

Examination of Anger Reactions and Psychiatric Diagnoses in Terms of Gender in a Group of University Students Having Difficulty with Anger Control

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Abstract

Objective: We aimed to determine axis-I and axis-II diagnoses and identify gender difference in anger reactions among young adults who have difficulty controlling their anger.

Method: Students from various faculties who had difficulty controlling their anger were invited to the psychiatry department. The SCID-I, SCID-II, Multidimensional Anger Scale, Childhood Trauma Questionnaire, Social Comparison Scale, Boratav Depression Screening Scale, and Beck Hopelessness Scale were administered to consecutive admissions of 50 males and 50 females.

Results: Axis-I diagnoses were present in 60% of males and 74% of females. Axis-II diagnoses were present in 28% of males and 36% of females. Somatoform disorders and impulse control disorder were higher in males, whereas anxiety disorders and mood disorders were higher in females. Depression was diagnosed in 10% of males and 36% of females. "Not being taken seriously" was the most prominent reason for anger among females. The "Revenge reactions" score was strongly correlated with the education level of the mother in both genders (in females $r=0.472$, $p=0.001$; in males $r=-0.396$, $p=0.006$). The best predictor of an axis-I diagnosis in women was the "anger symptoms" total score, whereas it was the "thoughts related to anger" subscale score in males. On the other hand, the best predictors of an axis-II diagnosis were "anxious behavior" in females and "smoking" in males.

Conclusion: Anger is an important component of psychiatric disorders. Reaction styles and underlying psychiatric disorders vary according to gender.

Key Words: anger, gender, university students, psychiatric disorders.

INTRODUCTION

The ability to control emotions, thoughts and behavior as well as to shift them to other fields when necessary are important aspects of being human, distinguishing humans from other creatures. In every human being there are lots of emotions including worry, exultation, guilt and anger which may vary in severity and expression. Managing one's own emotions and thoughts according to the requirements of time and place is important for the inner peace of an individual, as well as serving to assist in building healthy relations with close relatives, and in the work and social environment. The continuous suppression of feelings of anger feelings may

lead to some problems. Disproportionate, explosive and unbalanced behavior in response to innocent events may form the basis for greater problems.

In a study published by Bostancı et al. (2006) among university students, the prevalence of "short temper" was 21.6% and "difficulty in controlling anger" was 9.5%. Axis-I diagnoses play an important role in inappropriate anger reactions. Difficulty in controlling anger in interpersonal relations may be seen especially among individuals suffering from alcohol and substance dependence, schizophrenia, bipolar disorder, depression, generalized anxiety disorder and post-traumatic stress disorder (Henry et al. 2001, Erdem et al. 2008, McMurran et al.

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TABLE 1. Sociodemographic characteristics of students having difficulty controlling their anger.

Variables		Male, n:50 Number (%)	Female, n:50 Number (%)	Statistics	p
Age (mean $\pm$ sd*)		23.1 $\pm$ 1.9	22.6 $\pm$ 2.3	t=1.044	0.299
Siblings (mean $\pm$ sd)		5.6 $\pm$ 2.9	4.7 $\pm$ 2.1	t=1.768	0.080
Marital status	Single	44 (88)	44 (88)	$\chi^2=1.500$	0.472
	Married	1 (2)	3 (6)		
	Widow	5 (10)	3 (6)		
Smoking	Never	16 (32)	15 (30)	$\chi^2=7.877$	0.019
	Sometimes	5 (10)	16 (32)		
	Every day	29 (58)	19 (38)		
Alcohol use	Never	32 (64)	29 (58)	$\chi^2=0.378$	0.539
	Sometimes	18 (36)	21 (42)		
Economic status	High	12 (24)	16 (32)	$\chi^2=5.134$	0.077
	Middle	31 (62)	33 (66)		
	Poor	7 (14)	1 (2)		
Education of mother	None	29 (58)	20 (40)	$\chi^2=7.662$	0.022
	Primary school	18 (36)	17 (34)		
	High school and above	3 (6)	13 (26)		
Education of father	None	10 (20)	4 (8)	$\chi^2=2.813$	0.245
	Primary school	22 (44)	22 (44)		
	High school or above	18 (36)	24 (48)		

*sd: standard deviation

2009). In their study of anger expression Terasaki et al. (2009) observed depressive symptoms of various degrees of severity in 23.6% of male university students. In this study, the ratio of depressive symptoms were found to be higher in those students who showed moderate to severe anger reactions, even in those students who demonstrated violent behavior.

