The Relationship of Anger Expression with Body Image and Eating Attitude in Social Anxiety Disorder

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SUMMARY

Objective: The aim of this study is to investigate the prevalence of social anxiety disorder (SAD) in university students and the relationship of their anger level and anger expression with body image and eating attitude.

Materials and Methods: A total of 1,000 students from Cumhuriyet University were included in this study. The Liebowitz Social Anxiety Scale (LSAS) and a sociodemographic data form were given to the students at their first interview. Those with a LSAS score of 30 or more were invited to do a second interview. Psychiatric interviews were then conducted on these students. An Eating Attitude Test (EAT), a Multidimensional Body Self Relations Questionnaire (MBSRQ), and a State-Trait Anger Expression Scale (STAXS) were performed on students with a SAD diagnosis (n=87) and a control group (n=87) at the final stage.

Results: The prevalence of SAD was found to be at 9.4% in the participants. Trait anger, anger in, and anger out scores were found to be significantly higher in the SAD group than the control group. On the other hand, anger control and MBSRQ scores were significantly lower in the SAD group. A decrease was observed in MBSRQ score and the EAT score increased as the anger in score increased in students with SAD.

Conclusion: SAD is a common disorder in university students. This study has demonstrated that depressed anger may affect body image and eating attitude negatively in those with SAD. Approaches for the development of appropriate anger expressions are necessary for SAD treatment.

Keywords: social phobia, anger, body image, eating attitude

INTRODUCTION

Social anxiety disorder (SAD) is characterized by excessive fear of embarrassment or humiliation in social situations, which in turn leads to marked distress and avoidance of these situations (Dilbaz 2007). SAD has been gradually attracting more attention from researchers and clinicians in recent years. As information about SAD increased, it became apparent that this disorder was more common than initially realized, and it has led to serious difficulties in the life of those with SAD (Last et al. 1992). The lifetime prevalence of SAD was found to be at 12.1% in United States of America according to a national comorbidity survey that was published in 2005 (Kessler et al. 2005). The lifetime prevalence of SAD was determined to be between 9.0% and 22.0% in studies conducted with university students in our country (Izgic et al. 2004, Dilbaz 2002). Because of the onset of generalized SAD in youth and in the early years of adulthood, issues such as a lack of development of social support systems, expulsion from school, unemployment, and inability to interview for jobs may cause setbacks in social and professional lives (Dilbaz and Güz 2006).

Individuals with SAD have been shown to present less help-seeking behavior than those with other disorders, despite the social and economic losses in daily life (Davidson et al. 1993).

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According to clinical observations, individuals have typically presented to doctors with comorbid disorders, however none due to SAD symptoms (Dilbaz and Güz 2006). Comorbidities such as substance abuse, depressive disorders, and other anxiety disorders are common in these individuals. The presence of comorbidities may increase the severity of SAD, may reduce the response to treatment, and may lead to damaging "dealing ways" with the use of alcohol or other psychoactive substances (Brook and Schmidt 2008, Turan et al. 2000).

Individuals with social anxiety disorder are extremely sensitive to criticism, negative evaluation, and opposition. In addition, they have difficulty with expressing themselves correctly and have an inferiority complex (Dilbaz 2007). Patients with SAD have a higher anger threshold, have a greater tendency of anger in or directing anger towards themselves, tolerate self-criticism, and have guilt feelings, although there is no difference between SAD patients and healthy individuals in terms of expressing anger out (Dadds et al. 1993). In addition, verbal aggression was found to be less in patients with SAD (Mostowitch et al. 2008).

Body image is a multidimensional concept including perceptions, attitudes, thoughts, beliefs, feelings, and behaviors of individual about his/her body. It can be also defined as the image of our own body formed in our minds (Cash 2004, Cohen 1991). Individuals with negative body image perception are known to avoid meeting new people and social environments, dodge introductions, and avoid going out in public. These evasion issues are observed to be severe in patients with body dysmorphic disorder and SAD (Dogan et al. 2011). In line with poor self body image, abnormal eating attitudes and behaviors are associated a high level of anxiety and low self-esteem (Fisher et al. 1991). Eating disorders were observed in 20.0% of 15 women in a comorbidity study which included women with anxiety disorder (Becker et al. 2004).

