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### **Original Article**



# Investigation of the relationship between early stage maladaptive schemas and anger levels in people with substance-use disorders

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#### **Abstract**

**Objectives:** This study was conducted as a case-control study to investigate the relationship between early stage maladaptive schemas and anger levels in people with and without substance-use disorders.

**Methods:** The sample for the investigation included a case group of 73 patients who presented to a military hospital mental health and diseases polyclinic and a control group of 75 current soldiers and rankers performing military service who presented to the same hospital. Sociodemographic Data Collection Form-1 was applied to the case group and Sociodemographic Data Collection Form-2 was applied to the control group, while the Young Schema Questionnaire Short Form-3 (YSQ-SF3), the State-Trait Anger Scale and the State-Trait Anger Expression Inventory were applied to both groups. For the evaluation of the data, the chi-square test, Mann Whitney U test and correlation analysis were used.

**Results:** In comparing the case group and control group in terms of sociodemographic characteristics, it was observed that, with the exception of intra-family relationships and family economic status levels, for which significant differences were seen (p<0.05), no statistically significant differences were found (p>0.05). When the schema domains of the case group and control group were evaluated, Disconnection, Impaired Autonomy, High Standards, and Impaired Borders schema domains and subscale components were significantly higher than those of the control group (p<0.05). Comparison of the anger styles between the case group and control group showed that those in the case group had significantly higher points in Trait Anger, Anger In and Anger Out than those of the control group (p<0.05). In the correlation analysis performed, a positive moderate relationship was found between Emotional Deprivation and the Self Sacrifice schema sub-scale and Anger In for the case group and control group, while a positive moderate relationship was also found between Approval Seeking, High Standards, Punitiveness and Other-directedness and Trait Anger, Anger In and Anger Out, but a negative weak relation with Anger Control.

**Conclusion:** Evaluation of the study data showed that the case group, which had substance-use disorders, had an excess of early stage maladaptive schemas, and there was a significant level of difference between the case group and control group in terms of anger levels.

Keywords: Addiction; anger; early stage maladaptive schemas; substance-use disorder.

Substance abuse, which is defined as the abuse of illegal substances and addictive prescription drugs, is a major health problem, one that has the potential to damage a person's physiology, their relationship with their environment, and their functionality. This problem is observed in all types of social classes worldwide, irrespective of gender. [1-4] Studies on the

emergence and progression of substance abuse in people have shown that factors such as curiosity, adjustment problems, belonging to a group, feelings of being different or seeming to be different, having fun, traumatic events experienced during childhood, substance abuse within the family, and ineffective communication within the family, play a role in the onset of



#### What is known on this subject?

Early stage maladaptive schemas often prepares the ground for an individual's predisposition to problems such as depression, anxiety disorder or substance abuse, which are in the depth of cognition and therefore largely beyond our awareness.

#### What is the contribution of this paper?

The anger level and early stage maladaptive schema domains of individuals with substance abuse were found to be higher than those of the individuals in the control group.

#### What is its contribution to the practice?

 The early stage maladaptive schemas of individuals with substance abuse were determined, and based on the results, it is recommended that these individuals consult therapists and undergo anger management training within the framework of schema therapy.

substance use.[5-10] In addition, individuals tend to engage in substance abuse to avoid negative thoughts and feelings, and early stage maladaptive schemas have an effect on such cases. Early stage schemas are life-long, repetitive beliefs that include a person's memories, feelings, body senses and cognitions, and they begin to occur in childhood and adolescence, are associated with one's relationship with their environment and self, and can potentially damage a person's functionality. Young[11] (1990) reported that substance use is one of the strategies used by individuals to try to prevent negative feelings triggered by their maladaptive schemas. Maltreatment in childhood and problematic behaviors exhibited toward a child are significant factors that can lead to life-long mental health problems (e.g., alcohol and substance abuse. [12] Furthermore, Young [13] (2003) attributed several mental disorders, including alcohol and substance abuse, which are resistant to change and repetitive, to early stage maladaptive schemas.

