

The Prevalence of Eating Disorders and Comorbid Psychiatric Disorders in the Sivas Province



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SUMMARY

Objective: The purpose of this study was to determine the prevalence of eating disorders (EDs) in the Sivas province, and to identify the sociodemographic characteristics and co-morbid axis-I and axis-II diagnoses in EDs.

Method: 1122 people between 18-44 years of age were enrolled in the study after completing the eating attitude test (EAT), and people who had points around the cut-off score had clinical interviews. The control group included subjects that were age- and sex-matched with the ED group, were not diagnosed with an ED, and had an EAT score <30. In order to determine the following as axis I or axis II, SCID-I (Structured Clinical Interview for DSM-IV Axis-I Disorders) and SCID-II (Structured Clinical Interview for DSM-III-R Personality Disorders) were performed on both the eating disorder and control groups.

Results: As a result of the scanning done with EAT, we observed that 5.25% of this population might have an eating behavior disorder. The prevalence of the eating disorders was found to be 1.52% by the structured clinical interview in the second step of the study. While the prevalence of bulimia nervosa was determined to be 0.63%, that of binge eating disorder was 0.81%. The diagnosis of ED is common and statistically significant among women (88.2%). According to the study, persons diagnosed with ED were more likely to have a moderate income as compared with those who were not diagnosed with an ED. Also, people with ED had been exposed to more traumas, and it was more likely that someone in their family had a psychiatric diagnosis. Among the patient group, the axis I and axis II co-morbidity rates were significantly higher than those of the control group. 47% (8/17) of the patients were determined to have a co-morbid axis I diagnosis. The most frequently diagnosed co-morbidity was major depressive disorder. 41% of the patients were determined to have an axis II diagnosis. The most common rate of diagnosis was 11.8% for both obsessive-compulsive personality disorder and avoidant personality disorder.

Conclusion: The results of this study show that the point prevalence rate for EDs among all the participants was 1.52%, with binge eating disorder being the most prevalent ED. Psychiatric co-morbidity is common in patients with eating disorders. An ED is a disease that can be seen in different age groups and socioeconomic levels. Studies with larger samples, including different regions of the country and different age groups, and with diagnoses that have been confirmed by clinical interviews, are required.

Key Words: Eating disorders, epidemiology, co-morbidity

INTRODUCTION

Eating disorders (EDs) are a group of psychiatric disorders characterized by a severe impairment in eating behavior that may lead to death (Fairburn and Harrison, 2003). Although ED, which are mainly composed of anorexia nervosa (AN) and bulimia nervosa (BN), have been known for centuries, their prevalence has increased in the last 50 years and thereby

they have been encountered in gradually increasing rates in clinical practice (Tolstrup, 1991). Community based and large sample studies are drawing more attention due to the increases in their prevalence (Turnball et al., 1996).

In the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR), the eating disorders were classified as anorexia nervosa, bulimia nervosa, or eating disorder not otherwise specified (ED-NOS).

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ED-NOS includes different conditions since it is a residual diagnosis category, and there is little information about its specific variants, except for a few important conditions. Diagnostic criteria for binge eating disorder (BED), the most important specific variant, are present in the appendix of the DSM-IV-TR.

The prevalence of ED is reported as point prevalence, yearly prevalence or lifetime prevalence. The point prevalence of AN is known to be 0.1-1.3% (Hoek and van Hoeken 2003, Hudson et al., 2007, Keski-Rahkonen et al., 2007), while its yearly prevalence has been reported as 4.7-8.3/100, 000 (Hoek, 2006), and its lifetime prevalence between 0.6% and 2.2% (Whitehouse et al., 1992, Keski-Rahkonen et al., 2007). The point prevalence of BN is reported to be 0.8% - 4.6% (Favaro et al., 2003, Keel et al., 2006, Keski-Rahkonen et al., 2009). Soundy and colleagues (1995) reported the yearly prevalence of BN to be 13/100, 000 in Rochester, while Turnball and colleagues (1996) reported it as 12.2/100, 000 in England. The lifetime prevalence of BN has been reported to be between 1%-3% (Keski-Rahkonen et al., 2009). The point prevalence of BED varies between 0.2% and 2% (Cotrufo et al., 1998, Striegel-Moore and Franko 2003, Hudson et al., 2007), its yearly prevalence is reported to be between 0.3% and 3.3% (Preti et al., 2009), and its lifetime prevalence is between 1% and 4.5% (Striegel-Moore and Franko 2003, Treasure et al., 2010).

