Behavioral regulation.

For this purpose, answers to the following research questions are sought:

- Do The Psychologıcal Resıstances of Adolescents dıffer by Gender?
- Do The Psychologıcal Resıstances of Adolescents Dıffer Accordıng to theır age?
- Do Cognıtıve Emotıonal Regulatıon Strategıes of Adolescents differ by Gender?
- Do Cognıtıve Emotıonal Regulatıon Strategıes of Adolescents differ by Age?
- Do Chıldhood Experıences of Adolescents Affect theır Psychologıcal Resıstance?
- Do The Adverse Chıldhood Experıences of Adolescents Affect theır Psychologıcal Resıstance?
- Do Chıldhood Experıences of Adolescents Affect Cognıtıve Emotıonal Regulatıon Strategıes?
- Do The Adverse Chıldhood Experıences of Adolescents Affect The Cognıtıve Emotıonal Regulatıon Strategıes?

Prosedürler Procedures

The University's Institutional Ethics Committee approved the study (E-92662996-044-96020, No. 6725). An internet-based survey was conducted between May and September 2022 in Bursa, Turkey. The electronic questionnaire's first page explains the study's purpose and content in detail. Participants were informed about the voluntary basis of participation, and their answers were kept confidential. Students who agreed to participate could complete surveys using a computer or smartphone. The approximate time required to complete the survey is 20 minutes. To ensure the quality of the survey, the online interface was programmed to allow only one responder for a given internet protocol address.

Method:

Research Model :

The research uses the relational screening model. The relational screening model aims to determine the relationships between two or more variables and to obtain clues about cause and effect. In addition to determining the relationship between variables in the relational screening model, It is also possible to examine one of the variables as the dependent and the other variable(s) as the independent variable. In studies conducted to determine the relationships between variables, it is unclear which variable affects whom and to what extent. However, in predictive studies, it is easy to see how much of the variance in the dependent variable is explained by the related variables (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, & Demirel, 2013: Fraenkel & Wallen, 2006). In this study, the relational screening model was used, the independent variables of the research were adverse childhood experiences and childhood experiences, and the dependent variables were psychological resilience and cognitive and emotional regulation strategies.

Participants

Four hundred thirty-three(n:433) students (18-21 years old) attending a Vocational School of a University in Turkey completed online questionnaires using the Childhood Experiences Scale, the Cognitive Emotion Regulation Scale, the Adult Resilience Scale, and the Adverse Childhood Experiences Scale-Turkish version. Participants were recruited through easy accessibility and purposive sampling. Inclusion criteria for this study; they were between 18-21, enrolled in an associate degree program at a large University in the city in the south of Türkiye Marmara region, and agreed to participate. Participants were recruited virtually. Google Docs is the most used communication software in Turkey. An invitation was distributed to the study survey site link via online groups of student cohorts.

Table1: Demographic characteristics

		n	%
Age	18	72	16.7%
	19	182	42.1%
	20	134	31.0%
	21	44	10.2%
Gender	Boy	87	20.1%
	Girl	345	79.9%
SED	low	46	10.6%
	below middle	33	7.6%
	middle	301	69.7%
	upper middle	26	6.0%
	high	26	6.0%

It was determined that the adolescents participating in the study were mostly between 19 (42.1%) and 20 (31.0%) years old, the majority of them were female (79.9%), and the SES of their families was mostly medium (69.7%).

Data Collection Tools:

Sociodemographic Data Form: The sociodemographic data form was prepared to obtain information about adolescents' gender, age, and socio-economic status in the family.

2. Early Life Experiences Scale-ELES: The scale developed by Gilbert et al. (2003). The Turkish validity and reliability study of the scale was performed by Akın et al. (2013). The scale consists of 15 items and three dimensions. Sub-dimensions; unvalued (items 6, 7, and 9), submissiveness (items 1, 2, 3, 5, 10, and 12), and threat (4, 8, 11, Articles 13, 14, and 15). The scale's 6th, seventh, and ninth items are reverse coded. The response category has a 5-point rating (1= Not at all suitable for me... 5= Totally Appropriate for me). The lowest score on the scale is 15, and the highest is 75. Although there is no cut-off point in the scale, it is interpreted as "as the score obtained from the scale increases, adverse experiences, and experiences increase in childhood ." In the validity-reliability study, Cronbach's alpha coefficient was determined to be 0.850.(Akın et al., 2013).