When the schemas are active, individuals may experience feelings of guilt, anger, sorrow, anxiety and/or embarrassment as a result of perceiving traumatic situations and events experienced in the early period in the same or similar way to their current situation without even being aware of it.[13,14] Cautin, Overholser and Goetz<sup>[15]</sup> (2001) examined the psychological problems associated with anger types, primarily introverted or extraverted anger, and found that individuals with higher levels of extraverted anger, compared to those with introverted anger, had more addiction-related problems. Moreover, Defenbacher et al.[16] (1996) showed that high levels of anger pose a risk for maladaptive behaviors, substance abuse and other similar problems. Studies have further reported that several early stage maladaptive schemas are observed among individuals with alcohol and substance use disorders at a higher rate than of that in the general population, and that counseling focusing on these schemas can have a positive effect on the treatment.[17] In the literature review, there was no study found on the relationship between the early stage maladaptive schemas and anger in people with substance abuse. Therefore, this study aimed to identify the relationship between substance use and early stage maladaptive schemas and anger.

#### **Materials and Method**

#### Sampling

This study was planned and implemented as a case-control study. The case group for the study included 75 voluntary patients who presented to the outpatient clinics of the Gülhane Military Medical Academy, Department of Mental Health, between August 2015 and March 2016 and who met the inclusion criteria, while the control group included 75 soldiers and rankers, presenting to the same hospital, who were currently performing military service. During the data entry performed using the SPSS software package, two patients from the case group were found not to have answered most of the questions on the questionnaire and were therefore excluded from the study.

#### **Data Collection Tools Used in the Study**

This study was conducted using a sociodemographic data collection form, the Young Schema Questionnaire Short Form-3 (YSQ-SF3), and the State-Trait Anger Expression Inventory.

Young Schema Questionnaire Short Form-3 (YSQ-SF3): Early stage maladaptive schemas were determined using the third version of the 90-item short form of the Young Schema Questionnaire (YSQ-SF3). The YSQ-SF3 was first developed as a 205-item scale. This form was shortened and reduced to 75 items. The "Approval Seeking," "Punitiveness" and "Pessimism" schemas were added afterwards, which resulted in the scale then including 90 items. In Turkey, Soygüt, Karaosmanoğlu and Cakır<sup>[18]</sup> (2009) tested the validity and reliability of the 90-item short form of the scale and found that a 14-factor structure was appropriate for the Turkish version of the scale. In the multilevel factor analysis conducted using these factors, five schema domains (Impaired Autonomy, Disconnection, High Standards, Other-directedness and Impaired Borders) were determined. The distribution of the number of items under the schema domains varied, and the total number of items was determined to be 90. The schema dimensions obtained included Emotional Deprivation (1, 19, 37, 55, 73), Failure (6, 24, 33, 42, 60, 78), Pessimism (8, 17, 26, 35, 80), Social Isolation/Mistrust (3, 4, 40, 57, 58, 75, 76), Emotional Inhibition (12, 30, 48, 66, 84), Approval Seeking (16, 34, 52, 56, 70, 88), Enmeshment/Dependence (7, 9, 10, 25, 63, 64, 79, 81, 82), Entitlement/Undeveloped Self (15, 22, 32, 50, 51, 68, 69), Self-sacrifice (11, 29, 47, 65, 83), Abandonment 2, 20, 28, 38, 74), Punitiveness (18, 49, 53, 54, 72, 89), Defectiveness (23, 41, 43, 59, 77, 90), Vulnerability to Harm or Illness (21, 39, 44, 62, 71), and High Standards (13, 14, 31). The participants evaluated each item on a 6-Likert type scale (1 = Completely untrue of me, 2 = Mostly untrue of me, 3 = Slightly more true than untrue, 4 = Moderately true of me, 5 = Mostlytrue of me, 6 = Describes me perfectly). No cut-off score was determined for the scoring of the scale. High scores indicated the presence and severity of the early stage maladaptive schemas.

