The Impact of Early Losses, Attachment, Temperament-Character Traits and Affect Regulation on the Development of Psychopathology

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SUMMARY

Objective: The role of developmental issues and the constitutional factors are crucial for the conceptualization of psychopathology. The main aim of this research was to investigate the impact of early losses, attachment styles, affect regulation, and temperament-character traits on psychopathology. Furthermore, we also wanted to examine affect regulation and attachment styles as mediators of harm avoidance temperament trait and psychopathology.

Method: The patient cohort was composed of two groups: a clinical group (n = 224) and a healthy control group (n = 61). The clinical group included major depressive disorder (n = 78), anxiety disorder (n = 74), and somatization disorder (n = 72). Data collection tools involved Cognitive Emotion Regulation Questionnaire, Difficulties in Emotion Regulation Scale, and The Experiences in Close Relationships-II, Temperament Character Inventory, Beck Depression Inventory, Beck Anxiety Inventory and Early Losses Search Form.

Results: The losses that the clinical group experienced during their childhood period were higher than the control group. The clinical group had more anxious and avoidant attachment styles; had more difficulties in emotion regulation; used the adaptational cognitive emotion regulation strategies less and the non-adaptational strategies more; and had higher harm avoidance scores than the healthy group. Moreover, it was found that both the emotion regulation difficulties and attachment styles had a partial mediating effect on harm avoidance and depression and anxiety.

Conclusion: In conclusion, early relationships and experiences have an impact on further development of psychopathology and are important in understanding the etiology of depression and anxiety.

Keywords: Psychopathology, attachment, early losses, affect regulation, temperament and character

INTRODUCTION

Today, researching the basis of mental disorders has been observed to include multiple factor etiologies. For example, contemporary explanations of psychopathologies, early period experiences, developmental characteristics, and structural characteristics are often mentioned (Fonagy 2003).

When studies researching the etiological basis of psychopathologies are examined, it can be observed that early period losses constitute one of the most discussed variables. Having to separate from a primary caregiver due to death or other reasons can be a life event that affects attachment patterns or emotion regulation processes and makes an individual more predisposed for psychopathologies. This has been stressed in both clinical applications and research findings (Brietzke et al. 2012). Agid et al. (1999) examined adults with psychopathology after loss of one parent before the age of 17. As a result, they found that people that lost one of their parents

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had 3.8 times more possibility of developing major depression compared to other psychopathologies. Similarly, earlier ages of loss have been reported to cause more severe results. As a result of a 26 year monitoring study, Coffino reported that childhood losses constituted an important factor in the etiology of depression, and that loss before the age of 8 had a much more definite effect. As a result of a study they performed in 2014, Otowa et al. reported that experience of loss was related to internalization problems in adolescence.

Researchers that investigated the effect of early childhood experiences on psychopathology also examined parent attachment patterns beside early loss. In a longitudinal study, MacDonald et al. (2008) stated that children with insecure attachment in the early period have difficulties in the following years coping with stressful lives. Cloitte et al. (2008) stated that people with insecure attachment patterns in childhood have more predispositions for psychiatric diseases. They explained this predisposition with the difficulties they have in regulating negative emotions and the weakness of their social support systems. Another group of researchers (Venta et al 2014) that examined adolescence depression and suicide thoughts reported that schemes of attachment increased the risk of depression in adolescents. Interestingly, these attachment problems were related to the excessive load perceived by the person and the feeling of not belonging anywhere. As a result, there are many studies in literature stating that insecure attachment significantly increases the risk of showing symptoms of depression (Stansfeld et al. 2008; Jinyao et al. 2012; Evraire et al. 2014). The relationship between attachment and anxiety and somatization problems has been a thoroughly researched topic, although not as much as depression. Doron et al. (2012) stated that people with anxiety disorders (i.e., obsessive compulsive disorder) have more anxious attachment patterns compared to healthy people. They related these findings to the threatening external world view of people with obsessive compulsive disorders. Martinez et al. (2012) examined the pain evaluation styles of people with chronic pain and their attachment types. According to their findings, people with anxious attachment patterns that perceived pain as worse were more sensitive to pain and feared pain.

In recent years, many studies that examine temperament, which is accepted as the biological basis of personality, have been conducted to understand psychopathology beside early experiences (Rueda et al. 2004; Rothbart and Rueda 2005; Rothbart and Sheese 2007). In almost all of those studies, the best predictor for psychopathology was the harm avoidance dimension. Harm avoidance has been defined as an inherited predilection for pessimistic concerns for the future, an anxious mood, fears of uncertainty, passive avoidant behavior such as hopelessness and shying away from strangers, and the inhibition of behavior such as easily tiring (Tok et al. 2012). Richter et al. (2000) and Jylha et al. (2013) reported that groups with bipolar or monopolar mood disorders had higher harm avoidance scores compared to the control group. Cloninger et al. (2006) stated, as a result of their observation study, that people with major depressive disorders had higher harm avoidance scores from the temperament character inventory and had lower self management and cooperation scores because of their anxiety and immaturity. There are many studies in literature that show increased harm avoidance in people with major depressive disorder (Grucza et al. 2003; Nery et al. 2009; Smith et al. 2005; Farmer and Seely 2009). This has also been shown for other conditions such as anxiety disorders, somatoform disorders (Grabe et al. 2004; Karvonen et al. 2006; Hakala et al. 2006), migraine, or irritable bowel syndrome (Kılıç et al. 2008; Sanchez-Roman et al. 2007; Boz et al. 2004; Güleç et al. 2008; Taymur et al. 2007).

In recent models to explain mental disorders observed in adults, emotion regulation processes were given great importance (Berenbaum et al. 2003; Mennin and Farach 2007). People that have difficulties regulating their emotional responses have been reported to be exposed to distress longer (Mennin et al. 2007; Nolen-Hoeksama et al. 2008; Gross and Munoz 1995; Campbell-Sills and Barlow 2007). This creates a predisposition for depression and anxiety disorders. Researchers have reported that people with anxiety, depression, and somatization disorders more often use blaming others and self, rumination, and catastrophization compared to a healthy group when using adaptive strategies such as positive reevaluation less (Helbig-Lang et al. 2014; Aldao et al. 2010; Garnefski et al. 2002; Ryan and Dahlen 2005; Ehring et al. 2008; Rapee and Heimberg 1997; Rappe and Heimberg 1997; Jasper and Witthöft 2013; Besharat and Shahidi 2014).