Although ED are reported to be more prevalent in Western communities, recent studies have revealed that their prevalence has also increased in developing countries (Hoek 2006). Industrialization, changing nutritional habits, urban life, influence of the media, increased cross-cultural interactions, and increased awareness and research may explain the increased prevalence in the other communities (Makino et al., 2004, Rubin et al., 2008).

Mood disorders, anxiety disorders, substance disorders and personality disorders are frequently reported to be the co-morbidities of eating disorders (Spindler et Milos, 2007; Sansone et al., 2010). Depression is the most common psychiatric disorder that accompanies ED. Incidence of major depression co-morbidity was reported as 20-45%, and it was reported that depression is seen more frequently in ED patients as compared to the general population, and the prognosis of depression is independent from the course of the ED (Hamli 2003). The most common co-morbidities following depression are anxiety disorders.

It was found that 31-71% of ED patients had at least one anxiety disorder (Godart et al., 2002). The most common of these are generalized anxiety disorder (GAD), social phobia, panic disorder, simple phobia, and obsessive compulsive disorder. Obsessive compulsive disorder (OCD) is more frequent among AN patients, social phobia and generalized anxiety

disorder are more frequent among BN patients, and social phobia is more frequent among BED patients (Speranza et al., 2001, Godart et al., 2003). Post-traumatic stress disorder (PTSD) as well as sexual and physical trauma have also been reported to be frequent in ED (Brewerton, 2007).

Personality characteristics have been proposed to play a role in the onset, symptoms, and continuity of ED (Sansone et al., 2010). Personality disorders were shown to be significantly higher in ED patients as compared to a control group and the general population. Particularly, borderline personality disorder and avoidant personality disorder are frequent co-morbidities (Cassin and Ranson, 2005). Obsessive personality disorder has also been reported to accompany EDs (Halmi, 2003).

A very small number of ED patients apply for psychiatric therapy, and most of them have little knowledge on the subject (Miller and Golden, 2010). Therefore, epidemiologic studies about ED would help to understand their prevalence as well as characteristics of patients with ED. These studies may be a guide for determining health policies.

In this study, we aimed to contribute to epidemiologic studies in Turkey, which are currently insufficient, by determining the related sociodemographic features and to investigate the psychiatric co-morbidities by detecting the prevalence of ED in the Sivas province.

MATERIALS and METHODS

Sample

The population of the Sivas province was 300, 795 in 2009 according to data obtained from the database of the address-based population registration system of the Turkish Republic Statistical Agency. The area of Sivas is 28, 488 km² and the population density is 10.55 individuals/km². Sivas is below the mean of Turkey in terms of socioeconomic development, and a significant amount of people migrate from Sivas each year. Traditional attitudes and behaviors continue also today.

The study sample was composed of individuals aged between 18-44 years who live in the Sivas province. A total of 143, 693 individuals of whom 73, 727 (51.31%) are male and 69, 966 (48.69%) are female live in the Sivas province between this age range. Neighborhoods, main streets, and more rural streets were determined according to the sample plan developed by Selvi (2008) in order to use in the studies held in the Sivas province. Determined neighborhoods were allocated according to their socio-economic-cultural status (high, moderate, low). A total of 1, 110 individuals decided to enroll in the study (211 from high socio-economic-cultural status, 644 from moderate, and 225 from low). The selected sample represents the universe in terms of age, gender, education, and economic level.