3. The Resilience Scale for Adults-RSA: The Resilience Scale for Adults-RSA was developed by Friborg et al. (2003), and the Turkish validity and reliability study of the scale was conducted by Basim and Çetin (2011). Evaluation of scale items was released as in the original study. In order to get rid of the acquaintance bias, the five boxes opposite the answers can be evaluated in the form of a five-point Likert scale and can be evaluated as desired. If it is desired to increase psychological resilience as the scores increase, the answer boxes should be evaluated as 12345 from left to right. Suppose this opinion is taken into account in the scale. In that case, Questions 1–3–4– 8–11–12–13–14–15–16–23–24–25–27–31–33 will be reverse questions(if it is desired to increase psychological resilience as the scores decrease); answer boxes will be evaluated as 54321 and reverse questions would then question 2–5–6– 7–9–10–17–18–19–20–21–22–26–28–29–30–32. The total Cronbach Alpha coefficient of the original scale was 0.86. The current study selects the option to increase psychological resilience as the scores increase(Basim & Çetin, 2011).

4. Cognitive Emotion Regulation Scale Turkish Form: Garnefski, Kraaij, and Spinhoven (2002) developed the Cognitive Emotion Regulation Scale to measure individuals' cognitive emotion regulation strategies in stressful life events. Turkish validity and reliability study of the scale was performed by Onat and Otrar (2013). The scale consists of thirty-six items and nine sub-dimensions. The sub-dimensions in the scale are as follows: self-blame (items 1, 10, 19, 28), Other-Blame(items 9, 18, 27, 36), rumination(items 3, 6, 21, 30), catastrophizing (item 8). , 17, 26, 35), positive refocusing (items 4, 13, 22,31), refocus on planning (items 5, 14, 23, 32), positive reappraisal(items 6, 15, 24, 33), Putting into perspective (items 7, 16, 25, 34), and Acceptance (items 2, 11, 20, 29. The scale is based on a five-point Likert-type response. A high score from the subscale indicates that the strategy of that subscale is used more (Onat, Oya & Mustafa Otrar, 2010).

5. Adverse Childhood Experience Turkish Fom (ACE- TR): The Adverse Childhood Experience Scale(ACE) was developed in the CDC-Kaiser Permanente's adverse childhood experiences (ACE) study conducted between 1995-1997 (Felitti et al., 1998). By Gündüz, Yaşar, Gündoğmuş, Savran, and Konuk in 2018 performed its Turkish validity and reliability. In the Childhood Adverse Experiences Scale, which consists of 10 questions, the answer to the questions is marked if yes; otherwise, it is left blank. No cut-off value has been recommended for the Adverse Childhood Experience (Gündüz et al., 2018).

Data Collection Process and Data Analysis

Interested students participated in the study via the survey link. A brief description of the study's purpose and content was provided on the start page of the online survey. A total of 433 eligible participants completed the questionnaire and were included in the final dataset for analysis. The Shapiro-Wilk test was used to determine whether the data showed a normal distribution. Descriptive statistics expressed the mean and standard deviation or median(minimum-maximum)for quantitative data frequency and percentage for qualitative data. The t-test and one-way analysis of variance for more than two groups were used to compare two independent groups. Pearson Chi-square, Fisher-Freeman-Halton, and Fisher's Exact Chi-square tests were used to analyze categorical data. In case of significance, the Bonferroni test, one of the multiple comparison tests, was used.

Relationships between variables were examined with the Pearson correlation coefficient. Stepwise multiple linear regression analysis was used to model the relationships between the variables. The significance level was determined as α=0.05. Statistical analysis of the data was performed in the statistical package program IBM SPSS 28.0 (IBM Corp. Released 2021. IBM SPSS Statistics for Windows, Version 28.0. Armonk, NY: IBM Corp.).

Ethical considerations

Ethical approval was obtained from the university ethics review board of the relevant author. Implied consent to participate was indicated when respondents responded to survey items.

Results

In this part, the results of the analysis carried out to determine whether college students' adverse childhood experiences and childhood experiences, their psychological resilience, and cognitive and emotional regulation strategies mean scores differ significantly according to gender and age variables, followed by the relationships between the variables examined in the study and the results of stepwise multiple linear regression analysis are presented.