Short temper is a symptom reported in various diagnoses in DSM-IV (American Psychiatric Association 1994). In addition to this, as a specific diagnostic category related to sudden and inappropriate anger, intermittent explosive disorder (IED) was described. In DSM-IV, the following symptoms concerning the diagnostic criteria of IED were emphasized: repeated and disproportionately large (intense) aggressive impulses secondary to a stressor and giving rise to severe aggressive behavior towards living or non-living things. Moreover, these kinds of anger episodes could not be better explained by axis-I, axis-II or axis-II disorders. In some publications, lifetime prevalence of IED was reported to be between 5.8% and 11.5%; annual prevalence was between 3.9% and 4.1%. It was also reported that it is frequently seen comorbid to mood and anxiety disorders, alcohol and substance use disorders, and antisocial and borderline personality disorders (Galovski et al. 2002, Kessler et al. 2006).

Personality disorders are important factors in the occurrence of maladaptive behaviors (Howard et al. 2008,

Chabrol et al. 2009). Some compelling situations such as being the subject of injustice or insult may sometimes lead to inappropriate anger reactions in individuals who do not have any personality disorder (Nagata-Kobayashi et al. 2006). Some physical diseases such as the terminal stage of a medical illness, diseases with chronic pain, epilepsy, and hormonal dysfunctions may also cause anger reactions (Estlander et al. 2008, Altman et al. 2006).

Some differences between the genders in terms of anger reactions have been reported (Winkler et al. 2005, Chabrol et al. 2009). In studies undertaken in various countries, the vast majority of individuals detained or arrested as a result of violent behavior were males (Ozen et al. 2005, McMurran et al. 2009). In a study which investigated the emotional expression of males and females (Mete et al. 1993), individuals suffering from depression, mania, and schizophrenia together with healthy control groups were evaluated. In all these groups, females were observed to be using an exaggerated language, speaking of themselves more frequently in their conversations, and expressing their emotion more directly. Moreover, it was determined that females were clearly manifesting their distress in depression and their anger in mania, whereas males were generally avoiding exaggerated statements and were preferring an indirect way to express their feelings. In a study conducted by Balkaya and Sahin (2003) women were found to be more sensitive to situations involving "not being taken seriously, injustice,

TABLE 2. Axis-I diagnoses of students having difficulty in controlling their anger.

Axis-I diagnoses*	Male, n: 50 Number (%)	Female, n: 50 Number (%)	χ^2	p
Mood disorders	9 (18)	21 (42)	6.857	0.009
Depression	5 (10)	18 (36)		
Dysthymia	3 (6)	1 (2)		
Bipolar disorder	1 (2)	2 (4)		
Somatoform disorders	6 (12)	1 (2)	3.840	0.050
Body dysmorphic disorder	3 (6)	1 (2)		
Psychogenic pain disorder	2 (4)	-		
Undifferentiated somatoform disorder	1 (2)	-		
Anxiety disorders	6 (12)	19 (38)	9.013	0.003
Specific phobia	3 (6)	11 (22)		
Obsessive compulsive disorder	-	3 (6)		
Generalized anxiety disorder	2 (4)	2 (4)		
Social phobia	1 (2)	1 (2)		
NOS ¹ anxiety disorders	-	2 (4)		
NCE ² Impulse control disorder	24 (48)	13 (26)	5.191	0.019
Intermittent explosive disorder	17 (34)	10 (20)		
Other impulse control disorders	7 (14)	3 (6)		
Sleep and eating disorders	0 (0)	6 (12)	6.383	0.012
Sleep disorder	-	3 (6)		
Bulimia nervosa	-	3 (6)		
No diagnosed Axis-I disorders	21 (42)	13 (26)	2.852	0.091

*Note: some individuals were diagnosed with more than one Axis-I disorder.

¹NOS: Not otherwise specified, ²NCE: Not classified elsewhere.

and criticism” , whereas males were found to be resorting to physical aggression more frequently as an anger reaction.

We were unable to discover any study with similar design to ours when we searched the PubMed, behavioral sciences, psychinfo, proquest, google scholar and “medline.pleksus.com.tr” web addresses, using the words “öğrenci, öfke, SCID I, SCID II” or “student, anger, SCID I, SCID II”. Thus, with this study, we aimed to determine the demographic variables of 50 female and 50 male students who had difficulty in controlling their anger but had not sought any psychiatric help but had no symptoms on the psychotic spectrum and who were also in their final year of study in various faculties.. Our aim was to examine the gender differences in emotions, thoughts and behavior patterns occurring during anger states; to determine Axis-I, Axis-II and sub-threshold personality disorder (SPD) diagnoses and the variables which predict the existence of Axis-I and Axis-II diagnoses best, and also to determine the variables which were significantly correlated with subscale scores of anger reactions, especially the “violent behavior” and “revenge reactions” dimensions of anger reactions.