There has not been a study evaluating the relationship of anger expression with body image and eating attitude in SAD in literature. On the other hand, the relationship of anger with body image and eating attitude was thought to exist in SAD (Abdollahi and Talib 2014, Lewinson et al. 2013, Caccavale et al. 2012), which partially overlaps with the hypothesis of this study. The SAD group was composed of patients receiving therapy in the clinic in previous studies. Our study offers a contribution to the literature becasue the SAD group we selected was from a general public sample as a result of an epidemiological study. The results obtained about anger expression and related factors may contribute to psychotherapy in SAD. The aim was to detect SAD prevalence in university students, evaluate anger level and expression types in individuals with SAD, and investigate the relationship of anger expression with body image and eating attitude. For this purpose, the following hypothesis was created:

1- SAD is a more common disorder in university students than in the general public.

2- 'Levels of anger' and 'anger in' are high in SAD.

3- Increase in 'anger in' affects body image and eating attitude negatively in individuals with SAD.

MATERIALS and METHODS

Sampling

This research was a sectional-analytical study. The application was submitted to the Ethics Committee of Cumhuriyet University School of Medicine before initiating the study. After obtaining consent, the study was initiated (Resolution No: 2013-05/35). The universe of the research was composed of 31,910 undergraduate students from the Main Campus of Sivas Cumhuriyet University in the academic year of 2012-2013. The minimum sample size was set to 930 individuals with a confidence interval of 95.0%, a standard deviation of 0.025, and SAD prevalence of 10.0%.

Sampling Method

The list of undergraduate students in the academic year of 2012-2013 was obtained from the Registrar's Office of Cumhuriyet University. Then, the number of students that were to be included in the study (number of students in the faculty/N x n) from each faculty and graduate school was determined. Students were not included from faculties and graduate schools having ten or less students since they would not affect the study. After determining the number of students, a systematic sampling method was used in order to determine the departments that would be included in the study for faculties having more than one department. Each of the selected departments was considered a set. The students were chosen from different grade levels of the determined departments in order to ensure heterogeneity. The total number of students in each faculty and graduate school, and the number of students included in the study are presented in Table 1.

Application

This study was conducted in five stages. The research team consisted of a research assistant studying at the psychiatry department with experience in psychopathology, as well as five intern doctors in the first stage of a psychiatry internship. The research team gave 12 hours of training to the intern doctors concerning SAD, psychopathology, Liebowitz Social Anxiety Scale (LSAS), hypothesis of the study, and administrative and ethical issues that might arise during the implementation of this scale. A pilot study was conducted on 20 medical faculty students by trained intern doctors for two hours in order to determine potential problems, and the method was reviewed.

Table 1. Number of students in faculties and graduate schools included in the study

Faculty	Number of students	Number of students in the sample
Faculty of Dentistry	329	10
Faculty of Literature	4598	144
Faculty of Education	4190	131
Faculty of Science	1278	40
Faculty of Economics and Administrative Sciences	4076	128
Faculty of Theology	1412	44
Faculty of Communication	483	15
Faculty of Engineering	5497	172
Faculty of Health Sciences	950	32
Medical Faculty	1089	51
Graduate School of Physical Education and Sports	422	13
Cumhuriyet Vocational School	2561	80
Vocational School of Health Services	1702	53
Sivas Vocational School	2766	87
Total	31910	1000