Table2: Comparison of scale scores by age groups

		Yaş 18 (n=72)	Yaş 19 (n=182)	Yaş 20 (n=134)	Yaş 21+ (n=44)	p
ELES	unvalued	7.04±2.45	7.6±2.96	7.41±3.17	6.55±2.56	0.137
	submissiveness	14.18±5.22	14.48±5.41	15.4±6.63	13.59±6.27	0.243
	Threat	11.71±5.23	12.82±6.24	13.96±7.03	12.84±6.27	0.105
RSA_total	RSA_total	81.07±11.86	79.32±13.85	84.75±16.47	77.89±14.45	**0.004**[(1)]
ACE total	ACE total	11.51±1.78	12.04±2.25	12.6±2.36	11.95±2.16	**0.007**[(2)]
CERS	self-blame	12.07±3.33	10.88±2.93	11.95±2.92	11.23±2.87	**0.004**[(3)]
	other-blame	10.97±3.03	10.62±2.9	10.52±2.93	9.39±2.84	**0.037**[(4)]
	rumination	15.38±3.03	14.93±3.51	15.14±2.74	15.89±2.94	0.302
	catastrophizing	10.76±3.5	10.06±3.82	10.92±3.5	9.84±3.82	0.116
	positive refocusing	11.76±3.29	11.54±3.64	12.07±3.56	12.59±3.09	0.269
	refocus on planning	14.42±2.66	14.8±3.02	14.84±3	15.27±2.93	0.500
	positive reappraisal	13.72±2.72	14.58±3.08	14.43±3.2	15.48±2.9	**0.025**[(5)]
	Putting into perspective	13.24±3.04	14.03±2.73	13.57±2.9	14.73±2.66	**0.023**[(5)]
	acceptance	12.4±3.28	11.94±2.83	12.68±3.21	11.89±3.22	0.167

[(1)] . A significant difference was found between the ages of 20 and 19, and 21. The mean Resilience Scale for Adult of 20-year-olds is higher than for 19- and 21-year-olds.

[(2)] A significant difference was found between 18 and 20. Those in the 18-year-old group have a lower average ACE score than those in the 20-year-old.

[(3)] The mean score of the CERS self-blame subscale of 19-year-olds is lower than those of 18 and 20-year-olds.

[(4)] . A significant difference was found between 18 and 21. The mean CERS other-blame score of the 18-year-olds is higher than the 21-year-olds.

[(5)] A significant difference was found between 18 and 21. The mean score of the CERS positive reappraisal and Putting into perspective sub-dimensions of the 18-year-olds is lower than the age of 21.

Table 3 : Comparison of scale scores by gender

		Cinsiyet	Cinsiyet	p

		Erkek (n=87)	Kadın (n=345)	
ELES	unvalued	7.53±2.77	7.29±2.96	0.501
	submissiveness	14.37±5.67	14.69±5.94	0.652
	Threat	13.08±6.61	12.97±6.32	0.883
Resilience Scale for Adult_total	Resilience Scale for Adult_total	81.93±16.94	80.97±14.04	0.584
ACE-total	ACE-total	12.31±2.78	12.07±2.07	0.445
CERS	self-blame	10.82±3.38	11.61±2.91	**0.048**
	blaming other- blame	9.74±2.93	10.72±2.92	**0.005**
	rumination	13.31±3.76	15.63±2.8	**<0.001**
	catastrophizing	9.57±3.64	10.63±3.67	**0.016**
	positive refocusing	11.09±4.14	12.04±3.31	**0.049**
	refocus on planning	15.16±3.36	14.7±2.83	0.243
	Positive reappraisal	15.11±3.35	14.32±2.97	0.031
	Putting into perspective	14.53±2.9	13.65±2.82	**0.010**
	acceptance	12.26±3.74	12.23±2.89	0.952

There was no statistically significant difference between men and women regarding ELES sub-dimensions, Resilience Scale for Adults, and ACE scale scores. Women's average scores were higher in the CERS self-blame, other-blame, rumination, catastrophizing, and positive refocusing sub-dimensions. In contrast, men's mean scores were higher in the Putting into perspective sub-dimension. No statistically significant difference was found in terms of other sub-dimensions

Table 4: The Relationship Between Childhood Experiences (ELES) of Adolescents and Ace and Psychological Resilience-Correlatıon table

	Resilience Scale for Adult -Total	Resilience Scale for Adult -Total
	r	p
unvalued -ELES	**0,548**	**<0,001**
submissiveness -ELES	**0,549**	**<0,001**
Threat -ELES	**0,551**	**<0,001**
ACE- total	**0,438**	**<0,001**

A moderately significant positive correlation was found between the Resilience Scale for Adults total, ELES sub-dimensions, and ACE total.