Procedure

Legal permissions were obtained from the Local Ethics Committee of Cumhuriyet University Medical Faculty and Sivas Security Directorate prior to the study.

Individuals who had mental retardation, organic diseases that may lead to ED, psychosis, organic mental disorders, and those who did not voluntarily participate in the study were excluded.

A total of 1, 122 individuals who represent the Sivas province were enrolled. The study was conducted by a psychiatry resident and two intern doctors between May and July 2010. Investigators were informed about the research tools (eating attitudes test and sociodemographic form) prior to the study and educated about EAT for one week before the study. The intern doctors distributed the sociodemographic data form (SDF) and EAT to the participants only in the first stage of the study.

In the first stage of the study, participants were given a sociodemographic data form (SDF) and EAT. Filling out both the SDF and EAT took around 10-15 min. In the second stage, individuals whose EAT scores were 30 and above were considered to have an ED and invited to the psychiatry clinic. The individuals who agreed to participate in the second stage were evaluated for the diagnosis of ED via a structured interview according to the DSM-IV. In the third stage, the weights and heights of the participants who were diagnosed with ED were measured. Body mass index was calculated as $\text{weight} / \text{height}^2$ (kg/m^2). They were questioned for physical or sexual trauma and SCID-I /SCID-II was applied in order to detect the accompanying axis I and axis II diagnoses.

In the fourth stage, a control group of 17 individuals who did not have an ED and who were matched for age, gender and socioeconomic level was constituted in order to compare with the study group.

Clinical interviews, SCID procedures, and other procedures performed in order to detect ED diagnosis in the second and the following stages of the study were conducted by experienced psychiatrists in an interview that took approximately 60-90 min.

Materials

Sociodemographic data form (SDF) is a questionnaire developed by the research team in order to determine the sociodemographic data of the participants.

Eating Attitudes Test (EAT) was developed by Garner and Garfinkel in 1979 in order to evaluate ED patients. It may also be used as a screening tool in order to determine ED patients in the community. A validity and reliability study of

the scale was done by Savaşır and Erol (1989) in Turkey, and the cut-off point was found to be 30.

Structured Clinical Interview for DSM-IV Axis-I Disorders (SCID-I). SCID is a semi-structured clinical interview inventory developed for the diagnosis of DSM-IV Axis-I disorders. First and colleagues (1997) developed this form, Özkürkçügil and colleagues (1999) adapted it for the Turkish population, and the reliability findings were reported by the same author.

Structured Clinical Interview for DSM-III-R Personality Disorders (SCID-II). SCID-II investigates 12 types of DSM-III-R personality disorders (Skodol et al., 1990). The validity and reliability studies of SCID-II have been reported by Coşkunol and colleagues (1992) in Turkey.

STATISTICAL METHODS

SPSS (Statistical Package for Social Sciences) for Windows version 14.0 was used for the assessment of the data. A chi-square and Fisher's exact test were used in 2x2 orders and only a chi-square test was used in multi-orders. A Mann-Whitney U test was used for the comparison of non-parametric continuous variables. The statistical power of the study was determined to be 0.90. Data are reported as the number of the individuals and the percent and error levels were taken to be 0.05.

RESULTS

Sociodemographic features

A total of 1, 122 individuals were enrolled in the study. The mean age of the participants was 30.12 ± 7.13 years (range 18-44 years). Of the participants, 544 (48.5%) were female and 578 (51.5%) were male. Sociodemographic features such as gender, marital status, education level, job, and income level are shown in Table 1. The EAT score of 59 (5.3%) participants was above 30 according to the screening scale. Six (4 female, 2 male) of these 59 participants stated that they did not have a disease nor did they want to come to the hospital or meet with us again. Fifty three (89.9%) of the individuals who received an EAT score of 30 and above were interviewed again. Seventeen of these 53 individuals (17/1116) were diagnosed with an ED according to DSM-IV-TR diagnostic criteria, and their total point prevalence was determined to be 1.52%. The ratios of diagnosis according to the subtypes of ED are presented in Table 2.