METHOD

This study was conducted at Dicle University and approved by the local ethics committee. During the 2008-2009 academic year, the total number of students registered to the faculties and colleges located in the city center was around 13700. The number of students who were in their last year of education was around 3500. The ratio of female and male students was 40% and 60%, respectively.

Only last-year students were included to the study for several reasons. One of these being that the childhood traumas questionnaire retrospectively investigates trauma from 18 years of age. Thus, the authors did not want to include students below, or very close to the age of 18. Another reason was that the last year students were usually closer to active work life, were more integrated in different social settings and also closer to the the age of marriage and our idea was that they would benefit more from interacting with us.

Firstly, the days and hours participated in most frequently by last-year students were determined by contacting with the student affairs bureaus of faculties and colleges located in the city center. Subsequently, we re-

TABLE 3. Personality structure of students having difficulty in controlling their anger.

Axis-II diagnoses	Male, n: 50 Number (%)	Female, n: 50 Number (%)	χ^2	p
Group-A PD ¹	6 (12)	1 (2)	3.840	0.05
Paranoid	6 (12)	-		
Schizotypal	-	1 (2)		
Group-B PD	2 (4)	7 (14)	3.053	0.081
Histrionic	-	4 (8)		
Borderline	2 (4)	3 (6)		
Group-C PD	4 (8)	13 (26)	5.741	0.017
Avoidant	3 (6)	6 (12)		
Dependent	-	2 (4)		
Obsessive compulsive	1 (2)	5 (10)		
Other: Depressive	4 (8)	3 (6)	0.154	0.695
Sub-threshold PD diagnoses (SPD) ²				
Group-A	9 (18)	9 (18)	0.000	1.000
Paranoid	9 (18)	8 (16)		
Schizoid	-	1 (2)		
Group-B	8 (16)	16 (32)	3.509	0.05
Histrionic	-	7 (14)		
Narcissistic	2 (4)	4 (8)		
Borderline	5 (10)	5 (10)		
Antisocial	1 (2)	-		
Group-C	10 (20)	8 (16)	0.271	0.603
Avoidant	1 (2)	-		
Dependent	2 (4)	3 (6)		
Obsessive compulsive	7 (14)	5 (10)		
Other: Self-persecuting	2 (4)	5 (10)	1.382	0.240

¹PD: Personality Disorder, ²SPD: Sub-threshold Personality Disorder.

requested permission from the responsible teaching staff. Various classes were visited on various days and a total of 1005 students were interviewed face to face (education faculty: 301, faculty of arts and sciences: 284, social sciences: 167, natural sciences: 130, health sciences: 123). Students were briefly informed about anger feelings and difficulties controlling anger and then the authors' intention to investigate this issue thoroughly. The students who thought that they had difficulty in controlling their anger were invited to the psychiatry department of the medical faculty for a detailed interview. They were also assured that there would not charge of any fees for interviews and that the information they provided would be totally confidential.

The second part of the study was conducted in the physicians' rooms in the psychiatry department. A total of 158 students were admitted from the faculties, proportional to the numbers having previously been interviewed. After a brief initial evaluation, 21 were excluded on the grounds that their complaints had no connection to anger reactions.

From 137 students (75 males, 62 females) who were suspected of suffering from difficulty with anger control; 50 male and 50 female students were interviewed in detail. The following forms and scales were subsequently applied:

Personal Data Form: In this form, prepared by the authors, demographic features, habits and their frequency, and the treatment histories of any physical or psychiatric disorders were requested.

SCID-I: Structured Clinical Interview for DSM-IV, Clinical Version SCID-I Booklet (First et al. 1999). SCID-I has been translated into Turkish by Corapcioglu and colleagues, and has been used in many studies. This booklet consists of 6 sections: A-Mood episodes, B- Psychosis and related symptoms, C- Differential diagnosis of psychotic disorders, D- Mood disorders, E- Alcohol and other substance-use disorders, F-Anxiety and other disorders. The interviewer starts with "mood episodes" and asks questions concerning the symptoms of frequently-seen clinical situations by using structured sentences in order. The interviewer proceeds to the next disorder or

TABLE 4. Comparison of males and females in terms of their scores on MAS and other scales.