Table 5: Stepwise linear regression analysis results of the scales

Dependent variable	Independent variable	Unstandardized Beta	Standardized Beta	p	Model
					Adjusted
Resilience Scale for Adults total	Stable	84.632		<.001	0.613
	Submissiveness -ELES	0.324	0.128	0.016	
	Threat -ELES	0.476	0.207	<.001	
	unvalued -ELES	0.786	0.155	<.001	
	Age=20	2.981	0.093	0.003	
CERS self-blame	Stable	6.534		<.001	0.202
	submissiveness -ELES	0.134	0.259	<.001	
	age=19	-0.757	-0.123	0.005	
	ACE total	-0.177	-0.130	0.018	
	gender (girls)	0.693	0.092	0.035	
CERS other- blame	Stable	9.902		<.001	0.030

Dependent variable	Independent variable	Unstandardized Beta	Standardized Beta	p	Model
	gender (girls)	0.945	0.129	0.007	
	age=21	-1.203	-0.124	0.009	
CERS rumination	Stable	16.677		<.001	0.162
	Gender(girl)	2.242	0.286	<.001	
	submissiveness -ELES	0.161	0.301	<.001	
	ACE-total	-0.336	-0.238	<.001	
	age=21	1.105	0.106	0.017	
	unvalued -ELES	0.139	0.129	0.036	
CERS catastrophizing	Stable	1.085		0.264	0.179
	Gender(girl)	1.167	0.127	0.004	
CERS positive refocusing	Stable	21.416		<.001	0.150
	ACEtotal	-0.433	-0.274	<.001	
	age20	0.789	0.104	0.023	
	Threate-ELES	0.122	0.221	0.002	
	unvalued -ELES	-0.173	-0.144	0.021	
CERS refocus on planning	Stable	*24.236*		*<.001*	*0.312*
	Threate-ELES	0.136	0.294	<.001	
	unvalued -ELES	-0.194	-0.192	0.001	
	Gender (girl)	-0.621	-0.085	0.035	
	Age=20	0.515	0.081	0.048	
CERS positive reappraisal	Stable	24.586		<.001	0.230
	Threate-ELES	0.162	0.338	<.001	
	Gender (Girl)	-0.953	-0.125	0.003	
	ACEtotal	-0.176	-0.128	0.036	
	unvalued -ELES	-0.124	-0.118	0.045	
CERS Putting into perspective	Stable	16.470		<.001	0.112
	ACE-total	0.208	0.162	0.006	
	unvalued -ELES	-0.252	-0.258	<.001	
	submissiveness -ELES	0.101	0.208	0.002	
	Gender (girl)	-0.982	-0.138	0.003	
CERS acceptance	Stable	8.568		<.001	0.151
	unvalued -ELES	0.169	0.321	<.001	
	ACE-total	-0.175	-0.126	0.026	

When the variables predicting the Resilience Scale for Adults total scale were examined, sub-dimensions of submissiveness _ELES (Childhood Experiences Scale), threate_ELES, unvalued _ELES, and being 20 years old were found significant. When the correlation between PBL total score and Childhood experiences submissiveness _ELES, threate_ELES, unvalued positively related. Although there was a correlation between psychological resilience and Adverse Childhood experiences, it was found insignificant due to regression analysis. Adverse childhood experiences are not included in the regression because they are insignificant. It becomes meaningless due to the effect of other variables in the model. When the variables predicting the CERS self-blame sub-dimension were examined, it was found that ACE total and being 19 years old had a negative effect, while being submissiveness _ELES and being female had a positive effect. When the variables predicting the CERS blame-others sub-dimension were examined, only being 21 years old and female were found to be significant. These two variables affect positively. When the variables predicting the CERS rumination sub-dimension are examined, being female, being 21 years old, submissiveness _ELES, and unvalued negatively. When the variables predicting the CERS catastrophizing sub-dimension were examined, it was found that being female had a positive effect. When the variables predicting the CERS positive refocusing sub-dimension were examined, it was found that ACE total and unvalued _ELES sub-dimension

had a negative effect, while being 20 years old and the threate_ELES sub-dimension score had a positive effect. When the variables predicting the CERS refocus on planning sub-dimension were examined, it was found that the unvalued _ELES sub-dimension and being female had a negative effect, while the threate_-ELES sub-dimension and being 20 years old had a positive effect. Among the variables predicting the CERS positive reappraisal sub-dimension, only the threate_ELES sub-dimension had a positive significance. At the same time, the gender was female, and the ACE total and unvalued_ELES sub-dimension scores were found to be negatively significant. While CERS was positively correlated with ACE total and submissiveness _ELES sub-dimension scores, which are predictors of the Putting into perspective sub-dimension, it was negatively correlated with the unvalued_ELES sub-dimension and Gender being female. Among the variables predicting the CERS acceptance sub-dimension, the submissiveness _ELES sub-dimension had positive significance, while ACE total and negative significance were found.