The test-retest reliability of the Turkish version of the scale varied between r=0.66 and 0.82 for schema dimensions and

between r=0.66 and 0.83 for schema domains. The internal consistency coefficient of the scale was found to be between  $\alpha$ =0.63 and 0.80 for schema dimensions and between  $\alpha$ =0.53 and 0.81 for schema domains. [18]

**State-Trait Anger Expression Inventory (STAXI):** The State-Trait Anger Expression Inventory, which measures the feeling and expression of anger, was developed by Spielberger in

1983. Item-total score (item leaving) correlations and alpha coefficients were calculated to test the internal consistency of the scale. Item leaving values were found to be between 0.14 and 0.56 (median 0.33). The validity and reliability of the Turkish version of the scale were tested by Özer. The internal consistency coefficients of the scale were found to be  $\alpha$ =0.79 for the trait anger dimension,  $\alpha$ =0.84 for the anger control di-

Sociodemographic characteristics	Case	(n=73)	Contro	ol (n=75)	Statistical analysis*		
	n	%	n	%	<b>X</b> <sup>2</sup>	р	
Marital status							
Single	61	83.6	60	80.0	0.315	0.575	
Married	12	16.4	15	20.0			
Age							
Under 25 years old	38	52.1	45	60.0	0.948	0.330	
25 years and older	35	47.9	30	40.0			
Education level							
Secondary education	38	52.1	35	46.7	0.430	0.512	
University	35	47.9	40	53.3			
Longest place of residence							
Village/town	13	17.8	12	16.0	0.086	0.958	
District	20	27.4	21	28.0			
Province	40	54.8	42	56.0			
Regular work status							
Employed in a regular job	39	53.4	47	62.7	1.298	0.255	
Unemployed/Irregular job							
Çalışıyor	34	46.6	28	37.3			
Parent life situation							
Mother or father is deceased	3	4.1	7	9.3	1.602	0.206	
Both of them are alive	70	95.9	68	90.7			
Number of siblings							
1–2 siblings	14	19.2	17	22.7	0.340	0.844	
3–4 siblings	40	54.8	38	50.7			
5 or more	19	26.0	20	26.7			
Family type							
Nuclear family	48	65.8	56	74.7	1.407	0.236	
Extended family	25	34.2	19	25.3	11.107	0.230	
Financial status of the family	23	3 1.2	.,	23.3			
Low	28	38.4	15	20.0	6.047	0.014	
High	45	61.6	60	80.0	0.0 17	0.01	
Education level of parents	15	01.0	00	00.0			
Primary school	53	72.6	54	72.0	0.007	0.935	
Secondary education	20	27.4	21	28.0	0.007	0.755	
(secondary school-high school)	20	27.7	<b>4</b> 1	20.0			
Education level of father							
Primary school	35	47.9	34	45.3	0.101	0.206	
Secondary education	38	52.1	41	43.3 54.7	0.101	0.200	
(secondary school-high school)	30	JZ.1	41	J <del>4</del> ./			

mension,  $\alpha$ =0.78 for the anger out dimension, and  $\alpha$ =0.62 for the anger in dimension. STAXI is a 34-item 4-point Likert-type scale, with the options being "1: Not defined," "2: Little defined," "3: Rather defined," and "4: Completely defined". High scores obtained from the anger in subscale indicate the suppression of anger, high scores obtained from the anger out subscale indicate the easy expression of anger, high scores obtained from the anger control subscale indicate control of anger, and finally, high scores obtained from the trait anger subscale indicate high level of anger. [19]

#### **Data Collection**

The study was implemented between August 2015 and March 2016 after obtaining the necessary written permission and approval (date: October 13, 2015; registry no: 392) from the Gülhane Military Medical Academy (GMMA) Ethics Committee and from the Academy's Department of Mental Health. All participants who met the study criteria were provided with information about the study and informed that participation in the study was on a voluntary basis, after which, their written consent was obtained.

#### **Data Evaluation**

The questionnaire data were analyzed using the SPSS 15 statistical software package. The sociodemographic characteristics of the participants in both the case group (those who had substance use disorder) and the control group were determined using frequency and percentage distribution tables.