This study was planned to examine the roles of certain environmental factors that affect psychological and social development and inborn structural predispositions in the development of psychopathology. The main goal of the study was to research the relationship between attachment, early loss, emotion regulation difficulties, and personality dimension of which, all are personal characteristics that emerge and form in early life periods to psychopathology. Another goal of the study was to determine the role of interactions between these variables and how they are involved in determining psychopathology.

METHOD

Sample

The sample of the study consisted of 285 participants in the clinical group (n=224) and the control group (n=61). Data was collected from three diagnosis groups in the clinical group, which are the major depressive disorder group (n=78), anxiety disorder group (n=74), and the somatization disorder group (n=72). The clinical group was selected through random sampling from among outpatients in the Ege University School

Table 1. Sociodemographic Properties of Sample

Sample	Major Depressive Disorder (n=78)	Anxiety Disorder (n=74)	Somatization Disorder (n=72)	Control Group (n=61)
Age Mean	36.1	35.6	36.8	38.8
Gender				
Woman	40 (51.3)	35 (47.3)	38 (52.8)	26 (42.6)
Man	38(48.7)	39 (52.7)	34 (47.2)	35 (57.4)
Educational Status				
Primary school	19 (24.4)	14 (18.9)	22 (30.6)	9 (14.8)
Secondary school	13 (16.7)	15 (20.3)	12 (16.7)	8 (13.1)
High school	27 (34.6)	26 (35.1)	22 (30.6)	27 (44.3)
University	16 (20.5)	17 (23.0)	15 (20.8)	15 (24.6)
Postgraduate	3 (3.8)	2 (2.7)	1 (1.4)	2 (3.3)
Marital Status				
Single	30 (38.5)	24 (32.4)	17 (23.6)	8 (13.1)
Married	35 (44.9)	45 (60.8)	49 (68.1)	45 (73.8)
Divorced	6 (7.7)	4 (5.4)	4 (5.6)	6 (9.8)
Engaged	7 (9.0)	1 (1.4)	2 (2.8)	2 (3.3)
Level of Income				
0-1000 TL	55 (70.5)	46 (62.2)	58 (80.6)	30 (49.2)
1000-1500 TL	13 (16.7)	12 (16.2)	8 (11.1)	12 (19.7)
More than 1500TL	10 (12.8)	16 (21.6)	6 (8.3)	19 (31.1)

of Medicine Adult Psychiatry Polyclinic and the Karşıyaka State Hospital Psychiatry Polyclinic. Inclusion criteria were patients between 18 and 55 years of age, literacy, volunteering. Any diagnosis of psychotic disorders, bipolar disorder, or mental retardation according to the DSM-IV resulted in exclusion from the study. The diagnoses of patients in the clinical group were made by the psychiatry experts working at the polyclinics.

The control group data was collected through random sampling. The sample mostly consisted of the personnel of the Ege University and their next of kin since they were easily reachable. The inclusion criteria were the same as above. In order to exclude psychopathology in the control group, three criteria were questioned: 1. Did you ever get help for a mental problem or do you receive such help now? 2. Did you ever use medicine for a mental problem or do you receive such medicine now? 3. Taking below 17 points from thee Beck Anxiety Inventory (BAI) and the Beck Depression Inventory. The socio demographic characteristics of the participants were shown in Table 1.

Data Collection Tools

Emotion Regulation Difficulties Scale (ERDS): The scale, which was developed by Gratz and Roemer in 2004 is a self report scale with six subscales. These subscales are 1. Awareness: not being aware of emotional responses, 2. Clarity: not having clear enough emotional responses, 3. Failure to accept: not accepting emotional responses, 4. Strategies: difficulty in reaching the efficient strategies, 5. Impulsiveness: difficulty controlling an impulsive behavior under negative mood, and 6. Goals: difficulties taking goal oriented action under a negative mood. The scale has 36 items in a 5 way Likert-type manner. The Turkish standardization of the scale was performed by Rugancı and Gençöz (2010).

Cognitive Emotion Regulation Scale (CERS): The scale, which was developed in 2002 by Garnefski et al, evaluated the nine different cognitive emotion regulation strategies used by people under negative conditions. It includes nine subscales. These are self blame, acceptance, rumination, positive refocusing, refocusing on planning, positive reevaluation, reevaluation within a frame, catastrophization, and blaming others. The Turkish validity and reliability study was performed by Tuna and Bozo (2012).

Close Relationships Experience Inventory (CREI-II): The scale, developed by Fraley et al. in 2000, examines adult spouse or lover relationship attachment anxiety or attachment avoidance in a two dimensional manner. An increase in anxiety scores shows difficulties separating from the attachment figure, minimizing distance with attachment figure, and a desire to be constantly notices by the att achment figure. An increase in avoidance scores shows over focusing on self reliance. The Turkish standardization study of the scale was conducted by Selçuk et al. in 2005.

Temperament Character Inventory (TCI): The scale, which was developed by Croninger in 1986, is based on Croninger's psychobiological model. This model includes four temperament dimensions (novelty seeking, harm avoidance, reward addiction, and persistence) and three character dimensions (self-directedness, cooperativeness, and self-transcendence). The Turkish validity and reliability study of the 240 item scale was performed by Köse et al (2004) and Arkar et al. (2005).

Beck Depression Inventory (BDI): The scale, which was developed by Back in 1961, includes 21 depression symptom categories and the highest score that can be attained from the scale is 63. Higher scores show more severe or higher level depressions. The Turkish adaptation of the scale was performed by Hisli in 1989.

Beck Anxiety Inventory (BAI): The scale, which was developed by Beck in 1961, is a 3 way Likert-type self-report scale with 21 items. The highest score possible is 63, and higher scores show more severe anxiety. The Turkish validity and Reliability study of the scale was performed by Ulusoy et al. (1989).

Additionally, a socio-demographic information form prepared by the researchers and the "Early Loss Research Form" were used in the study. This form is a two question form questioning whether the participants lost either of their parents to death or divorce between the ages of 0 and 7.