ED were detected in 15 out of 544 women (2.8%) and in 2 out of 578 men (2.4%). The prevalence of ED was significantly higher in women than in men ($p=0.001$). The mean age of the participants who were diagnosed with ED was significantly lower than those that were not (26.29 ± 5.13 years vs 30.19 ± 7.32 years) ($p<0.05$).

Table 1. Socio-demographic characteristics of the sample population

		No ED	%	ED group	%	Total	P
Age		30.19±7.32		26.29±5.13		30.12±7.13	0.02
Gender	Male	574	99.7	2	0.3	576	0.001
	Female	525	97.2	15	2.8	540	
Education level	Illiterate	34	100	-	-	34	0.43
	Elementary school	490	99.2	4	0.8	494	
	High school	331	97.6	8	2.4	339	
	University	244	97.9	5	2.1	249	
Marital status	Single	393	98.7	5	1.3	398	0.82
	Married	675	98.3	12	1.7	687	
	Divorced /widowed	31	100	-	-	31	
Level of income	0-750 TL	361	99.2	3	0.8	364	0.41
	751-200 TL	514	98.1	10	1.9	524	
	2001 TL and above	224	98.2	4	1.8	228	
Smoking status	No	721	98.2	13	1.8	734	0.32
	Yes	378	99	4	1	382	

ED: eating disorder

Table 2. Prevalence of eating disorders

		Gender		
		Famela	Male	n(%)
Eating disorders	AN	-	-	-
	BN	7	-	7(0.63%)
	ED-NOS	BED (-)	1	-
		BED(+)	7	2
Total		15	2	17(1.52%)

AN: anorexia nervosa, BN: bulimia nervosa, BED: binge eating disorder, ED-NOS: eating disorder not otherwise specified

Table 4. Axis II diagnoses of eating disorder and control groups

Axis II co-morbidities	Eating disorder n(%)	Control n(%)
Obsessive compulsive PD	2 (11.8)	-
Histrionic PD	1 (5.9)	-
Borderline PD	1 (5.9)	-
Avoidant PD	2 (11,8)	1 (5.9)
Dependent PD	1 (5.9)	-
No diagnosis	10 (58.9)	16 (94.1)
Total	17 (100)	17 (100)

PD: personality disorder, Fisher's p= 0.03*

Table 3. Axis I diagnoses of eating disorder and control groups

Axis I co-morbidities	Eating disorder n(%)	Control n(%)
Depressive disorder	4 (23,5)	1 (5,9)
Obsessive compulsive disorder	1 (5,9)	-
Dysthymic disorder	1 (5,9)	-
Generalized anxiety disorder	1 (5,9)	-
Panic disorder	1 (5,9)	1 (5,9)
Social phobia	2 (11,8)	-
No diagnosis	9 (52,9)	15 (88,2)

x2=5.10 p=0.024*

Co-morbidities

Axis I diagnoses detected with SCID-I

An axis I co-morbidity was detected in 8 of the 17 individuals (47.1%) who were diagnosed with an ED and in 2 of the 17 individuals (11.8%) in the control group. The presence of an axis I co-morbidity was significantly higher in the patient group as compared to the control group ($p<0.05$). Axis I co-morbidities of the individuals who were diagnosed with ED and the control group are shown in Table 3.

Axis II Diagnoses detected with SCID-II

There were axis II co-morbidities in 7 of the 17 individuals (41.1%) who were diagnosed with ED. An axis II co-morbidity was also detected in one subject (5.9%) in the control group. The ratio of axis II co-morbidities was significantly higher in the patient group than in the control group ($p<0.05$). The axis II diagnoses of the patients who were diagnosed with ED and those for the control group are listed in Table 4.