The chi-square test was applied to compare the sociodemographic characteristics of the case and control groups, and the participants within both groups who had similar sociodemographic characteristics, such as gender, age, education level, and economic status were included in the study. All of the participants were male due to nature of the institution where the study was performed. The inclusion criteria were that the individual must be between the ages of 20 and 30, be literate and have the competence to understand the long/complex sentences in the measurement tools, have no physical problem that would prevent them from completing the scales, and have no diagnosis of mental disability. The normality test showed that the scale and subscale scores were not normally distributed for the individuals in the case group and control group. Therefore, intra-group comparisons and inter-group

Young Schema Questonnaire schema domains and its subscales	Case (n=73)				Control (n=75)				Statistical analysis*	
	Mean±SD	Min.	Max.	Mean	Mean±SD	Min.	Max.	Mean	z	р
Disconnection schema domain										
Emotional deprivation	17.56±6.4	5	30	17.56	9.71±4.72	5	20	9.71	-7.03	0.000
Social isolation/mistrust	24.75±8.06	8	41	24.75	14.57±7.68	7	37	14.57	-6.77	0.000
Emotional inhibition	16.95±5.82	5	30	16.95	11.61±5.79	5	30	11.61	-5.26	0.000
Defectiveness	18.58±7.07	6	34	18.58	9.64±4.69	6	24	9.64	-7.40	0.000
Total	77.84±25.08	25	129	77.84	45.53±19.49	23	95	45.53	-7.19	0.000
Impaired autonomy schema domain										
Failure	19.66±7.52	6	36	19.66	10.61±4.98	6	24	10.61	-7.16	0.000
Pessimism	17.41±6.86	5	30	17.41	9.96±5.15	5	23	9.96	-6.42	0.000
Enmeshment/dependence	28.42±9.33	9	48	28.42	16.89±7.24	9	33	16.89	-6.93	0.000
Abandonment	15.03±5.94	5	30	15.03	9.08±4.47	5	23	9.08	-6.26	0.000
Vulnerability to harm or illness	17.34±6.23	5	30	17.34	10.29±4.53	5	22	10.29	-6.55	0.000
Total	97.86±31.68	32	168	97.86	56.84±23.79	30	116	56.84	-7.32	0.000
High standards schema domain										
Approval seeking	21.75±6.56	7	35	21.75	19.88±5.8	6	31	19.88	-1.88	0.000
High standards	11.44±3.83	3	18	11.44	9.85±3.55	3	18	9.85	-2.45	0.014
Total	33.19±9.39	10	49	33.19	29.73±8.05	12	48	29.73	-2.50	0.012
Impaired borders schema domain										
Entitlement/undeveloped self	26.96±8.44	7	42	26.96	21.31±5.35	13	37	21.31	-4.59	0.000
Other-directedness schema domain										
Self-sacrifice	16.4±5.35	5	29	16.40	16.31±3.96	7	26	16.31	-0.27	0.785
Punitiveness	21.62±5.54	6	34	21.62	21.65±4.97	10	35	21.65	-0.36	0.718
Total	38.01±8.97	11	57	38.01	37.93±7.16	22	61	37.93	-0.47	0.640

<sup>\*</sup>Mann-Whitney U test; p<0.05; SD: Standard deviation; Min.: Minimum; Max.: Maximum.

Table 3. Intragroup comparison of the relationship between the Young Schema Domains and anger styles in case and control groups

Young Schema Questionnaire schema domains and its subscales		Case gro	up (n=73)		Control group (n=75)			
	Trait anger	Anger in	Anger out	Anger control	Trait anger	Anger in	Anger out	Anger control
Disconnection								
Emotional deprivation	0.46**	0.43**	0.55**	-0.44**	0.47**	0.28*	0.38**	-0.47**
Social isolation/mistrust	0.58**	0.58**	0.76**	-0.62**	0.63**	0.44**	0.63**	-0.59**
Emotional inhibition	0.61**	0.52**	0.65**	-0.53**	0.49**	0.39**	0.44**	-0.34**
Defectiveness	0.56**	0.49**	0.60**	-0.48**	0.45**	0.39**	0.48**	-0.49**
Total	0.61**	0.55**	0.72**	-0.58**	0.65**	0.45**	0.60**	-0.56**
Impaired autonomy								
Failure	0.53**	0.49**	0.48**	-0.41**	0.55**	0.37**	0.55**	-0.52**
Pessimism	0.63**	0.59**	0.72**	-0.61**	0.49**	0.42**	0.49**	-0.49**
Enmeshment/dependence	0.60**	0.41**	0.62**	-0.55**	0.47**	0.45**	0.41**	-0.49**
Abandonment	0.49**	0.36**	0.49**	-0.42**	0.37**	0.37**	0.32**	-0.52**
Vulnerability to harm or illness	0.60**	0.52**	0.68**	-0.53**	0.43**	0.32**	0.48**	-0.42**
Total	0.65**	0.53**	0.68**	-0.58**	0.50**	0.45**	0.48**	-0.51**
High standards								
Approval seeking	0.42**	0.32**	0.36**	-0.26*	-0.19	0.22	-0.32**	0.23*
High standards	0.48**	0.45**	0.44**	-0.26*	0.08	0.26*	0.09	0.07
Total	0.50**	0.40**	0.43**	-0.29*	-0.12	0.29**	-0.22	0.20
Impaired borders								
Entitlement/undeveloped self	0.61**	0.60**	0.67**	-0.50**	0.32**	0.35**	0.32**	-0.33**
Total	0.61**	0.60**	0.67**	-0.50*	0.32**	0.35**	0.32**	-0.33**
Other-directedness								
Self-sacrifice	0.22	0.46**	0.33	-0.07**	-0.02	0.33*	0.03	0.00
Punitiveness	0.38**	0.33**	0.4**	-0.20**	0.09	0.14	0.01	0.02
Total	0.34**	0.49**	0.43**	-0.15**	0.02	0.28*	-0.03	0.00