Procedure

Before the study, submission to the Ege University School of Medicine Board of Ethics was made and approval was taken. The outpatient adults were examined through clinical interviews by 3 psychiatry doctors in the Ege University School of Medicine Psychiatry Department General Polyclinic and 3 from the Karşıyaka State Hospital Psychiatry Polyclinic according to the hospital they presented and diagnoses were made based on DSM-IV-TR. As a result, people that were diagnosed with major depressive disorder, anxiety disorder, somatization disorders, and met inclusion criteria were referred for the study. After informed consent was taken from those who were referred, the scales to be answered were explained, and the participants filled out the questionnaires in a silent room. This application took approximately 70 to 90 minutes.

The control group was formed through random sampling. People who met inclusion criteria for the control group were informed about the stud and consent was collected. Afterwards, the BDI and BAI were applied and their scores were evaluated. Participants that took a score above the cut point were not given the other self-report scales. Fourteen people were excluded from the study in this manner. People that took scores under the cut point were explained the scoring system and were asked to fill out the forms in a quiet room.

Statistical Analysis

The analysis of study data was performed using the SPSS 16.0 program. In order to check whether the groups differed with regard to socio-demographic characteristics, one-way variance analysis (ANOVA) and chi square tests were used. Additionally, in order to compare the clinical and control groups with regard to attachment types, emotion regulation difficulties, cognitive emotion regulation strategies, and temperament character features, a series of multiple variable variance analyses (MANOVA) were performed. As a result of each MANOVA, ANOVA was used to show which scale sub dimension the differences stemmed. To research the source of the differences between groups with regard to sub dimensions, Post Hoc analyses were performed. Additionally, the roles of the dimensions of attachment, emotion regulation difficulties, and temperament character features in predicting psychopathology were tested through regression analysis. Lastly, in order to test the mediator roles of emotion regulation, anxious attachment, and avoidant attachment on the relationship between the harm avoidance dimension and anxiety and depression scores, the Sobel Test was used (Sobel 1982; Baron and Kenny 1986).

RESULTS

First, the participants in the four groups of the study were differentiated with regard to socio-demographic characteristics and examined. There was no difference between the groups regarding age ($F(3, 285) = 1.017$, $p > 0.05$, $\eta^2=0.011$), gender ($x^2 = 1.647$, $sd = 3$, $p > .05$), education levels ($x^2 = 8.294$, $sd = 12$, $p > 0.05$), or income level ($x^2 = 8.599$, $sd = 12$, $p > 0.05$). However, the groups showed a significant difference with regard to marital status ($x^2 = 10.781$, $sd = 12$, $p < 0.05$). Accordingly, the number of single participants in the patient group diagnosed with major depression was found to be significantly higher compared to the other three groups.

The Comparison of the Clinical and Control Groups with Regard to Dependent Variables

In order to compare the clinical group and the control group with regard to early loss, chi-squared analysis was performed. The rate of those that lost either of their parents to death before the age 7 was found to be significantly higher compared to the control group ($x^2 = 8.448$, $sd = 1$, $p < 0.01$). Accordingly, 18% of the clinical group reported the death of a parent in the 0-7 age interval, whereas this rate was 3% in the control group. In order to examine which psychopathology group caused the difference between the clinical and control groups, a chi-squared monitoring test was performed. In order to decrease the rate of error, the level of significance was determined through a Bonferroni correction, which divided the p-value, 0.05, level of significance by the number of groups and attaining a p-value of 0.012. As a result of the analysis, the rate of losing either parent to death in early childhood was found to be higher in the patient group diagnosed with major depression ($x^2 = 8.927$, $sd = 3$, $p < 0.01$) compared to the other three groups. When the clinical and control groups were compared based on parental loss in early childhood due to divorce, no significant difference could be found ($x^2 = 1.902$, $sd = 1$, $p > 0.05$).

To determine a significant difference between the scores taken by the three clinical groups and the control group from the ERDS subscales, the variance-covariance matrixes were found to be not homogenous between groups ($p < 0.05$). Thus, the Pillai Trace criterion was used to evaluate the significance of MANOVA (Field, 2009). As a result, the groups were found to show a significant difference with regard to the ERDS scores ($F (3, 285) = 4.212$, $p <. 001$, $\eta^2 = 0.391$). In order to determine the differences in dimensions, the ANOVA showed a level of significance as 0.012 through a Bonferroni correction to decrease the level of error. As a result, significant differences between four groups were observed with regard to the subscales emotion regulation goal formation ($F (3, 285) = 7.471$, $p < .001$, $\eta^2 = 0.192$), strategy ($F (3, 285) = 22.686$, $p < .001$, $\eta^2 = 0.156$), denial ($F (3, 285) = 18.753$, $p < .001$, $\eta^2 = 0.251$), impulsiveness ($F (3, 285) = 16.293$, $p < .001$, $\eta^2 = 0.145$) and clarification ($F (3, 285) = 13.6497$, $p < .001$, $\eta^2 = 0.147$). As a result of analyzing the source of the difference between the clinical and control groups through Scheffe Post Hoc analysis, all three clinical groups were observed to differ from the control group with regard to regulation difficulties ($p < 0.001$). However, the clinical groups did not show significant differences among each other with regard to emotion regulation difficulties.

To determine whether a significant difference between the scores taken by the three clinical groups and the control group from the Cognitive Emotion Regulation Scale (CERS) subscales, a multi dimensional MANOVA was applied. According to the Pillai Trace criterion, the psychopathology group significantly differed with regard to the combination of variables ($F (3, 285) = 2.882$, $p <. 001$, $\eta^2 = 0.126$). In order to see which dimensions the differences were in, ANOVA was used and the level of significance was determined as 0.012 through a Bonferroni correction to decrease the level of error. As a result, significant differences between four groups were seen with regard to the subscales self-blame ($F (3, 285) = 3.500$, $p < .001$, $\eta^2 = 0.124$), positive refocusing ($F (3, 285) = 5.850$, $p < .005$, $\eta^2 = 0.228$), refocusing on planning ($F (3, 285) = 8.560$, $p < .001$, $\eta^2 = 0.314$), positive reevaluation ($F (3, 285) = 7.802$, $p < .001$, $\eta^2 = 0.242$) and catastrophization ($F (3, 285) = 13.185$, $p < .001$, $\eta^2 = 0.162$). The source of intergroup differences was examined using Tamhane's analysis. Accordingly, people with major depressive disorders ($p = 0.032$) and somatization disorders ($p = 0.009$) were observed to use self-blame significantly more. With regard to refocusing on planning and positive reevaluation, diagnosis groups were found to use these strategies significantly less than those in the control group ($p = 0.0$). Catastrophization of negative events were found to be significantly more in the diagnosis groups as well ($p = 0.0$). Additionally, people with major depressive disorders were observed to evaluate negative events through a frame less compared to the control group ($p = 0.019$).