Conclusion and Discussion

This study evaluated the relationships between students' retrospectively reported Adverse childhood experiences and childhood experiences and their psychological resilience and Cognitive-emotional regulation in a sample of university students. In the study, it is seen that the psychological resilience of adolescents differs according to age. In the study, 20-year-old adolescents were found to have more psychological resilience than 19-year-old adolescents. Accordingly, age affects psychological resilience. This may be because the skills that make up psychological resilience develop with age. For example, self-regulation, coping with stress, and skills to recognize, appropriately express, and control emotions. The results of Campbell-Sills, Ford and Stein's (2009) studies are similar. In their research, younger participants (18-24 years old) showed significantly lower psychological resilience than 25-34-year-olds. When cognitive-emotional regulation strategies are examined, it is seen that 18-year-old adolescents are more likely to blame- others than 19- and 20-year-old adolescents. Accordingly, the tendency to blame- others increase as age decreases. In other words, as the age increases, blaming others decreases. According to this finding, adolescents' perception of events as a result of their own behavior increases with age. As adolescents age, they evaluate events objectively, accept their mistakes, and decrease blame for others.

No statistically significant difference between male and female adolescents regarding Childhood Experiences, Psychological resilience and Adverse Childhood Experiences-ACE was found. On the other hand, it was found that female adolescents used the strategies of "self-blame, blame-others, rumination, catastrophizing, and positive refocusing," which are among the Cognitive Emotional Regulation Strategies more than male adolescents. It has been determined that male adolescents use " Putting into perspective " more. Similar results were obtained in the literature. In the study of Hillis et al. (2000), male and female participants reported that they had almost similar negative childhood experiences. It is similar to the study of Mathieu et al. (2022). In the study, in general, no significant difference was found according to gender, except for sexual abuse. In the study of Freeny vd. (2021) and Karatekin and Ahluwalia (2020), adverse childhood experiences did not differ significantly by gender. Youssef et al.(2017) considered in studies of the prevalence of adverse childhood experiences is a significant difference between men and women do not have a higher proportion than women, but men are exposed to severely adverse childhood experiences. Hargreaves et al. (2019) found that they experienced at least one adverse childhood experience in 54% of adult men and 60% of adult women. Based on the current research results and the literature in the field, both sexes experience adverse childhood experiences. The type of adverse childhood experience may differ between the male and female sexes.In the current research, it has not examined which type of adverse experience they had. There are differences in the type of adverse childhood experience in the studies examined regarding gender (Mathieu et al., 2022; Hillis et al.,2000; Freeny et al.,2021). For example, Sciolla, Wilkes, and Griffin(2019) found that girls had more adverse childhood experiences than boys. While no male medical students approved of the abuse-related item in the study, six (14%) female medical students did.

In terms of psychological resilience, no significant difference was found between men and women in the study. The research results show similarities and differences with the results of the studies conducted in the literature on the subject. Karairmak and Güloğlu (2014) found that the psychological resilience levels

of women and men did not reveal a significant difference. Similarly, Sezgin (2012) found that primary school teachers' mean scores of psychological resilience did not differ significantly by gender. There are also studies in which there are differences in terms of gender. For example, Hadianfard et al. (2015) found that men's psychological resilience level is higher than women's, but this difference is not statistically significant. Tümlu and Recepoğlu (2013) found that women's psychological resilience levels were higher than men's in a study conducted with university academic staff; however, this difference is not statistically significant. In some studies, women's psychological resilience was higher (for example, Campbell -İlls, Forde & Stein, 2009; Banyard et al., 2002; Güngörmüş, Okanlı & Kocabeyoğlu, 2015). Mathieu et al. (2022) found that men's psychological resilience was higher than women's. When the psychological resistance was examined according to gender, different results were achieved. These findings show that a particular gender should not be concluded that psychological resilience is higher.

Although there were no differences in psychological resilience in the study, differences were obtained between women and adolescents regarding cognitive and emotional regulation. The results are similar to some relevant research findings in the field. For example, Çiftçi (2002) found that girls accused themselves more than boys. Ataman (2011) found that women used the strategies of rumination and Putting into perspective more. Bedirhanbeyoğlu (2018) found rumination is more common in female participants; It has been concluded that refocus on planning is more seen in male participants. As a result of a meta-analysis study in which gender differences were examined in terms of rumination, it was found that women use the rumination strategy more than men, and this may be related to the more depressive symptom of women (Johnson & Whisman, 2013). As a result of a study conducted by Garnefski, Teerds, Kraaij, Legerstee, and Van Der Kommer (2004) found that rumination was more common in women, and depression symptoms were more in individuals with rumination.