There were no significant differences between the individuals with or without ED in terms of educational or marital status, level of income, alcohol or cigarette use, the presence of an organic disease in the patient or in his/her family, or in admissions to psychiatry ($p>0.05$). Psychiatric disorders were reported in 17.6% ($n=3$) of the families of the ED patients and in 4.5% ($n=49$) of those who did not have an ED. The difference between the groups was statistically significant (Fisher's $p<0.05$).

Four subjects (23.5%) in the ED group reported that they had been exposed to physical trauma and three subjects reported that they had been subjected to sexual trauma. One individual (5.9%) in the control group reported that he had been exposed to physical trauma, and none of these individuals reported exposure to sexual trauma. There was no significant difference between the ED group and the control group in terms of sexual or physical trauma ($p>0.05$).

Body mass index

The body mass index (BMI) of the ED group was 22.8 ± 4.2 , while that of the control group was 22.4 ± 2.7 . There was no significant difference between the two groups in terms of BMI ($p>0.05$). The mean BMI of 7 patients with BN was 21.1 ± 1.6 . There was no significant difference between BN patients and the control group in terms of BMI ($Z=-1.75$, $p>0.05$). The BMI of one AN patient among those who were diagnosed with ED-NOS was 18.6. The mean BMI of 9 BED patients was 27.6 ± 3.8 . The mean BMI of BED patients was significantly higher than that of the patients in the control group and those with bulimia ($Z=-2.9$, $p<0.05$, $Z=-3.2$, $p=0.001$).

DISCUSSION

The point prevalence of ED in this study was 1.52%. Studies investigating the prevalence of ED in Turkey have been conducted with high-risk groups such as high school or university students, but there have not been any epidemiologic studies conducted in the general population (Kuğu et al., 2006, Tozun et al., 2010, Vardar and erzengin, 2011). It is unfortunate that the results from studies performed in high-risk groups cannot be applied to the general population. The point prevalence of ED was reported to be between 2.20% and 6.8% in the studies done with high school or university students ((Kuğu et al., 2006, Tozun et al., 2010, Vardar and erzengin, 2011). The prevalence in our study may have been lower compared with the other studies in Turkey since our study was not conducted with high-risk groups.

In this study, the point prevalence of AN was 0% and the point prevalence of BN was 0.63%. One individual (0.089%) had signs of AN, but did not meet the diagnostic criteria for AN, and was diagnosed with ED-NOS. The point prevalence of AN has been reported as 0.1-0.9% in Western studies (Favaro et al., 2003, Keski-Rahkonen et al., 2007). The point prevalence of BN has been reported as 0.8%-4.6% (Hoek and van Hoeken, 2003, Keski-Rahkonen et al., 2009). AN and BN are effected by cultural characteristics, and are seen in more frequently in Western countries than in Eastern countries (Makino et al., 2004). One case of BN was reported in the study of Uzun and colleagues (2006) that was carried out with high school students - this low number was associated

with the characteristics of Eastern cultures (Uzun et al., 2006). In this study, lower AN and BN rates as compared to Western countries may be because the study was conducted in the Sivas province, which has the characteristics of Eastern culture (Akbulut, 2007). Also, most of the participants were not in the high-risk age group for AN and BN, which may have affected the prevalence.

Epidemiologic studies for BED began later than those investigating other ED, and therefore there have been fewer reports on that issue (Abebe et al., 2012). In population sample studies, BED was reported to be seen more frequently than AN or BN, and was more frequent in the obese (Striegel-Moore and Franko, 2003). BED, which is seen above 20% in the obese, is reported to be seen between 0.7-2% in the general population (Striegel-Moore and Franko, 2003, Wilfley et al., 2003). The point prevalence of BED in our study was 0.81%, which is consistent with the literature. In an epidemiologic study by Başbüyük and Akın (2007) that investigated the prevalence of obesity in the general population of Sivas, the mean BMI of the sample was found to be above the healthy limits, and the obesity rate was reported to be high in that region. Results of that study are consistent with the fact that BED is prevalent in Sivas. In our study, BED was the most common disorder in adults. Our results support the opinion that BED, which is a research diagnosis in DSM-IV-TR, should be expressed as a clinical diagnosis in DSM-V (Şar, 2010).