In order to see whether there was a significant difference between the scores taken by the three clinical groups and the control group from the Close Relationships Experiences Inventory (CREI) subscales, a multi-dimensional MANOVA was applied. According to the Pillai Trace criterion, there was no difference between sample groups with regard to scale scores ($F (3, 285) = 3.470$, $p <. 01$, $\eta^2 = 0.111$). Tamhane's analysis was used to determine which groups showed differences. According to the results of this analysis, the patients in the anxiety disorder ($p=0.026$), major depressive disorder ($p=0.004$), and somatization disorder ($p=0.004$) groups all had higher scores from both attachment types (anxious and avoidant attachment).

In order to see whether there was a significant difference between the scores taken by the three clinical groups and the control group from the Temperament Character Inventory (TCI) subscales, a multi dimensional MANOVA was applied. According to Pillai Trace criteria, differences between the clinical and control groups with regard to temperament and character subscale scores were found ($F (3, 285) = 3.649$, $p <. 001$, $\eta^2 = 0.135$). In order to see determine dimensional differences, ANOVA was used and the level of significance was determined as 0.012 through a Bonferroni correction to decrease the level of error. Accordingly, the only significant difference was in the harm avoidance subscale ($F (3, 285) = 16.812$, $p < .001$, $\eta^2 = 0.163$). In order to examine the source of this difference, a Scheffe analysis was applied. Harm avoidance was found to be significantly higher in the three psychopathology groups compared to the control group ($p = 0.0$). When examined with regard to character features, the four groups were differentiated with regard to the subscales of cooperation ($F (3, 285) = 12.548$, $p < .001$, $\eta^2 = 0.093$) and self-management ($F (3, 285) = 19.432$, $p < .001$, $\eta^2 = 0.268$). As a result of the Tamhane's analysis, the three psychopathology groups were found to have significantly lower subscale scores in self-management and cooperation compared to the control group ($p=0.0$).

The Role of Attachment, Emotion Regulation Difficulties and Character Features in Psychopathology Prediction

Findings regarding the depression group

In the first step, the scores the participants took from the anxious and avoidant attachment subscales were entered into the hierarchic regression model. Accordingly, attachment types were found to predict depression significantly in the clinical group. Attachment types explain 16% of the variance in depression score ($F (2, 221) = 20.88$, $p < 0.01$). In the second step, emotion regulation difficulties were entered into the model. Emotion regulation difficulties, alongside attachment types were found to significantly predict depression. Alongside attachment types, emotion regulation difficulties

Table 2. Hierarchical Regression Analysis About The Role of Attachment, Emotion Regulation Difficulties and Character Features in Depression Prediction

Dependent variable	Predictor variables	R^2	R^2 Ch	F	β	t
Depression						
1. Step	Anxious A.	0.16	0.16	20.88**	0.31**	4.76
	Avoidant A.				0.17*	2.60
2. Step	Anxious A.	0.45	0.29	21.89**	0.07	1.26
	Avoidant A.				0.07	1.32
	Goals				-0.03	-0.38
	Strategy				0.45*	5.11
	Fail accept				-0.01	-0.12
	Impulsiveness				0.14	1.89
	Clarity				0.14	1.89
	Awareness				-0.08	-1.39
3. Step	Anxious A.	0.47	0.02	12.28	0.04	0.62
	Avoidant A.				0.06	1.05
	Goals				-0.05	-0.71
	Strategy				0.38**	3.95
	Fail accept				-0.02	-0.25
	Impulsiveness				0.14	1.84
	Clarity				0.10	1.40
	Awareness				-0.10	-1.76
	HA				0.00	0.04
	NS				0.11	1.43
	RA				-0.04	-0.73
	P				-0.14	-1.82
	SD				0.05	0.94
	CO				0.01	0.10
	ST				0.00	0.03

* $p < 0.05$, ** $p < 0.01$, A: attachment, HA: harm avoidance, NS: novelty seeking, RA: reward addiction, P: persistence, SD: self-directedness, CO: cooperativeness, ST: self-transcendence

explained 45% of the variance in the depression score ($F (8, 215) = 21.89$, $p < 0.01$). Accordingly, depression rates increased as anxious attachment increased and strategy development skills for negative emotions decreased. In the third step, character features were entered into the model. However, entering character features didn't create any significant differences ($F (15, 208) = 12.27$, $p > 0.05$). As a result, all three variables explained 47% of the variance in the depression score. The results of the analysis are given in Table 2.

Findings regarding the anxiety group

In the first step, the scores the participants took from the anxious and avoidant attachment subscales were entered into the hierarchic regression model. Accordingly, attachment types were found to predict anxiety significantly in the clinical group. Attachment types explain 14% of the variance in anxiety score ($F (2, 221) = 17.32$, $p < 0.01$). In the second step, emotion regulation difficulties were entered into the model. Emotion regulation difficulties, alongside attachment types were found to significantly predict anxiety. Alongside attachment types, emotion regulation difficulties explained 34% of the variance in the anxiety score ($F (8, 215) = 13.72$, $p < 0.01$). Accordingly, anxiety rates increased as anxious and avoidant attachment increased and strategy development skills for negative emotions decreased. In the third step, character features were entered into the model. However, entering character features did not show any significant differences ($F (15, 208) = 8.30$, $p > 0.05$). As a result, all three variables explained 38% of the variance in the depression score. The results of the analysis are given in Table 3.