As a result of regression analysis, differences in childhood experiences and psychological resistance were obtained according to age. The psychological resistance of 20 -year -old adolescents with a high score of submissiveness, threat, and unvalued was found to be high. However, were found the meaningless result of regression analysis although there was a correlation between psychological resistance and adverse childhood experiences. Similar and different results were obtained compared with previous studies' results. Despite the findings in the literature that childhood traumas and adverse childhood experiences negatively affect psychological resilience, it was concluded that our study did not have a significant effect as a result of regression analysis. For example, previous studies have shown that childhood trauma directly affects psychological resilience(Marx et al., 2017; Kasehagen et al., 2018). Research has shown that participants who report more exposure to childhood trauma have lower psychological resilience; It has been shown that childhood trauma can have a permanent negative effect on the psychology of the individual and prevent the development of psychological resilience (Holl, 2017). Similarly, another study determined that adults' childhood traumatic experiences had a positive and significant effect on psychological symptoms, childhood traumatic experiences harmed resilience, and resilience had a mediating role in the relationship between childhood traumatic experiences and psychological symptoms (Savi Çakar, 2018). The study observed that resilience also mediated the relationship between childhood traumatic experiences and psychological symptoms in adulthood. This finding reveals that as resilience increases in adults, the effect of childhood traumatic experiences on psychological symptoms decreases. Psychological resilience is an individual's ability to adapt to stressful events. Individuals with higher levels of psychological resilience tend to have better psychological health; therefore, increasing psychological resilience directly affects the reduction of psychological symptoms (Kurt, 2013). Considering the current research findings, it was concluded that adverse and traumatic childhood experiences positively affect psychological resilience. It is thought that there are many factors affecting these findings. First, as Kurt (2013) suggested, it can be concluded that the adolescents participating in the study have low psychological symptoms, and therefore adolescents with fewer psychological symptoms have high psychological resilience. It can be viewed from a different angle as follows. Yu et al. (2021) found that adolescents with greater resilience significantly reduced the effects of childhood traumas on mental health symptoms. Two-way interaction may be effective in this result. Secondly, the relationship of adolescents participating in the study with their parents may have had an impact. Adolescents with high psychological