The sensitivity of the diagnostic tools and the methodologic causes may affect the epidemiologic findings, which may lead to different results. It is difficult to compare the results obtained from studies on ED prevalence since they use different diagnostic systems and lack standard assessment tools (Hoek and van Hoeken, 2003). More research using similar measurement methods on which a consensus was obtained are needed.

Eating disorders are seen more frequently among women than men. AN diagnoses are 10-15 fold greater among women, while BN diagnoses are 15-20 fold greater (Fairburn and Harrison, 2003). In this study, 15 (82.4%) of the 17 individuals in whom ED were detected were women and 2 (17.6%) were men. The female gender was significantly higher in ED patients. The results of this study are consistent with the results of the other studies supporting the idea that females have a higher risk for ED (Hoek, 2006). The men in our study that were diagnosed with ED had BED, which supports the research that BED is the most common ED in men (Kuğu et al., 2006, Vardar and Erzengin, 2011). Therefore, BED should be taken into consideration in the studies carried out with men.

Also in this study, the mean age of the ED patients was significantly lower than those without ED. Results of this study

support the idea that early adulthood is also a risky period for ED (Preti et al., 2009).

While it has been considered that ED are seen only in families with high socioeconomic status that were focused on success until recently, ED have been seen in every part of the population in recent years (Chen and Jackson, 2008). In studies from Turkey, individuals with ED have been reported to be in the moderate socioeconomic level in the ratio of 40-85% (İlzmir et al, 1998, Uzun et al., 2006, Kuğu et al., 2006, Ünsal et al., 2010). The vast majority of the patients with ED were found to be in the moderate socioeconomic status level in our study, consistent with other studies conducted in our country. That approximately 50% of the sample was in the moderate socioeconomic level may have affected the results of our study.

A family history of mental disorders has been reported to be an important factor for ED. Mental disorders like OCD, major depression, and generalized anxiety disorder are prevalent in the families of ED patients (Lilenfeld et al., 1998). Also in our study, mental disorders were found to be significantly higher in the families of patient group than in the control group, which is consistent with the literature.

Physical and sexual abuse are factors related with ED, as they are for many psychiatric disorders (Brewerton, 2007). In a study investigating the relationship of impaired eating behavior and familial and psychosocial factors, adolescents who had a history of physical or sexual abuse were reported to have a high-risk for ED (Neumark-Sztainer et al., 2000). A significant difference was not found between the patient and control groups in terms of physical and sexual trauma. However, consistent with literature, we found that a history of physical and sexual trauma were more frequent in ED patients. That there were a small number of patients and because we investigated trauma through self-report may be the reason we did not see a difference between the two groups. These results and those of other publications (Neumark-Sztainer et al., 2000, Villarroel et al., 2012) may indicate that traumas may influence the development, severity, and duration of ED, although they may not be the cause of ED.

ED differs according to subtypes in terms of BMI. Most of the BN patients have a normal weight (Fairburn and Harrison, 2003). It has been shown that those with BED have a greater fat deposition. BED is a serious problem that is seen more frequently in the obese, and BED is frequent among the obese seeking therapy (Striegel-Moore and Franko, 2003). There was no significant difference between the BMI of BN patients and the control group in our study, which is consistent with the literature. The BMI of BED patients was higher than that of controls. This result indicates that patients should be evaluated for BED when they are treated for obesity.