Students were informed about the content and procedure of the study by visiting all departments and grade levels included in the study. It was declared to the participants that: 1) they would not be under any risk during or after study; 2) they would not be subject to harm; and 3) they had a right to refuse to participate or to quit after initiating the study. In the second stage, the LSAS and the sociodemographic data form were given face-to-face by a research assistant and five intern doctors to students who volunteered to participate in the study. The first two stages of the study were completed within a month. In the third stage, a total of 328 students with a LSAS score of 30 or greater were telephoned to be invited for a second interview according to the evaluation of the completed forms. Seventy nine students did not participate in the second interview due various reasons such as: not answering the phone, not participating in the scheduled interviews, transfer to another university, and unwillingness to join the interview. Therefore, the fourth stage of the study was continued with 249 students. At this stage, SAD diagnosis was investigated in students performing clinical interviews according to the diagnosis criteria in the revised fourth edition of Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) (American Psychiatric Association 1994). Considering those with diagnosis of SAD, students presenting fear in four or more social areas were identified as generalized type SAD; and students presenting fear in three or less social areas were identified as specific type SAD. In SAD diagnosis, the DSM-IV TR (American Psychiatric Association 1994) diagnosis system focused on cognitive symptoms, while the ICD-10 (World Health Organization 1992) focused on anxiety symptoms.

In order to create a healthy control group, a total of 672 students (with a LSAS score of 30 or less) were stratified by gender and faculty characteristics based on case group characteristics. One hundred thirty students were identified for the control group using a simple random sampling method. They were invited to the psychiatric clinic via telephone. A total of 14 students, who had a history of contemporary or past psychiatric disorders or who had known medical illness, were excluded from the study during the psychiatric interviews. Interviews were stopped when the target of 87 students was obtained for a control group.

In the fifth stage, students with SAD and the control group filled out the forms for the "Eating Attitudes Test", "Multidimensional Body Self Relations Questionnaire", and "State-Trait Anger Expression Scale".

Data Collection Tools

1) Sociodemographic Data Form: A questionnaire prepared by the researcher in order to determine the sociodemographic characteristics of the participants of this study. This was prepared in order to investigate parameters of participants such as; gender, age, education level, birth place, education level of parents, living place of family, status of loss of parents, people living with them, people living with them currently, socioeconomic income level, history of suicide attempts, family history of psychiatric illness, and history of alcohol use.

2) Liebowitz Social Anxiety Scale (LSAS): Liebowitz Social Anxiety Scale was developed in order to evaluate social relationships and performance in situational fear and/or situations avoided by individuals with SAD. This scale, applied by the clinician, was composed of 24 items, of which 11 items were related with social relationship and 13 items were related to performance. Items were rated from zero to three (Heimberg et al. 1999). The reliability and validity study was conducted by Dilbaz and Güz (2001), with internal consistency (Cronbachalpha) found to be 0.96, and interrater correlation coefficient (r) found to be 0.83. There is no cut-off point for this scale, however a score of 30 or more was detected to be a strong predictor for SAD in these studies (Menin et al. 2002, Iancu et al. 2006).

3) Eating Attitude Test (EAT): A scale which was based on self-report and was developed by Garner et al. in 1979 in order to assess patients with eating disorders (Garner et al. 1982). The reliability and validity study of this scale was conducted by Savaşır and Erol in 1989. The test was composed of 40 questions. Answers were assessed using a six-level Likert form ranging from "always" to "never". The cut-off point was 30 for EAT. Individuals with the score of 30 or higher

were considered to be individuals who had a high risk of ED (Garner et al. 1982).

4) State-Trait Anger Expression Scale (STAXS): Developed by Spielberger et al. (1983) and based on a self-report basis of an individual, it measures anger and anger expression. This scale was composed of 34 items and four subscales such as trait anger, anger in, anger out, and anger control. High scores in subscale of trait anger show the high level of anger, high scores in subscale of anger control show that anger can be controlled, high scores in subscale of 'anger out' show that anger can be expressed easily, and high scores in subscale of 'anger in' show that anger was depressed. A Turkish reliability and validity study was conducted by Özer in 1994. This scale can be applied to adolescents and adults.

5) Multidimensional Body Self Relations Questionnaire (MBSRQ): This scale was developed by Winstead and Cash (1984) in order to evaluate self-attitudinal aspects of body image structure. The reliability and validity study was conducted by Doğan and Doğan (1992) in Turkey, and internal consistency (Cronbachalpha) was determined to be 0.94. The self-report questionnaire was composed of 57 items and seven subgroups (appearance evaluation, appearance orientation, physical competence evaluation, physical competence orientation, health evaluation, health orientation, and body areas satisfaction).