	Male Mean $\pm$ sd	Female Mean $\pm$ sd	t	p
Multidimensional Anger Scale				
1-Anger symptoms – Total	36.6 $\pm$ 8.2	41.0 $\pm$ 9.8	-2.463	0.016
2-Situations causing anger				
Not being taken seriously	63.6 $\pm$ 14.4	70.5 $\pm$ 13.9	-2.432	0.017
Being a subject of injustice	66.5 $\pm$ 7.5	69.7 $\pm$ 10.3	-1.793	0.076
Being criticized	15.6 $\pm$ 3.4	16.4 $\pm$ 3.9	-1.190	0.237
3-Thoughts about anger				
Thoughts about own anger	21.4 $\pm$ 6.4	25.9 $\pm$ 8.6	-2.916	0.004
Angry thoughts about others	19.9 $\pm$ 4.7	24.5 $\pm$ 7.3	-3.691	0.000
Angry thoughts about self	17.0 $\pm$ 4.5	17.4 $\pm$ 5.6	-0.335	0.739
Angry thoughts about the world	12.1 $\pm$ 3.9	12.9 $\pm$ 4.2	-0.985	0.327
4-Behaviors related to anger				
Violent behaviors	30.0 $\pm$ 6.2	32.1 $\pm$ 7.3	-1.509	0.135
Calm behaviors	30.8 $\pm$ 5.2	30.0 $\pm$ 7.4	0.605	0.547
Anxious behaviors	12.9 $\pm$ 2.6	13.5 $\pm$ 3.4	-0.957	0.341
5-Interpersonal anger				
Revenge reactions	63.0 $\pm$ 14.9	64.2 $\pm$ 20.5	-0.319	0.751
Passive-aggressive reactions	33.8 $\pm$ 5.9	35.8 $\pm$ 6.8	-1.502	0.136
Introvert reactions	31.5 $\pm$ 5.4	32.3 $\pm$ 7.2	-0.616	0.539
Reckless reactions	6.8 $\pm$ 2.3	6.0 $\pm$ 2.5	1.610	0.111
Beck Hopelessness Scale	7.2 $\pm$ 5.0	5.4 $\pm$ 4.5	1.857	0.066
Borata Depression Screening Scale	8.6 $\pm$ 4.5	10.2 $\pm$ 3.9	-1.980	0.050
Social Comparison Scale	75.8 $\pm$ 14.9	75.3 $\pm$ 16.1	0.154	0.878
Childhood Trauma Questionnaire-Total	77.5 $\pm$ 16.0	67.3 $\pm$ 17.7	3.038	0.003
Emotional abuse and emotional neglect	41.5 $\pm$ 10.2	34.0 $\pm$ 10.2	3.677	0.000
Physical abuse	29.3 $\pm$ 7.6	26.8 $\pm$ 8.2	1.577	0.118
Sexual abuse	6.7 $\pm$ 2.8	6.5 $\pm$ 2.2	0.481	0.632

section upon recognizing that the diagnostic criteria for the disorder in question has been met. In addition to SCID, the “impulse control disorders not classified elsewhere” of DSM-IV were investigated in a similar way.

SCID-II: The Structured Interview for DSM-III-R Personality Disorders (Spitzer et al. 1990, Sorias et al. 1990). With this tool, 12 different personality disorders (PD) are researched. It is a structured interview scale designed according to DSM-III-R diagnostic criteria and consisting of sentences easily understandable by both interviewer and patient. The term “sub-threshold personality disorder (SPD)” is used only when a criterion is not met in the presence of strong systems related to a personality disorder. Furthermore, the “depressive personality disorder” diagnosis, which is not present in SCID-II but which was presented with its research criteria in DSM-IV, was also researched using a similar questioning method. SCID-II does not have a form prepared according to DSM-IV, even in Turkish translation.

Multidimensional Anger Scale (MAS): This 5-Lik-

ert type scale was first introduced by Balkaya and Sahin (2003). It aims to determine the emotions, thoughts and behavior of individuals during anger states. Scored between 1 and 5 according to the frequency, there are 5 separate dimensions related to each other; 1 symptom scale and 14 sub-scales. High scores in sub-scales show increased pathology in anger dimensions.

Anger symptoms (14 items)

Situations causing anger (41 items, 3 sub-scales); a) not being taken seriously, b) being wronged, being criticized.

Thoughts related to anger (30 items, 4 sub-scales); a) thoughts about one's own anger, b) thoughts about others, c) thoughts about the self, d) thoughts about the world.

Behaviors related to anger (26 items, 3 sub-scales); a) violent behaviors, b) calm behaviors, c) anxious behaviors.

TABLE 5. Logistic regression analyses of the best predictors of axis-I and axis-II diagnoses in females and males.