The Mediator Role of Emotion Regulation Difficulties in the Relationship between the Harm Avoidance Dimension of the TCI and Depression

In order to test the mediator role of emotion regulation difficulties in the relationship between the harm avoidance and depression, a hierarchical regression was performed. In the first step, to see the effect of "harm avoidance" a simple linear regression analysis was performed. After the mediator variable was entered into the model, the significance of the difference seen in the relationship level between the dependent and independent variable was tested with the Sobel test. The suggested mediator model and the Beta coefficients were given in Figure 1.

In the first step, "harm avoidance", which was taken as an independent variable, was found to be able to significantly predict 21% of the variance in the depression score obtained through the BDI ($F (1, 222) = 58.14$) ($\beta = .456$, $p < 0.01$). In the second step, where the emotion regulation variable was

Table 3. Hierarchical Regression Analysis About The Role of Attachment, Emotion Regulation Difficulties and Character Features in Anxiety Prediction

Dependent variable	Predictor variables	R^2	R^2 Ch	F	β	t
Anxiety						
1. Step	Anxious A.	0.14	0.14	17.32**	0.24***	3.61
	Avoidant A.				0.21**	3.24
2. Step	Anxious A.	0.34	0.20	13.72**	0.60	0.60
	Avoidant A.				2.40*	2.40
	Goals				1.21	1.21
	Strategy				0.37*	3.88
	Fail accept				-0.10	-1.23
	Impulsiveness				0.11	1.30
	Clarity				0.11	1.35
	Awareness				-0.09	-1.43
3. Step	Anxious A.	0.38	0.33	8.30	0.05	0.80
	Avoidant A.				0.14*	2.30
	Goals				0.07	0.99
	Strategy				0.30**	2.89
	Fail accept				-0.13	-1.59
	Impulsiveness				0.13	1.58
	Clarity				0.10	1.21
	Awareness				-0.09	-1.39
	HA				0.02	0.36
	NS				0.14	1.70
	RA				0.13	2.03
	P				-0.09	-1.03
	SD				0.03	0.52
	CO				0.01	0.17
	ST				0.05	0.85

* p < 0.05, ** p < 0.01, *** p < 0.001, A: attachment, HA: harm avoidance, NS: novelty seeking, RA: reward addiction, P: persistence, SD: self-directedness, CO: cooperativeness, ST: self-transcendence

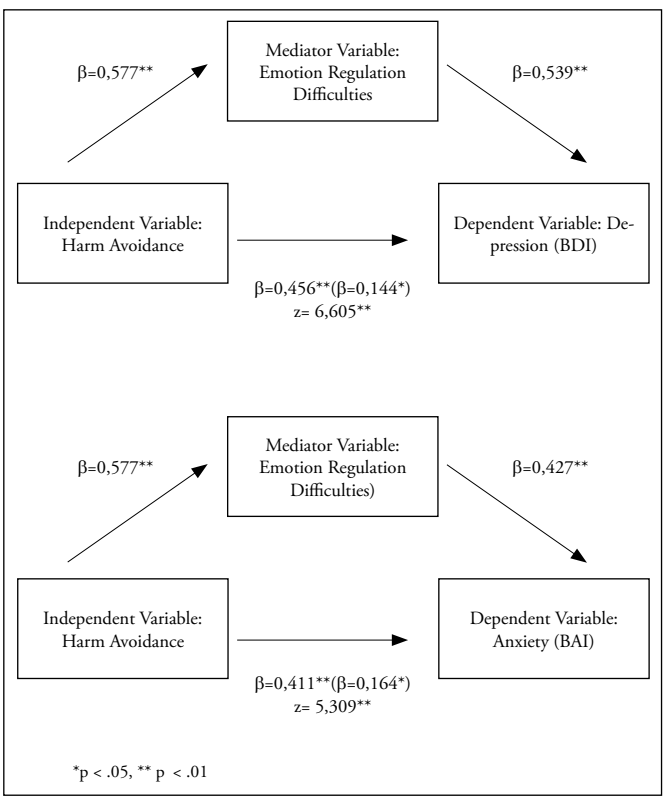

Figure 1. The Mediator Role of Emotion Regulation Difficulties in the Relationship between the Harm Avoidance and Depression or Anxiety

taken into analysis, the model was able to significantly predict 40% of the variance in depression score (F (2, 221) = 74.06) (β = .539, p < 0.01). Although the contribution of the harm avoidance variable continued, it was observed to decrease (β = 0.144, p < 0.05) and this decrease was seen to be significant as a result of the Sobel test that was applied (Sobel z = 6.605, p < 0.01) The emotion regulation variable was observed to have a partial mediator role in the relationship between harm avoidance and depression.

The Mediator Role of Emotion Regulation Difficulties in the Relationship between the Harm Avoidance Dimension of the TCI and Anxiety

In order to test the mediator role of emotion regulation difficulties in the relationship between the harm avoidance and anxiety, a hierarchical regression was performed. In the first step, to see the effect of "harm avoidance" a simple linear regression analysis was performed. In the second step, a multiple linear regression analysis was performed by entering "emotion regulation" (a mediator variable) into the analysis. The mediator model emerging as a result of the Sobel test was given in Figure 1.

In the first step, "harm avoidance", which was taken as an independent variable, was found to significantly predict 17%

of the variance in the anxiety score obtained through the BDI (F (1, 222) = 45.09) (β = .411, p < 0.01). In the second step, where the emotion regulation variable was taken into analysis, the model was seen to significantly predict 29% of the variance in anxiety score (F (2, 221) = 45.25) (β = .427, p < 0.01). Although the contribution of the harm avoidance variable continued, it was observed to decrease (β = 0.164, p < 0.05) and this reduction was observed to be significant as a result of the Sobel test that was applied (Sobel z = 5.309, p < 0.01). The emotion regulation variable was seen to have a partial mediator role in the relationship between harm avoidance and depression.

The Mediator Role of Anxious Attachment in the Relationship between the Harm Avoidant Dimension of the TCI and Depression

In order to test the mediator role of anxious attachment in the relationship between the harm avoidance and depression, a hierarchical regression was performed. In the first step, to see the effect of "harm avoidance" a simple linear regression analysis was performed. After the mediator variable was entered into the model, the significance of the difference seen in the relationship level between the dependent and independent variable was tested with the Sobel test. The suggested mediator model and the Beta coefficients are given in Figure 2.