Statistical Analysis

The data obtained in this study was analyzed using SPSS (Statistical Package for Social Sciences) for Windows 14.0. The distribution of data was assessed with the Kolmogorov-Smirnov Test. Various tests were used in comparison of the binary groups' data. The "Analysis of variance", "Tukey test", and "Significance test of Difference between Two Means" were used when the assumptions of the parametric test were met. On the other hand, the "Kruskal-Wallis test," "Man Whitney U test," "Chi-square test", and "Spearman correlation analysis" were used when the assumptions of the parametric test were not met. The data was presented in tables as arithmetic mean±standard deviation (SD), percentage, and number of individuals (n). A p-value of less than 0.05 was accepted as statistically significant.

RESULTS

This study was initiated with a total of 1,000 students, with 428 being male and 572 being female. The mean age of the students was 20.59±1.85. Four hundred fifty of the students were born in a village/town/county, and 550 of them were born in the city. Nineteen of them were married, 15 were widowed or divorced, and 966 were single. Since 79 of 328 students with a score of 30 or higher from LSAS did not participate in the second stage of the study due to various reasons, the study was continued with 921 students.

Table 2. Sociodemographic characteristics and comparisons

Sociodemographic Characteristics	SAD n (%)	Control group n (%)	Result	
			X^2 value	p value
Gender				
-Male	31(35.6)	35(40.2)	0.39	0.53
-Female	56(64.4)	52(59.8)		
Birth place				
-Village	40(46.0)	42(48.3)	0.09	0.76
-City	47(54.0)	45(52.9)		
Living place that he/she stayed the longest before university				
-Village	35(40.2)	31(35.6)	0.39	0.53
-City	52(59.8)	56(64.4)		
Living place of family				
-Village	39(44.8)	29(33.3)	2.41	0.12
-City	48(55.2)	58(66.7)		
Socioeconomic status				
-Low (<800 TL)	21(24.1)	19(21.8)	3.18	0.20
-Middle (800-2400 TL)	55(63.2)	48(55.2)		
-High (>2400 TL)	11(12.6)	20(23.0)		
Loss of parents				
-No	80(92.0)	84(96.6)	1.69	0.09
-Yes	7 (8.0)	3(3.4)		

SAD: Social Anxiety Disorder

As a result of clinical interviews conducted with students included in the study, 87 of the students (9.4%) were found to currently have SAD. Fifty two of these individuals (59.8%) were meeting specific type diagnosis criteria, and 35 of them (40.2%) were meeting generalized type diagnosis criteria. The prevalence of SAD was found to be 11.4% in 1,000 students as a result of the analysis, assuming that 79 students, who did not participate in the third stage, had also participated to the study. The statistical analysis of sociodemographic data of the control group and individuals with SAD are presented in Table 2.

In students with generalized SAD, the LSAS anxiety total score (LSanxtot) was 37.40±5.99; the LSAS avoidance total score (LSavotot) was 31.37±6.63; and LSAS total score (LST) was 68.77±11.12. In students with specific SAD, the LSAS anxiety total score was 25.11±5.38, the LSAS avoidance total score was 18.86±4.35, and LSAS total score was 43.98±8.53.

The data obtained from the SAD group and the control group was assessed by applying the EAT, MBSRQ, and STAXS scales. Considering STAXS, trait anger, anger in, and anger out, subscale scores were significantly higher in SAD group than the control group. In addition, the anger control score was significantly lower in the SAD group than in the control group ($p<0.05$) (Table 3).