Females			
Dependent variable	Independent variable	R2	F
Axis-I	Anger symptoms total score	0,26	15,40***
	Age	0,15	7,69**
	Score of angry thoughts about self	0,20	10,99**
	CTQ1-sexual abuse score	0,09	4,09*
	Physical disease	0,08	4,01*
Axis-II and/or sub-threshold axis-II	Anxious behaviors score	0,11	5,48*
	Score of not being taken seriously	0,10	4,94*
	Age	0,08	4,14*
Males:			
Axis-I	Violent behavior score	0,24	15,19***
	Score of thoughts about anger	0,32	21,57***
Axis-II and/or sub-threshold axis-II	Smoking	0,14	8,03**
	CTQ-sexual abuse score	0,08	4,30*
	CTQ-total score	0,08	4,13*

*p<0.05, **p<0.01, ***p<0.001

1CTQ: Childhood Trauma Questionnaire

Interpersonal anger (47 items, 4 sub-scales); a) revenge reactions, b) passive aggressive reactions, c) introvert reactions, d) reckless reactions.

Childhood Trauma Questionnaire (CTQ): This scale consists of 40 items, retrospectively investigating experiences occurring earlier than 18 years of age, and scored in 5-Likert type. Total score may range between 40 and 200. It consists of 3 sub-scales questioning emotional (19 items), physical (16 items) and sexual (5 items) traumas. Higher scores reflect higher frequencies of traumatic experiences. This scale was developed by Aslan and Alparslan (1999).

Social Comparison Scale (SCS): This is a 6-Likert type scale which presents both the positive and negative features of an individual. It investigates how an individual perceives him/herself in comparison to others. Scores range between 18 and 108. Higher scores reflect positive/assertive self representations. The original form of the scale consists of 5 features with two poles. Sahin and Savasir have added 13 more features to the scale (Allan and Gilbet 1995, Sahin and Savasir 1997).

Beck Hopelessness Scale (BHS): Developed by Beck et al. (1974). It consists of 20 items (9 of them have reverse propositions) answered as "yes" or "no". Scores range between 0 and 20. Higher scores reflect increased severity of hopelessness. Validity and reliability studies were carried out by Durak (1994).

Boratav Depression Screening Scale (BORDEPTA): consisting of 16 items answered in yes-no type. Its sen-

sitivity is 85.7% and specificity 95.1% at its 7.5 cut-off point. It is easily applied to individuals or groups and helps to identify the individuals who have clinical depression. High scores indicate both the existence and severity of clinical depression. This scale was developed by Boratav (2003).

Statistical processes: SPSS (Statistical Package for Social Sciences) 11.5 version was used for statistical analyses. Two groups having parametric distribution (age, number of siblings, total score of anger symptoms, scores of subscales of anger scale, BORDEPTA, BHS, CTQ-total and subscale scores) were compared with a student t test, whereas two groups not having parametric distribution (all individual anger symptoms, economic status, smoking, alcohol use, education of mother and father, relations with close relatives, relations with friends) were compared using the Mann Whitney U test. In the analysis of categorical variables, the Chi-square test was used. The relationships between the variables having parametrical distribution and those which do not were evaluated using the Pearson and Spearman correlation tests in order. The best predictors of Axis-I, Axis-II and sub-threshold Axis-II diagnosis in the students were determined by logistic regression analysis. The percentages, means and standard deviations of several findings were given. The statistically significant level was set as p<0.05.

RESULTS

The social and demographic characteristics of the students are given in Table 1. There were no differences

in the mean ages of the two groups ($p=0.299$). Smoking patterns of these two groups were different. Smoking every day was higher in males, whereas smoking occasionally was higher in females ($\chi^2=7.877$, $p=0.019$). Ratios of alcohol use were similar ($p>0.05$), use of psychoactive substances was not reported. 24% of a hundred students, 15% males and 9% females, reported having an on-going physical disease or disability ($\chi^2=1.974$, $p=0.160$). During the previous year, 4 male and 5 female students had applied to psychiatry outpatient clinics for an unspecified complaint ($\chi^2=0.122$, $p=0.727$).

Axis-I and Axis-II diagnoses

Among the diagnoses of Axis-I, Axis-II or sub-threshold personality disorder, only one diagnosis was determined in some patients, while, in others several were identified. The ratio of patients diagnosed with Axis-I was 60% in males and 74% in females ($\chi^2=2.216$, $p=0.137$). The ratio those given an Axis-II diagnosis was 28% in males, and 36% in females ($\chi^2=0.735$, $p=0.391$). The ratio of SPD was 34% in males, 32% in females. Co-morbidity of Axis-I and Axis-II (including SPD) diagnoses was 40% in males and 58% in females.

When Axis-I diagnostic groups were overviewed, somatoform and impulse control disorders were more frequent in males, whereas, in females anxiety, mood, eating and sleep disorders were the more frequent diagnostic groups. Ten percent of males and 36% of females were diagnosed with depression and most of these diagnoses were moderate in severity. The distribution of Axis-I diagnoses is given in detail in Table-2.