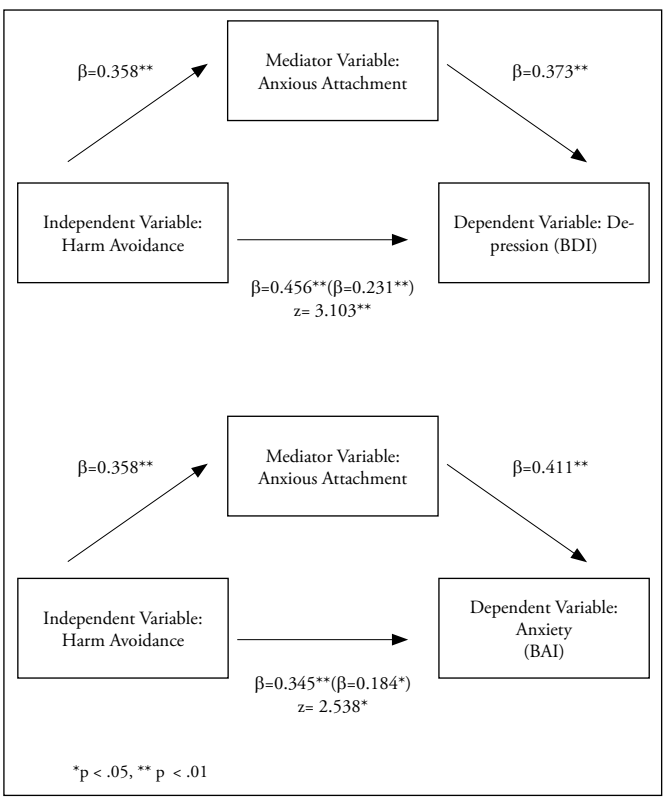

Figure 2. The Mediator Role of Anxious Attachment Style in the Relationship between the Harm Avoidance and Depression or Anxiety.

In the first step, "harm avoidance", which was taken as an independent variable, was found to significantly predict 21% of the variance in the depression score obtained through the BDI (F (1, 222) = 32.69) (β = .358, p < 0.01). In the second step, where the anxious attachment variable was taken into analysis, the model was observed to significantly predict 25% of the variance in depression score (F (2, 221) = 72.38) (β = .456, p < 0.01). Although the contribution of the harm avoidance variable continued, it was observed to decrease (β = 0.373, p < 0.01) and this reduction was observed to be significant as a result of the Sobel test that was applied (Sobel z = 3.103, p < 0.01). The anxious attachment variable was observed to have a partial mediator role in the relationship between harm avoidance and depression.

The Mediator Role of Anxious Attachment Difficulties in the Relationship between the Harm Avoidance Dimension of the TCI and Anxiety

In order to test the mediator role of anxious attachment difficulties in the relationship between the harm avoidance and anxiety, a hierarchical regression was performed. In the first step, to see the effect of "harm avoidance" a simple linear regression analysis was performed. In the second step, a multiple linear regression analysis was performed by entering "anxious attachment", which is a mediator variable, into the analysis. The mediator model emerging as a result of the Sobel test is given in Figure 1.

In the first step, "harm avoidance", which was taken as an independent variable, was found to significantly predict 17% of the variance in the anxiety score obtained through the BDI (F (1, 222) = 32.69) (β = .358, p < 0.01). In the second step, where the anxious attachment variable was taken into analysis, the model was observed to significantly predict 20% of the variance in anxiety score (F (2, 221) = 45.10) (β = .345, p < 0.01). Although the contribution of the harm avoidance variable continued, it was observed to decrease (β = 0.184, p < 0.05) and this reduction was observed to be significant as a result of the Sobel test that was applied (Sobel z = 2.538, p < 0.01). The anxious attachment variable was seen to have a partial mediator role in the relationship between harm avoidance and anxiety.

The Mediator Role of Avoidant Attachment in the Relationship between the Harm Avoidance Dimension of the TCI and Depression

In order to test the mediator role of avoidant attachment in the relationship between the harm avoidance and depression, a hierarchical regression was performed. In the first step, to see the effect of "harm avoidance" a simple linear regression analysis was performed. After the mediator variable was entered into the model, the significance of the difference observed in the relationship level between the dependent and

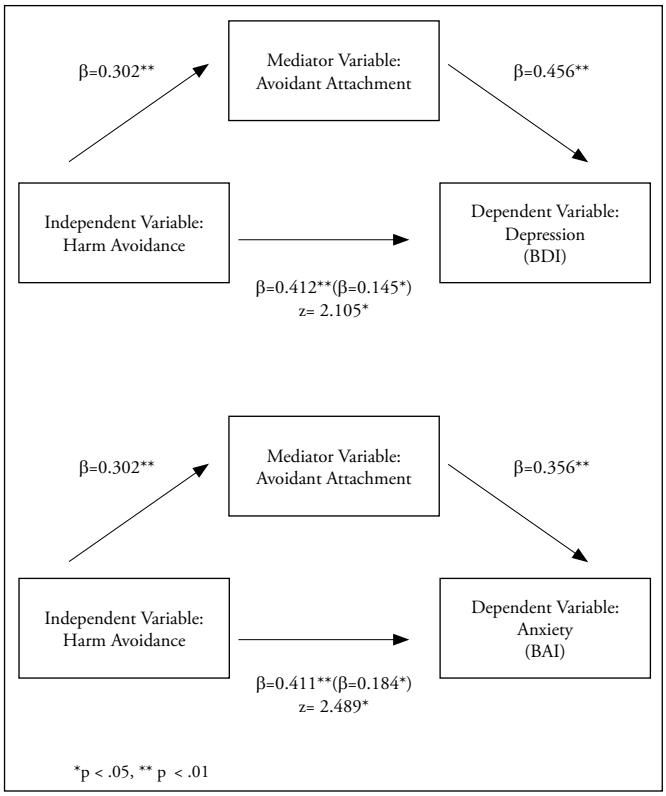

Figure 3. The Mediator Role of Avoidant Attachment Style in the Relationship between the Harm Avoidance and Depression or Anxiety

independent variable was tested with the Sobel test. The suggested mediator model and the Beta coefficients are given in Figure 3.