Table 3. The comparison of subscale scores of STAXS

Scale	Groups	n	Mean±SD	Result	
				t value	p value
Trait anger	SAD	87	23.09±6.27	2.87	0.005
	Control	87	20.42±5.95		
Anger in	SAD	87	18.59±4.14	2.91	0.004
	Control	87	16.63±4.72		
Anger out	SAD	87	16.54±5.33	2.26	0.025
	Control	87	14.81±4.69		
Anger control	SAD	87	20.72±5.86	2.91	0.004
	Control	87	23.27±5.67		

STAXS: State-Trait Anger Expression Scale
SD: Standart Deviation
SAD: Social Anxiety Disorder

Table 4. The correlation coefficients of STAXS subscale scores with MBSRQ and EAT scores in SAD group

	Values	MBSRQ	EAT
Trait anger	R	-0.91	0.12
	P	0.44	0.24
Anger in	R	-0.313	0.303
	P	0.003	0.004
Anger out	R	-0.05	0.15
	P	0.60	0.15
Anger control	R	0.03	-0.18
	P	0.76	0.09

STAXS: State-Trait Anger Expression Scale
MBSRQ: Multidimensional Body Self Relations Questionnaire
EAT: Eating Attitude Test
SAD: Social Anxiety Disorder

There were four individuals with a score of higher than 30 from EAT in the control group and five individuals in the SAD group that had this score. Therefore, there was no statistically significant difference between the groups in terms of this issue. The mean EAT score was 14.03±7.90 in control group and 14.73± 8.79 in the SAD group. There was no significant difference between groups. When the control group and SAD group were compared in terms of the number of students included in the groups based on BMI, there was no significant difference. The mean MBSRQ score was significantly lower in the SAD group than the mean score in the control group (p=0.01).

The relationship of the STAXS subscale scores with the MBSRQ and EAT scores was investigated in individuals with SAD. There was a moderate to negative correlation between anger in the subscale and MBSRQ, and a moderate to positive correlation between anger in subscale and EAT. (Table 4)

The predictors of social phobia diagnosis were assessed according to the logistic regression analysis. The presence of psychiatric illness history in the family -Exp B 2.21 p=0.027, CI [1.095-4.451]- and low educational level of the father -Exp B 2,934 p=0.004, CI [1.403-6.135]- were detected statistically important factors for social phobia.

DISCUSSION

The prevalence of SAD, anger level and anger expression, the relationship of anger expression with body image and eating attitude in individuals with SAD were investigated in this study. The results verified our hypothesis claiming that SAD is common in university students, anger and anger in levels are high in SAD, and there exists a relationship of anger in with body image and eating attitude.

The prevalence of SAD was 8.0-16.0%, while the prevalence last year was 7.0-22.0%, and lifetime SAD prevalence was 9.0-25.0% in studies conducted with university students in literature (Dilbaz 2002, Izgic et al. 2004, Tillfors and Furmark 2007, Bella and Omigbodun 2009, Akkaya 2011, Gültekin and Dereboy 2011). Approximately 70.0-80.0% of individuals with SAD were found to be the specific subtype, consistent with previous studies (Tillfors and Furmark 2007, Ruscio et al. 2008, Akkaya 2011,). The point prevalence of SAD was 9.4% for students of Cumhuriyet University in our study. The majority of those with social anxiety disorder (59.8%) were found to be the specific subtype. The different results in epidemiological studies may be associated with sample size, screening tools, changes in diagnostic criteria over time, and sociocultural variables between individuals (Semiz et al. 2013).

As a result of the review of epidemiological studies conducted between 2001 and 2007, lifetime prevalence of SAD was found to be 6.1% in developed countries and 2.1% in developing countries (Stein 2010). The last one year prevalence of SAD was found to be 3.2%, and lifetime prevalence was found to be 8.1% in an epidemiological study conducted in Canada (MacKenzie and Fowler 2013). The results of our study support that SAD prevalence is higher in university students than the general society.

Dadds et al. (1993) compared anxiety disorders (panic disorder, agoraphobia, generalized anxiety disorder, and SAD) with each other according to the level of anger against oneself or against others. Similar to our findings, they concluded that SAD patients show more introspective responses such as self-criticism and feelings of guilt, and there was no significant difference among anxiety disorders in terms of extroverted responses. It was shown that individuals with SAD express more frequent and intense anger, become more angry from negative evaluations, show greater effort to suppress their anger, and have less developed anger expression than healthy individuals (Erwin et al. 2003, Mostovitch et al. 2008, Ugurlu 2009, Kashdan and Collins 2010, Olatunji et al. 2010, Asberg 2013). Anger and hostility was concluded to be important in addressing initiatives and programs about internalizing

problems in a study conducted on university students (Asberg 2013). Grisham et al. (2015) demonstrated socially threatening facial expressions (hatred, anger) and non-threatening facial expressions (happy, neutral) to individuals with high social anxiety and individuals with low social anxiety. As a result, they detected that individuals with high social anxiety focused more on themselves rather than facial expressions when compared with individuals with low social anxiety.