Correlation analysis; \*p<0.05; \*\*p<0.01.

comparisons of the scale and subscale scores were performed using the Mann Whitney U test. Correlation analysis was conducted to examine the relationship between the anger level of the individuals and their early stage maladaptive schemas. If the r value obtained through correlation is (|r| < 0.30), it is interpreted as a weak-level relationship, if it is (0.30<|r| < 0.70), it is interpreted as a moderate- level relationship, and if it is (|r| < 0.70), then it is interpreted as a high-level relationship. The confidence interval was set at 95% (with a significance level of p<0.05) in the analyses. In this study, the dependent variables were anger level and early stage maladaptive schemas, while the independent variable was substance use disorder.

#### Results

Table 1 shows the sociodemographic characteristics of the study participants. The rate of participants in the case group who had families with low economic status (38.4%) was significantly higher statistically than that of the participants in the control group (20%) (p<0.05).

A comparison of the groups'YSQ scores are presented in Table 2, on which it can be seen that the scores of the participants in the case group on the Disconnection, Impaired Autonomy, High Standards and Impaired Borders schema domains and their subscales were significantly higher than those of the participants in the control group (p<0.05).

Table 3 presents an intra-group comparison of both the case group and the control group in terms of the relationship between the Young schema domains and anger styles. This table shows that there was a positive relationship between the early stage maladaptive schemas (Emotional Deprivation, Approval Seeking, High Standards, Self-sacrifice and Punitiveness) and anger scores, and a negative relationship between these domains and anger control scores.

#### **Discussion**

In the literature review, there were no studies found that examined substance use disorder, anger and early stage maladaptive schemas. The present study, therefore, sought to fill this gap and examined the relationship between early stage maladaptive schemas and anger levels among individuals with a substance use disorder and compared their results against healthy individuals.

In the present study, the results from the case group's schema

domains and subscales (See Table 2), which were explained on

the basis of the five schema domains developed by Young, [13]

indicated that they were associated with strict, emotionally distant and inconsistent parenting in childhood. Petrocelli et al.[20] (2001) conducted a study on the cognitive schemas in people with depression and found that their scores on the emotional deprivation, enmeshment/dependence, undeveloped self and failure schema subscales were significantly higher than those of the healthy control group, while Bakhshi et al.[21] (2013) reported in their study that the participants with substance addiction had significantly higher scores on the abandonment, impaired borders, and impaired autonomy schema domains of the early stage maladaptive schemas than those of the control group. Brotchie et al.[22] (2004) found in their study that the scores of the participants with alcohol and opiate addiction on the schema domains and subscales ("failure," "self-sacrifice," "high standards," "entitlement/undeveloped self") were statistically significantly higher than those of the healthy control group. Finally, in the study by Jalali et al.[23] (2011), it was reported that the scores of the participants with opiate addiction on the Social Isolation/Mistrust, Defectiveness, Enmeshment/Dependence and Failure subscales significantly differed statistically from those of the control group. Experiences of abuse and negligence during childhood are reported to be associated with high levels of anger and low levels of anger control. It was further found that those with substance addiction and traumatic childhood experiences have high levels of anger and low levels of anger control, and a relationship has been observed between childhood traumas and aggression, as well as impulsivity. [24] Eroğul [25] (2010) reported that those who had traumatic childhood experiences had significantly higher scores on trait anger, anger in and anger out than the scores of those who did not have these experiences, and their scores on anger control were lower. The positive relationship between the Emotional Deprivation schema, an early stage maladaptive schema, and the anger in scores of the case group in the present study can be thought to be associated with inadequacy in meeting the emotional relationship needs and suppression of internalized anger. Similar to the present study, Waller et al. [26] (2002) examined the relationship between early stage maladaptive schemas and anger and found a weak relationship between the Emotional Deprivation and anger in scores. The present study found a positive relationship between the approval seeking schema and trait anger, anger in and anger out scores and a negative relationship between the same schema and the anger control scores of the case group, the results of which may indicate that problems associated with the level of anger, easy expression of anger, suppression of anger and control of anger increase in cases of approval seeking maladaptive schemas.