resilience despite childhood traumas may have a strong relationship with at least one parent, which may be based on trust and closeness. Some people who have suffered childhood traumas do not have poor mental health because they have received support from at least one caring adult with whom they have established a safe, stable, and supportive relationship(Centers for Disease Control and Prevention[CDC], 2019). These positive relationships increase resilience by buffering the adverse effects of adverse childhood traumas (Fritz et al., 2018; Ortiz, 2019; Traub & Boynton-Jarrett, 2017). Fritz et al. (2018) suggested that resilience factors should not be studied alone and that the interrelationships between resilience factors should be considered when predicting psychopathology after childhood adversity. Positive family structure and secure attachment with parents and functional community characteristics are influential factors in the formation of positive outcomes for children and adolescents exposed to ACEs (Balistreri & Alvira-Hammond, 2016; Bethell, Gombojav, Solloway & Wissow, 2016). Understanding, identifying and supporting family, school, and community elements can help reduce the overall impact of youth exposure to ACEs (Mistry, Vandewater, Huston & McLoyd, 2002). The study obtained a positive relationship result of the correlation analysis between childhood traumas and psychological resilience. Similar studies have found a negative relationship. There are research findings that adolescents who report being maltreated exhibit lower levels of resilience than their non-maltreated peers (Westphal, Bonanno & Bartone, 2008; Collishaw et al., 2007). Chang (2021) and Türk-Kurtça and Kocatürk (2020) also found a negative relationship between resilience and childhood traumas in their studies. Adverse childhood experiences (ACEs) have been associated with an increased risk of multiple adverse health outcomes, but their contribution to adult coping ability and resilience is unclear (Daníelsdóttir et al.,2022). On the other hand, there are also similar results to the results of the present study. Studies have shown that abused and neglected children have developed resilience (Collishaw et al., 2007; McGloin & Widom, 2001). Psychological resilience is accepted as a protective factor against traumatic behavioral disorders (Almedom, 2008). Some children exposed to childhood trauma may have almost no symptoms later. In addition, children who experience relatively less intense trauma may show more symptoms in later years. In this trauma-induced diversity, resilience may be a protective factor (Hornor, 2017). Therefore, the findings related to the prediction of the psychological resilience of childhood traumas obtained from these studies support the results of the present study. Similarly, Dumont, Widom, and Czaja (2007) and McGloin and Widom (2001) found in their studies that approximately 50% of children exposed to maltreatment have psychological resilience in adolescence, and approximately 33% have psychological resilience in adulthood. Studies show that even if children face difficulties, they can become psychologically resilient adults in the future with adequate social support from adults (Klika & Herrenkohl, 2013). It is thought that those who are better off than others after abuse and neglect are psychologically resilient (as cited in Klika & Herrenkohl, 2013). Tiet et al. (1998) study results also supported the present study. Children at risk for adverse life events exhibit greater psychological resilience with a higher IQ, better family functioning, closer parental supervision, more adults at home, and higher educational opportunities. Banyard et al.(2002) found that 40 women (29%) of maltreated women scored high on the resilience scale (scores between 8 and 9), while 25 (18%) showed high levels of proficiency in almost all areas, which is considered excellent psychological resilience named(10+ puan). Although the results were similar to some but not others in the literature, it was pleasing that the psychological resilience of adolescents with a bad childhood experience and trauma was high. Based on the current research and other relevant research results in the literature, the relationship between adverse childhood experiences and traumas and psychological resilience is not evident. In other words, the psychological resilience of children who have experienced adverse childhood experiences and trauma can be strong or weak. Protective factors were not examined in the study. Considering the research results in the literature, it is seen that the psychological resilience of people with adverse childhood can be strong when they have protective factors (e.g., warm, close parental relationship, high IQ, and adequate adult support..). These positive relationships can buffer negative childhood experiences and the adverse effects of traumas; therefore, It is thought to increase psychological resilience. Another reason is the view that adverse experiences increase people's resilience. According to Li, Cao, Cao, and Liu (2015), not every individual who experiences childhood trauma suffers from psychological problems; indeed, some individuals develop positive psychological traits (e.g., resilience) in coping with adversity. Hernández et al. (2007) likened this to the process by which microorganisms encounter antibiotics; They state that they develop resistance to antibiotics

over time and eventually adapt to surviving under the same dose of antibiotics.

Another aim of the study was to determine the relationship between childhood experiences and traumas and cognitive and emotional regulation in adolescence. The findings obtained in the research are mostly similar to the literature. For example, Shapero et al. (2013) and Raes and Hermans (2008), and Garnefski, Rood, Roos, and Kraaij (2017) are consistent with the results of their study. In their study with adolescents, it was found that there was a significant and positive relationship between rumination and emotional abuse. In our study, a positive relationship was observed between rumination and adolescents who had an experience of being unvalued and submissive from their childhood experiences. In contrast, those who had less adverse childhood experiences used rumination more.

In our study, it was found that adolescents with more adverse childhood experiences and less " unvalued experience used the " positive refocusing " strategy more, and adolescents and female adolescents with a high " unvalued " experience decreased their " refocus on planning " skills. On the other hand, it has been determined that adolescents who experience " unvalued " with an adverse childhood experience use " positive reappraisal" less, while the Submissiveness experience affects the "acceptance" strategy positively, while adverse childhood experiences negatively affect it. It is also similar to the results of research by Garnefski, Rood, Roos, and Kraaij (2017). In the research, traumatic life events were found to be meaningful and positive with the strategies of self-blame and blame-other, acceptance, rumination, and catastrophizing; Putting into perspective and positive reappraisal strategies were also found to be significantly and negatively related. It is consistent with the result of Huh et al. (2017) studies. Interestingly, "acceptance," which is generally considered to be compatible, was found to be positively associated with childhood trauma and the severity of anxiety. It is also similar to the study of Bedirhanbeyoğlu (2018). İn the research found that emotional abuse has a significant and positive relationship with self-blame, acceptance, catastrophizing, and blaming others; It was concluded that there is a significant and negative relationship with positive reappraisal. It is similar to Cameron, Hamilton, and Carroll's (2018) studies. The study concluded that higher adverse childhood experiences were associated with higher suppression levels and weaker emotion regulation tendencies, including rumination. Research results have obtained it shows that adverse childhood experiences and childhood traumas can cause children to use inappropriate cognitive-emotional strategies and emotion regulation disorders in their future lives(Cloitre et al.,2009; Roth et al.,1997; Mills et al.,2015; Burns, Jackson & Harding, 2010; Shipman et al. .2005; Shahab & Taklavi, 2019; McLaughlin, 2016; Thurston Bell & Induni, 2018). The present study's findings are similar to the results of the related studies in the literature. When the results are examined in general, it can be said, based on the findings, that adverse childhood experiences increase negative strategies in cognitive-emotional behavior strategies and that positive strategies reduce the use. Adverse childhood experiences make the child extremely sensitive and overreactive to threatening stimuli in later life (Tottenham & Sheridan, 2010). Adverse childhood experiences can cause difficulties in understanding and regulating emotions (Huh et al., 2017). Patients who report more traumatic experiences in childhood tend to use more general maladaptive cognitive emotion regulation strategies (Kim & Cicchetti, 2010; Schwartz & Proctor, 2000). However, there are different theories that adverse experiences can strengthen psychological resilience, as well as similar beliefs for developing emotion regulation strategies. For example, Schweizer et al. (2016) suggested that some mild to moderate adverse experiences may be beneficial for a person to develop positive coping strategies and practice regulating their emotions. This view aligns with other theorists who argue that the absence of negativities early in life is not always optimal (Rutter, 2012; Shapero et al., 2015). For this reason, children and young people should be supported to cope with negativities in life, to be psychologically resilient, and to develop favorable cognitive emotion regulation strategies.