When Axis-II diagnostic groups were overviewed, group A personality disorder was more frequently detected in males, whereas group B and C personality disorders and group B SPD were more frequent in females. The distribution of Axis-II diagnoses is given in detail in Table-3.

Differences in anger symptoms between males and females

When the scores obtained from anger symptoms were evaluated; the scores for "acceleration of movements" were similar in both genders. "Clenching" and "snorting" scores were higher in males but the difference was not statistically significant. "Grumbling, loss of control, seeing red, gritting ($z=2.377$, $p=0.017$), throbbing in the brain ($z=2.984$, $p=0.003$), trembling of hands and legs ($z=2.196$, $p=0.028$), shortness of breath ($z=2.614$, $p=0.009$), headache ($z=3.096$, $p=0.002$), confusion, inability to think reasonably, and lip-biting ($z=2.249$,

$p=0.024$) scores were higher in females. The conditions having statistical data in parentheses showed statistically significant difference.

Findings related to the scores of students on MAS and other scales

The scores of all sub-scales of MAS other than "unconcerned reactions" and "calm behavior" were higher in females, however the differences observed in "anger symptoms", "not being taken seriously", "thought related to anger" and "angry thoughts towards others" scores were statistically significant. CTQ scores were higher in males. The "emotional abuse and emotional neglect" sub-scale scores, especially, were significantly higher ($t=3.677$, $p<0.001$). All the mean scores and their statistical significance levels were shown in detail in Table 4.

Correlations between several anger reaction dimensions of MAS and demographic variables, CTS total score (CTS-T), BORDEPTA, BHS and SCS scores

In females: The total score for "Anger symptoms" was found to be associated with the existence of an on-going physical disease, and the education levels of both the mother and father ($r=0.405$, $p=0.004$; $r=0.333$, $p=0.021$; $r=0.340$, $p=0.018$, in order).

The "Violent behavior" score was associated with CTS-T, SCS, alcohol use, and a high educational level in the mother and father ($r=-0.327$, $p=0.023$; $r=-0.299$, $p=0.039$; $r=0.327$, $p=0.023$; $r=0.428$, $p=0.003$; $r=0.322$, $p=0.029$, in order). The "Suicide reactions" score was associated with smoking, alcohol use, physical diseases, the educational level of the mother and the educational level of the father ($r=0.339$, $p=0.020$; $r=0.397$, $p=0.006$; $r=0.349$, $p=0.016$; $r=0.472$, $p=0.001$; $r=0.395$, $p=0.007$, in order).

The "Angry thoughts about the self" score was found to be associated with BORDEPTA, BHS, SCS, smoking, physical disease, and the educational levels of both the mother and father ($r=0.296$, $p=0.037$; $r=0.403$, $p=0.004$; $r=-0.391$, $p=0.008$; $r=0.387$, $p=0.006$; $r=0.362$, $p=0.01$; $r=0.497$, $p=0.000$; $r=0.631$, $p=0.000$, in order).

In males: The "Anger symptoms" total score was found to be associated with CTQ-T, BORDEPTA, BHS, alcohol use and age ($r=0.315$, $p=0.026$; $r=0.426$, $p=0.002$; $r=0.435$, $p=0.002$, $r=0.328$, $p=0.02$; $r=-0.318$, $p=0.024$, in order). The "Being criticized" score was found to be associated with physical disease, number of siblings and a low educational level in the mother ($r=0.357$, $p=0.011$; $r=0.339$, $p=0.018$; $r=-0.309$, $p=0.035$, in order).

The “Violent behaviors” score was found to be associated with SCS, age and a low level of education in the mother ($r=0.286$, $p=0.044$; $r=-0.277$, $p=0.05$; $r=-0.411$, $p=0.004$, in order). The “Revenge reactions” score was found to be associated with alcohol use, physical disease and the educational level of the mother ($r=0.277$, $p=0.05$; $r=0.307$, $p=0.03$; $r=-0.396$, $p=0.006$, in order).

The “Angry thoughts about the self” score was found to be associated with CTQ-T, BORDEPTA, BHS and SCS ($r=0.404$, $p=0.004$; $r=0.413$, $p=0.003$; $r=0.401$, $p=0.004$, $r=-0.496$, $p=0.000$, in order).

Regression Analyses

The logistic regression analyses of the best predictors of diagnosing axis-I and axis-II disorders, both in males and females, are given in Table 5. In females, the variables that predict axis-I and axis-II diagnoses best are the total score of the “anger symptoms” sub-scale ($p<0.001$) and the score of the “anxious behavior” sub-scale ($p<0.05$), respectively. In males, the variables that predict axis-I and axis-II diagnoses best are the “thoughts about one’s own anger” sub-scale score ($p<0.001$) and “smoking” ($p<0.01$), respectively.