Axis I and II co-morbidities are seen more frequently in ED patients than in the general population (Milos et al., 2004). It was reported that approximately 25-90% of ED patients were diagnosed with depressive disorder at least once (Godart et al, 2007). In another study, current co-morbidities of ED patients were analyzed, and about 20% of them had depressive disorder (Garfinkel et al., 1995). The co-morbidities in our study were major depressive disorder (23.6%) and dysthymic disorder (5.9%), which were found to be higher than in the control group. Major depressive disorder was found to be the most common co-morbidity in ED in this study.

One or more anxiety disorders have been reported in most of the ED patients in clinical and epidemiologic studies (Godart et al., 2002). An anxiety disorder co-morbidity was detected in 30% of ED patients. This ratio was higher than the anxiety disorder ratio in the control group. In previous studies, OCD, social phobia, and specific phobia were reported more frequently, and PTSD and generalized anxiety disorder (GAD) were reported less frequently in AN and BN patients (Godart et al. 2002, Kaye et al. 2004). In this study, while social phobia was seen in two subjects, the other diagnoses were seen in just one subject for each. As in previous studies, some anxiety disorder subtypes that were not seen more frequently and almost equal ratios of anxiety disorders may have resulted from a limited number of patients. In one study, anxiety disorder co-morbidity was detected in 99 out of 404 BED patients (24.5%). Of these co-morbidities, 16 (3.9%) were panic disorder, 25 (6.2%) were social phobia, 9 (2.2%) were OCD, 16 (4.0%) were PTSD, and 36 (8.9%) were GAD (Grilo et al., 2009). In our study, anxiety disorder co-morbidity was detected in 33.3% of BED patients. Studies carried out with larger samples are needed in order to investigate anxiety disorder co-morbidities in ED.

The ratio of personality disorders has been shown to be higher among ED patients as compared to a control group and the general population (Sansone et al., 2010). In the studies investigating co-morbidities between ED and personality disorders, ratios varying between 27% and 93% were found (Viteousek and Manke, 1994). In this study, personality disorders were detected in 41.17% of ED patients, which is significantly higher than the control group. Methodologic differences, assessment tools, sample count, and sample characteristics may be reasons for different results.

Diagnoses of personality disorders in B or C groups were designated as axis II co-morbidity in ED in this study. In a study carried out with 545 participants and investigating personality disorder (PD) co-morbidity, A group PD co-morbidity was diagnosed in 1.7% of the patients, 9.9% in the B group and 17.1% in the C group. While avoidant PD was detected most frequently in 12.1% of the patients, borderline PD was detected in 6.2%, and OCD was detected in 3.5% (Godt, 2008). In another study, borderline PD, a B group PD, was

the most common co-morbidity with the ratio of 71% followed by avoidant PD, a group C PD with the ratio of 19.4% (Grilo et al., 1996). This study supports that group B and C PD are common in ED. Although this is the first study carried out in the general population in Turkey in order to evaluate ED prevalence, the sociodemographic and cultural characteristics of the Sivas province do not represent the general population of Turkey (Akbulut, 2007).

The education level of the participants being higher than mean education level of the Sivas province may have affected the prevalence of ED. This may have resulted from the limited enrollment of individuals aged between 18-44 years. No data could be obtained about the adolescents below 18 years, as they were not included in the study. Including only the subjects who are at their homes may have negatively affected the results. The homes were visited on the weekends so as to include the working individuals in the study. That an interview could not be made with 6 individuals (10.2%) out of the 59 suspected to have ED as the result of the first screening is another limitation of our study. Sociodemographic characteristics and psychiatric co-morbidities may have not been investigated sufficiently due to detecting a small number of (n=17) ED patients.

In conclusion, the prevalence of ED was 1.52% in the Sivas province, and the most common ED subtype was BED. Psychiatric co-morbidities are common in ED, and this should be taken into consideration for treatment. Large sample studies, including the different parts of the country and different age groups screening general population are needed in order to better evaluate ED in the Turkish population.

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