This study demonstrated that anger level is high and anger control is poor in persons with SAD. In addition to previous studies, this study determined that SAD patients tend to suppress anger. While starting this study, it was hypothesized that individuals with SAD mostly internalize their anger and have difficulty expressing their anger. However, students with SAD were observed to also have anger expression at the end of the study.

When the MBSRQ scores of a group with social anxiety disorder and a control group were compared, the scores of SAD group were obtained significantly lower (lower scores mean body image dissatisfaction). The body image dissatisfaction was found to be higher in students with SAD than others, but its relationship with anger was not investigated in a previous study conducted in same university (Izgic et al. 2004). It was demonstrated in studies that obese and overweight individuals have higher social anxiety and body dissatisfaction than healthy controls, and have lower self-esteem (Caccavale et al. 2012, Abdollahi and Talib 2015). Body image dissatisfaction may lead to a loss in self-confidence, and thus less social interactions and difficulty in expressing feelings.

There was a relationship between 'anger in' and body image, and it was detected that MBSRQ scores decrease (body dissatisfaction increases) as 'anger in' scores increase in individuals with SAD. There has been no study investigating the relationship between anger expression and body image in anxiety disorders in literature. It is known that individuals with SAD are extremely sensitive to criticism, have difficulty in expressing themselves, and have an inferiority complex (Dilbaz 2007). These individuals, that cannot act as they wish in a social environment, may hate themselves and tend to internalize their anger since they have difficulty in expressing their feelings. Additional negative body image may lead to a vicious cycle and worsen their SAD symptoms.

To date, there is no study investigating anger expression compared to eating attitude in SAD in literature. In studies comparing individuals with eating disorder and control group, trait anger, 'anger in', and 'anger out' scores were reported to be significantly higher and anger control scores were lower than those in control group (Fassino et al. 2001, Krug et al. 2008, Amianto et al. 2012). SAD comorbidity was observed to be at a high level in individuals with eating disorders in previous studies (Godart et al. 2000, Godart et al. 2003, Hinrichsen et al. 2004, Kaye et al. 2004, Wonderlich-Tierney and Vander Wal 2010). Our study showed that depressed anger was associated with a negative increase in eating attitude. Our results pointed out the importance of evaluating depressed anger and developing techniques about teaching appropriate expressions during interventions related to eating attitude in SAD. Contrary to our expectations, there was no significant difference between the SAD group and the control group in terms of BMI. Additionally, there was no relationship between SAD and BMI in a study conducted with obese and overweight individuals (Otrovsky et al. 2013). It is important to note that the association with BMI can be affected by numerous parameters.

This study has some limitations. The first limitation was that we could not make a cause-and-effect assessment about the effects of anger in in SAD, because of sectional analysis of sample and a lack of data on long term results. The second limitation was that 79 (7.9%) students, who had been invited for second interview, could not be evaluated during the study. This is one of the major problems in epidemiological studies. There may also be some other conditions (such as comorbid mental disorders) that affect anger, body image, and eating attitude in patients exhibiting SAD. These conditions could not be controlled due to the large sample number and the time constraints. These limitations can be overcome by investigation of psychiatric comorbidities in further studies.

In conclusion, SAD is a common mental disorder affecting about one in every ten university students. There may be a relationship between depressed anger and body image dissatisfaction in individuals with SAD. Anger has an important place in the treatment of SAD. Developing appropriate anger expression methods for these individuals and helping them in anger control would be beneficial. There is a clear need for further studies investigating the effects of interventions on anger expression in SAD.

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