DISCUSSION

The mean ages, mean number of siblings, economic status and frequency of alcohol use in both males and females participating in our study were similar, but regular smoking behavior was more frequent in males. In a previous study (Ozen et al. 2007), the percentage of smokers among female and male students in our university was 44% and 51%, occasional alcohol use was at 22 and 32%, respectively. Rates of smoking and alcohol use in our study group were higher, in this study, than the rates given above and are consistent with the results of studies reporting a significant correlation between the frequency of psychiatric diagnoses and alcohol and cigarette use (Ozen et al. 2007; Yazici et al. 2009). An interesting finding here, although rarely encountered, is the similarity in the rates of cigarette and alcohol use of females to those of males. This seems to be related to the psychiatric problems that the females in this study were experiencing or their efforts made to adjust to different social stresses and group behaviors.

Axis-I and Axis-II diagnoses

Around 90% of the students in both groups were receiving psychiatric help for the first time. Probably, some of them were afraid of stigmatization (Soygur and Ozalp

2005), some others were not in agreement that there was a problem which had a solution or did not know where to appeal. High rates of axis-I and axis-II diagnoses in these individuals may cause a series of issues ranging from personal unhappiness to a growing number of problems in their social lives. Especially the depression rates in females are striking and they are quite a deal higher than the rates reported in epidemiological studies (Hasin et al. 2005). Among the individuals who have anger problems (especially females) the co-morbidity rate of axis-I and axis-II diagnoses, when sub-threshold personality disorder was also taken into account, is high.

In outpatient clinics, or in survey studies, it seems feasible to detect, in a short time, the existence of any axis-I and axis-II diagnoses among young people. One way to do this, is making use of scales such as that used in our study. With regression analysis, in our study, the variables best predicting axis-I and axis-II diagnoses in females were determined according to the “anger symptoms” total score and the “anxious behaviors” sub-scale score, respectively. In males, the variables that predict axis-I and axis-II diagnoses best were the “thoughts about one’s own anger” sub-scale score and “smoking”, respectively. The presence of any physical disease requiring a long period of treatment, and being younger than the other female students, were some of the predictors of axis-I diagnoses in females. Traumas, especially sexual ones, in childhood and adolescent periods cause an increased incidence of axis-I and axis-II diagnoses (Grover et al. 2007). In our study, sexual traumas were related to the presence of more axis-I problems in males and axis-II problems in females.

When psychiatric studies were overviewed in a general manner (Yildiz and Akyol 1995, Ozen et al. 1999) somatoform disorders were seen more frequently in women. However, these were found to be more frequent in males in this study, which showed that anger reactions might be responsible for somatization reactions in some university students or, in some others, it might be expressed as an anger outburst. Consistent with some studies which examined females (Terasaki et al. 2009, Winkler et al. 2005) depression, anxiety, and sleep and eating disorders were found to be higher in individuals having anger problems. In our study, all three students who had eating disorders were females. In a study about anger and eating (Tamofsky et al. 1997) women were reported to be engaged more in eating behavior than men, as a reaction to negative emotions such as anxiety, anger, disappointment, and sadness. Significant differences in the rates of specific phobia and obsessive compulsive

disorder in females bring to mind a possible relation between fear-avoidance behavior and anger reactions.

Rates of otherwise unspecified impulse control disorders were found to be high, especially in males. Studies of intermittent explosive disorder (IED), when compared to the other diagnoses in psychiatry, were scarce and there has only been one study conducted in our country when, in December 2009, a search was carried out through the “medline.pleksus.com.tr” address. In this study, undertaken by Tamam et al. (2008) IED was found in 14% of psychiatry inpatients. The rate of IED among the university students with anger problems was found to be 34% in males and 20% in females. In another study (Kessler et al. 2006) the lifelong prevalence and annual prevalence of IED were found to be 7.3% and 3.9%, respectively. In the same study, high co-morbidity rates of IED were reported in connection with anxiety and alcohol-substance use disorders which was also consistent with our results.

Inappropriate anger reactions in personality disorders may be expected. In males paranoid PD and paranoid SPD were found to be 12% and 18% respectively, whereas, in females they were found to be 2% and 16% in order. As was mentioned in a study which examined university students (Yamauchi et al. 2009), this kind of personality structure leads to suspiciousness and insecurity in social relations, especially in males, and, as a result, causes inappropriate anger reactions.