In the first step, "harm avoidance", which was taken as an independent variable, was found to significantly predict 21% of the variance in the depression score obtained through the BDI ($F(1, 222) = 22.22$) ($\beta = 0.302$, $p < 0.01$) In the second step, where the avoidant attachment variable was taken into analysis, the model was observed to significantly predict 25% of the variance in depression score ($F(2, 221) = 58.14$) ($\beta = 0.412$, $p < 0.01$). Although the contribution of the harm avoidance variable continued, it was observed to decrease ($\beta = 0.145$, $p < 0.01$) and this decrease was seen to be significant as a result of the Sobel test that was applied (Sobel $z = 2.105$, $p < 0.01$). The avoidant attachment variable was observed to have a partial mediator role in the relationship between harm avoidance and depression.

The Mediator Role of Avoidant Attachment Difficulties in the Relationship between the Harm Avoidance Dimension of the TCI and Anxiety

In order to test the mediator role of avoidant attachment difficulties in the relationship between the harm avoidance and anxiety, a hierarchical regression was performed. In the first step, to see the effect of "harm avoidance" a simple linear regression analysis was performed. In the second step, a multiple linear regression analysis was performed by entering "avoidant attachment", which is a mediator variable, into the analysis. The mediator model emerging as a result of the Sobel test is given in Figure 3.

In the first step, "harm avoidance", which was taken as an independent variable, was found to significantly predict 17% of the variance in the anxiety score obtained through the BDI($F(1, 222) = 22.22$) ($\beta = 0.302$, $p < 0.01$). In the second step, where the avoidant attachment variable was taken into analysis, the model was observed to significantly predict 20% of the variance in anxiety score ($F(2, 221) = 45.10$) ($\beta = 0.411$, $p < 0.01$). Although the contribution of the harm avoidance variable continued, it was observed to decrease ($\beta = 0.184$, $p < 0.05$) and this reduction was observed to be significant as a result of the Sobel test that was applied (Sobel $z = 2.489$, $p < 0.01$). The avoidant attachment variable was observed to have a partial mediator role in the relationship between harm avoidance and anxiety.

DISCUSSION

In this study, the results were very consistent with the findings of studies that support the developmental psychopathology approach. The clinical and control groups showed significant difference with regard to early childhood loss, and the difference was found to stem especially from the major depression group. This finding is parallel to studies examining early loss in the etiology of depression (Agid et al. 1999; Coffino 2009; Luecken and Roubinov 2012; Otowa et al. 2014). Grief, sadness, and periods of depression caused by loss constitute a subject examined for a very long time. In the last book of the trilogy "attachment, separation, and loss" by Bowlby, "The Loss" (1980), a quotation from a book by Brown and Harris (1978) was made summarizing the specific routes early childhood losses cause depression in adulthood. According to this summary, early loss can: (a) act as a provocative mediator for depression, increasing risk of depression in adulthood, (b) be a predisposing factor, especially in the case of loss of mother before age 11, and (c) determine the severity and form of depression encountered at any point in life. Blos (1967) stated that a healthy separation and individualization process can only be experienced in the presence of parent figures that part phase by phase; that the mourning of losses encountered in this stage of development may be harder since the need for the person lost has not disappeared; and that this difficulty may make people more predisposed to psychopathology.

In the findings of our study, the clinical group was found to show both anxious and avoidant attachment patterns at a higher rate compared to the control group. This finding is consistent with many studies researching the relationship between psychopathology and insecure attachment (MacDonald et al. 2008; Cloitte et al. 2008; Venta et al. 2014; Stansfeld et

al. 2008; Jinyao et al. 2012; Evraire et al. 2014; Doron et al. 2012; Martinez et al. 2012). With the point of view that relationships built with the primary caregiver in infancy or the parent would form the precursors of the attachment patterns in adulthood, the relationship between romantic relationships and attachment patterns were examined by researchers (Hazan and Shaver 1994; Suess and Sroufe 2005). The ability to form and continue close romantic relationships is one of the fields evaluated for mental health, and gives information on the continuity and quality of the subject relationships of an individual (Akhtar, 1994). Coan (2008) has stated that a person can share certain difficulties by forming a close relationship with another, thus decreasing his/her sensitivity towards psychological stressors. Additionally, he has mentioned the role of the support given by the other person in emotion regulation (akt. Flores and Berenbaum 2014). The common point of the three disorders selected as the clinical sample in this study is internalized symptoms. The fears of abandonment, fear of separation, or defensive attitudes towards becoming close in romantic relationships experienced by these people contain some clues regarding their early relationships. Thus, the early childhood experiences, relationships, and attachment types as well as the internalization of those may be the basis of both the symptoms of the clinical group and their current difficulties in close relationships.

In the study, the clinical group was observed to have significantly more emotion regulation difficulties, less strategizing for cognitive emotion regulation strategies for adaptation, and more strategizing for non-adaptive cognitive emotion regulation strategies. This finding is consistent with other studies in literature (Aldao et al. 2010; Garnefski et al. 2000; Ryan and Dahlen 2005; Lei et al. 2014; Rapee and Heimberg 1997; Jasper and Witthöft 2013; Besharat and Shahidi 2014; Waller and Scheidt 2006; Ehring et al. 2008; Salters-Pedneault et al. 2006; Helbig-Lang et al. 2014). The nature of depression contains decreased self-respect and self-value as well as severe feelings of guilt (Öztürk and Uluşahin 2008). A person with depression may be more predisposed to blame oneself because of lost self-respect and feeling worthless. Feelings of severe anger and helplessness are among the most important to accompany depression. Accordingly, the person may direct the anger within to oneself and blame oneself, or direct it to others and blame them. This may present as one of the factors laying the foundation of depression. The increase in catastrophization in people with anxiety disorder may also be considered a result of increased negative emotion density. The most basic view in the etiology of anxiety disorders is that these people have a predilection to avoid their negative emotions. These people experience their emotions more candidly and recognize and manage those feelings harder. These candid emotions create an unwanted and repulsive situation. This, in turn, causes them to ignore those feelings (Öztürk and Uluşahin 2008). For this reason, they may perceive a negative event as more severe than reality and experience it as a catastrophe. Their predilection to keep negative emotions far from themselves may prevent them from acknowledging those feelings and developing appropriate coping strategies.