Results from the present study suggest that those who have maladaptive schemas on the High Standards subscale, as seen in the participants in the case group, may have problems with trait anger (at anger level), anger out (easy expression of anger), anger in (suppression of anger) and control of anger. Özcan and Şendağ<sup>[27]</sup> (2016), in their study, found a significant relationship between trait anger, anger in, anger out and anger control scores and High Standards (Approval Seeking, High Standards), schema. Wood<sup>[28]</sup> (2005) examined the relationship between the early stage schemas and expressions of anger and found there to be an insignificant relationship between the High Standards schema domain and expressions of anger but a significant relationship between all other early stage maladaptive schemas (Disconnection, Impaired Autonomy, Impaired Borders, Other-directedness) and expressions of anger. People with a Self-sacrifice schema domain have been shown to focus more on the reactions of others than on their own needs in their interactions with others in order to maintain their selfrespect and continuity in the relationship with the people they need.[13] Therefore, the positive relationship seen between the Self-sacrifice schema and the anger in scores and the negative relationship between the same schema and the anger control score in the case group of the present study imply that those with the Self-sacrifice schema subscale in the group with substance addiction suppressed their internalized anger and were weak in controlling their anger. In the case group, the positive relationship between the scores on the Punitiveness schema and trait anger, anger in and anger out, and the negative relationship between the scores of this schema and anger control indicate that those in the independent group with high scores in the Punitiveness schema domain would have problems related to anger level, easy expression of anger, suppression of anger and control of anger. Similar studies have found there to be a significant relationship between the Other-directedness (Self-sacrifice and Punitiveness) schema domain and the expressions of anger (trait anger, anger in, anger out and anger control).[27,28] There are other studies showing that individuals with substance abuse behaviors obtain higher scores on most of the early stage maladaptive schemas compared to those obtained by individuals who do not have any diagnosis. [22,29]

#### **Limitations of the Study**

The scales used in this study were self-assessment scales and therefore based on the subjective statements of the participants. The present study did not examine whether there was any diagnosis of personality disorders in the participants struggling with substance addiction. To access data with social representative values, it is recommended that studies investigating substance addiction, anger and early stage maladaptive schemas and focusing on the relationship of personality disorders with substance abuse be conducted.

#### **Conclusions and Recommendations**

The study results showed that the anger level and early stage

maladaptive schemas of the participants in the case group (those with substance abuse) were higher than those of the participants in the control group. The early stage maladaptive schemas of those engaged in substance abuse were identified, and from this identification, it can be recommended that these individuals consult with professionals and be given anger management training within the scope of the schema model.

**Conflict of interest:** There are no relevant conflicts of interest to disclose.

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**Authorship contributions:** Concept – B.D.S., C.T.Ö.; Design – B.D.S., C.T.Ö.; Supervision – B.D.S., C.T.Ö.; Fundings - B.D.S., C.T.Ö.; Materials – B.D.S., C.T.Ö.; Data collection &/or processing – B.D.S.; Analysis and/or interpretation – B.D.S., C.T.Ö.; Literature search – B.D.S., C.T.Ö.; Writing – B.D.S., C.T.Ö.; Critical review – B.D.S., C.T.Ö.

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