Aggressive behaviors in axis-II disorders usually occur in antisocial and borderline PD types (Turkcapar et al. 2009, Howard et al. 2008). In our study, antisocial PD was not detected. The most probable reasons for this may be their low pass rates obtained in the nationwide university entrance exam, or infrequent attendance at university lectures as a result of certain problems they experience during their education (Dogan et al. 2004). One other reason may be their misattribution of their own anger problems (Chabrol et al. 2009) to their environment, due to their deficiency in self-criticism, or disregarding the invitation to seek psychiatric assistance. Borderline PD and SPD rates were found to be similar in females and males. Histrionic PD and SPD were not detected in males, but found in quite high numbers of females. One other personality structure, which may cause inappropriate anger reactions, is the narcissistic structure which was found in 4% of males and 8% of females, as an SPD, in our study.

Anxiety is prominent in group C personality disorder. In this anger study, the most frequent patholo-

gies were obsessive compulsive PD and avoidant PD at the levels of PD and SPD. They were more frequent in females. Other important personality structures diagnosed, were depressive PD and self-persecuting SPD. We were not able to discover any study, done in our country, specifically examining these two personality structures.

Differences in anger symptoms

When the results of the previous comprehensive studies were examined, the mean scores of several scales were found to be, in females and males respectively, as follows: 7.8 and 6.9 in BORDEPTA; 5.7 and 6.0 in BHS; 79.4 and 80.4 in SCS; 69.1 and 73.1 in CTQ-total (Ozen et al. 2007). When this study and our study were compared, both female and male students having difficulty in controlling their anger were found to be experiencing more depressive and negative self-representations. Additionally, males were found to be experiencing a deeper sense of hopelessness and had experienced more childhood traumas.

When the total symptom score was taken into account, a more intense symptom cluster was seen to occur in females at the moment of anger. When the mean scores of symptoms were examined; the increase in movement was similar in both genders, clenching and snorting were higher in males, and the other symptoms (especially gritting, throbbing in the brain, trembling of hands and legs, shortness of breath, headache, and lip-biting) were more frequently found in females. The “Not being taken seriously”, “being a subject of injustice”, “being criticized” sub-scale scores in the section on conditions causing anger in MAS, were found to be higher in females in the same studies (Balkaya and Sahin 2003, Batigun and Sahin 2003, Bostanci et al. 2006). In our study, although mean scores were higher in females only the “not being taken seriously” score reached a statistically significant level and it was the most important dimension causing anger in females. When some social and demographical variables were taken into account, intolerance of criticism was not related to any other variables in females but found, in males, to be related to having physical diseases, a large number of siblings and a mother with a lower level of education.

When compared to males, the “thoughts about anger towards the self” and “thoughts about anger towards others” were more intensely experienced in females. In our study, physical, emotional and sexual trauma experienced during childhood and adolescence were more frequently reported in males. Anger symptoms are more

intense among those males who have higher childhood trauma scores. On the other hand, there was an interesting finding in females that needs careful interpretation. Females who had lower trauma scores also demonstrated more aggressive behaviors. One reason for this may be the development of passive personality traits, in those females who have high trauma scores, characterized by subordination, acquiescing, and being unable to express or defend themselves.

In females having higher scores on the depression scale, some more intensely angry thoughts about their own anger, themselves and the world were reported. This result is consistent with a depressive mood (Winkler et al. 2005). Similarly to females, there were also intense thoughts about anger in many areas detected in males who had higher depression scores. The increase in the hopelessness score in females, just as in severe depression, may lead to an increase in angry thoughts about themselves and, consequently, introversion as an anger reaction.

As was mentioned in a study (Regan 2009), more intense “angry thoughts about the world” may occur in young males with a lower socio-economic status. In

our study, angry thoughts about the self and the world showed an increase along with negative self-representation. On the other hand, expression of “aggressive behavior” as an anger reaction showed an increase with positive self-representation (self confidence). In contrast to this, “aggressive behaviors” were related to higher levels of negative self-representation. The educational level of the mother tended to be lower in males who displayed aggressive behaviors, whereas, it was the opposite with females. One reason for this finding may be the greater reaction of young females, as opposed to males, at being compared to their mothers and to the “sage mother” model whose basic characteristic is usually talking about school status and interpersonal relations of their children in various settings. For a better interpretation of this interesting condition, new detailed studies, using different questions and scales, are needed.

In conclusion, anger is an important component of psychiatric disorders. Reaction styles and underlying psychiatric disorders may vary depending on gender. It should be kept in mind that, besides psychotic spectrum disorders axis-I and axis-II diagnoses are commonly seen in individuals who have inappropriate anger reactions although they do not seek help for treatment.

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