Many studies in literature researching the effect of temperament on psychopathology have reported the harm avoidance dimension as the best predictor of psychopathology (Rueda et al. 2004; Rothbart and Rueda 2005; Rothbart and Sheese 2007). Accordingly, people with depression (Richter et al. 2000; Cloninger et al. 2006; Jylha et al. 2013; Grucza et al. 2003; Nery et al. 2009; Smith et al. 2005; Farmer and Seely 2009), anxiety (Cloninger et al. 2006; Wachleski et al. 2008; Kim et al. 2009; Mertol and Alkın 2012; Kampman et al. 2014), and somatization disorders (Grabe et al. 2004; Karvonen et al. 2006; Hakala et al. 2006; Kılıç et al. 2008; Sanchez-Roman et al. 2007; Boz et al. 2004; Güleç et al. 2008; Taymur et al. 2007) report higher harm avoidance scores compared to healthy individuals. The findings of this study support the studies in literature, with the clinical group scoring significantly higher in the harm avoidance temperament dimension. People with high harm avoidance are passive, timid people with low self-confidence. They expect negative outcomes, and have an inclination to approach events with pessimism. Additionally, the harm avoidance temperament dimension is reported to be related to behavioral inhibition (Çelik, Arkar and İdiman, 2010; Tok et al., 2012). All these characteristics are common to major depressive, anxiety, and somatization disorders, which constitute the clinical group. People with high harm avoidance, because of their generally passive attitudes, pessimism, insecurity, and expectation of concern, may be more predisposed to enter a depressive phase, develop anxiety disorders, or show severe somatic symptoms. With regard to somatic symptoms, it may be considered that through inhibition in behavior and expression, certain expressions can only be made through the body.

Moving from the consideration that genetically transferred temperament, interacting with loss of parents, anxious or insecure attachment in mother-child relationships, or emotional regulation forms the basis for mental disorders that may arise in later years, a hierarchical regression was chosen in this study. In the hierarchical regression analysis that was performed, respectively attachment types, emotion regulation difficulties, and temperament character features were entered into the model and how much they predicted depression and anxiety disorders was examined. The variables were ordered starting from the one that was considered to be the best predictor and moving downward. The results have shown that both attachment types and emotion regulation difficulties when attachment types were controlled predicted psychopathology significantly. As anxious attachment patterns increased and the ability to develop appropriate strategies in the face of negative emotions decreased, both anxiety and depression scores were observed to increase. Alongside this,

avoidant attachment patterns were found to predict anxiety scores. When attachment types and emotion regulation difficulties were checked, temperament character features were not found to predict psychopathology. Fonagy et al. (2004) defined separation and the ability to endure separation as the most basic predictors for attachment types both in the early period and adulthood. According to the authors, these people have difficulties coping with the severe negative emotions caused by separation, and thus have a predilection to harm themselves. The interaction between emotion regulation difficulties and attachment patterns and the fact that this interaction may cause psychopathology has been stressed by other authors (Schore 2003; Sroufe 2005). The common factor in studies on emotion regulation and attachment is the mother-baby relationship in the early period. Almost all (Beebe et al. 1992; Bowlby 1969) have stressed the importance of the complexity of this relationship and the active participation of the primary caregiver. Thus, the predisposition to depression and anxiety may be caused by the insufficiencies from this period. These insufficiencies repeat themselves in basic relationships in adulthood. Although temperament and character features predict psychopathology significantly alone, they can't be as strong predictors as attachment and emotion regulation difficulties for depression and anxiety scores in this equation because of their structural nature. Despite the important role of temperament and character features in psychopathology, developmental factors may make people more predisposed for psychopathology through their continuity and reflections in adulthood.

At exactly this point, moving from the findings of both this study and other studies in literature, it was considered that the harm avoidance temperament dimension may predict psychopathology over developmental variables. In the literature, no other studies examining the mediator role of emotional regulation difficulties and attachment types on the relationship between harm avoidance and psychopathology could be found. Moving from this point, the mediator role of emotional regulation difficulties and attachment types on the relationship between temperament and psychopathology has been examined in this study. In the results obtained, both emotion regulation difficulties and anxious and avoidant attachment patterns had partial moderating effects on the relationship between harm avoidance and depression and anxiety.

Rothbart and Sheese (2007) found a relationship between temperament and emotion regulation. They stated that emotion regulation strategies were beyond temperament, with the temperament of a person having an effect on the emotion regulation strategies he/she chooses. Murray and Kochanska (2002) have stressed that mood and anxiety disorders were related to negative affect and attention control, with the harm avoidance temperament dimension providing significant predisposition to the development of psychopathology. Emotion regulation difficulties form an obstacle before the person processing negative emotions and people with emotion regulation difficulties have difficulty recognizing, thinking on, and taking appropriate steps for negative emotions. Although harm avoidance is a predisposing factor for psychopathology when emotion regulation difficulties enter the scene, it is able to more precisely predict psychopathology. People with high harm avoidance, because of their passive and pessimistic nature, have difficulties coping with, thinking on, accepting, and using coping skills for negative emotions. Their passive structure also makes it hard for them to perform the appropriate activities to regulate the negative emotion. In summary, some inborn predilections may increase the predisposition of a person towards psychopathology when in unison with emotion regulation difficulties.

A similar approach is valid for anxious and avoidant attachment patterns. People without secure attachment patterns are either occupied with being abandoned at any moment because of their severe fear of abandonment or they stay away from relationships in an avoidant manner. These aspects of anxious and avoidant attachment better predict psychopathology when combined with the passiveness of harm avoidance, expectation of negativity, and pessimism. Sroufe (2005) has stressed the importance of considering predisposing developmental factors and resilience when understanding psychopathology beside risk factors and protective factors. Fonagy (2001), has suggested a wider perspective, stressing the importance of thinking on the structures that are not unique to the mental structure of these people and that prevent them from feeling safe instead of relating psychopathology directly to insecure attachment patterns.

There are some limitations of this study that must be considered. First, repeating the study with a wider clinical group similar with regard to socio-demographic characteristics, especially ones such as marital status, would reinforce the results. Secondly, only self-report scales being used can be considered a limitation for a clinical study. Lastly, a more in depth information may be reached by using structured interviews in repeated studies that would be designed with a longitudinal approach instead of a cross sectional one because of the nature of the developmental approach.

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