The results obtained from related studies and the current study in the literature underline the importance of developing appropriate cognitive emotion regulation strategies in children and adolescents who have had adverse childhood experiences. Intervention programs can be prepared to develop cognitive-emotional regulation strategies, or programs can be prepared to develop preventive strategies. Especially for adolescents with traumatic childhood experiences and adverse childhood experiences, programs can be prepared to strengthen their psychological resilience and support them using favorable cognitive-emotional regulation

strategies. Thereby the occurrence of mental problems in the future can be prevented. In addition, preventive programs should be prepared to develop psychological resilience and favorable cognitive-emotional regulations to support society's mental health and create a healthy generation for children or adolescents with adverse childhood experiences or childhood trauma and for every child and adolescent.

Limitations

This study has several limitations. First, childhood trauma and experiences were obtained from the adolescents who constitute the sample in this study, using self-report measurement tools. For this reason, missing, incorrectly remembering, or interpreting their family experiences retrospectively is possible. The accuracy of retrospectively self-reported childhood trauma may be limited by inaccessibility to traumatic life events or false positive or negative responses (for example, attributing depressed mood to ongoing distress) (Beutel et al.,2017). However, previous research has shown that adults' recollections of childhood maltreatment are relatively accurate, reliable, and stable over time (Brewin, Andrews & Gotlib, 1993). On the other hand, an online questionnaire was used in the research. The anonymous nature of the online questionnaire is thought to help minimize the reluctance of respondents to disclose childhood trauma (DiLillo, 2006). Second, the cross-sectional study design does not allow for definitive causal inferences regarding the relationship between childhood trauma, childhood experience, psychological resilience, and cognitive and emotional regulation strategies. Due care should be taken when interpreting the results of the present research. Third, in the current study used an appropriate sample of vocational college students enrolled in a single university. This may have limited the generalizability of our findings. Future studies should use a more representative sample of college students. Longitudinal studies following children with early-life trauma are needed to establish causal relationships. Research using the longitudinal design is recommended to examine the relationship between adverse childhood experiences, childhood experiences, psychological resilience, and cognitive-emotional regulation strategies. Fourth, adolescents who did not have adverse childhood experiences were not included in the study, so comparisons with and without adverse experiences can be made regarding the function of psychological resilience and cognitive-emotional regulation strategies. Future research should try to evaluate more detailed information about adverse childhood experiences, such as frequency, involvement of significant people, age of encountering adverse experiences... (Butchart, Harvey, Mian & Fürniss, 2006). Also, the relationship between adverse childhood experiences and psychological resilience may differ by culture. Personal characteristics such as psychological resilience are culturally context-sensitive(as cited in Chen, Huang, Yang& Wang, 2022). For example, Yu et al.(2020) suggested that the psychological resilience of American and Chinese individuals is sensitive to different types of child maltreatment, while the psychological resilience of Chinese individuals may be more susceptible to child abuse than American individuals. Therefore, the relationships between the dimensions of adverse childhood experiences and psychological resilience may differ according to the cultural backgrounds of children or adolescents. A multicultural comparison study may be safer to investigate further the relationship between adverse childhood experiences and psychological resilience (Chen, Huang, Yang & Wang, 2022).

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