

## Association Between Eating Disorder Risk and Family Structure and Social Appearance Anxiety Among College Freshman

### ABSTRACT

**Objective:** Eating disorders can be described as continuous eating or eating-related behavior disorders that are detrimental to health or psychosocial function. The present study determines the association between eating disorder risk and family structure and social appearance anxiety among college freshman.

**Method:** This cross-sectional study was carried out among 683 freshman based on socio-demographic data, Eating Attitude Test, a Family Structure-System Assessment Device comprising 36 questions and a Social Appearance Anxiety Scale.

**Results:** A risk of eating disorders was identified in 10.2% of the participants. In the analysis, female gender ( $P = .013$ ), young age ( $P = .022$ ), presence of social appearance anxiety ( $P = .010$ ), and a negatively defined family structure ( $P = .022$ ) were found to increase the risk of eating disorders.

**Conclusions:** Family structures should be considered when screening for young people at risk of eating disorders.

**Keywords:** Feeding and eating disorders, Family, Anxiety Disorders

### Introduction

Eating disorders (EDs) are characterized by persistent disturbances to eating habits and can lead to impairments in both health and psychosocial functioning.<sup>1</sup> Early detection of EDs is important among college students aged 18-24, the age group in which mental illness is significant. Over time, unrecognized symptoms may become more frequent, severe, or persistent. If these symptoms are not recognized and treated, they can have lasting consequences on functionality, physical health, social relationships, and academic success of the students. They also have high levels of association with psychiatric comorbidity and highest mortality among all psychiatric disorders.<sup>2,3</sup> Although there is a lot of evidence showing the contribution of both biological and cultural factors that increase the risk of ED, such as personality and family environment, it has not been studied prospectively yet.<sup>4</sup> Previous studies have reported that a negative family environment or a low level of family functionality is common in patients with EDs.<sup>5,6</sup>

Obsessions with body images that can be nurtured in a negative family environment can also be a part of social appearance anxiety which is defined as "the fear that one will be evaluated negatively based on his or her appearance." Previous studies have shown that this anxiety is linked with social interaction anxiety, fear of negative evaluation and scrutiny, and also measures of negative body image that may link EDs to social anxiety disorders.<sup>7-9</sup>

This study aimed to evaluate the risk of EDs and investigate their association with family structure and social appearance anxiety among college freshman.



Ahmet Öztürk <sup>1</sup>

Gizem Limnili <sup>2</sup>

Mehtap Kartal <sup>2</sup>

<sup>1</sup>Family Medicine Clinic, Karaçoban Hospital, Erzurum, Turkey

<sup>2</sup>Department of Family Medicine, Dokuz Eylül University Medical Faculty, Izmir, Turkey

**Corresponding author:**

Ahmet Öztürk ✉ ahmetjadeit@gmail.com

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## Methods

The study sample was made up of freshman university students in Izmir, Turkey. In Turkey, becoming a university student may also mean leaving the home and family, and the act of leaving the parental home and starting to live independently from family is considered an important milestone of transition to adulthood.<sup>10</sup>

In the current literature, the risk of developing EDs has been reported in a range of 5-15% in this age group, and so a  $P$  value of .10, a  $q$  value of 0.90, and a  $d$  value of 0.02 were accepted for the sample size calculation with the formula  $n = N \cdot t^2 pq / d^2 (N - 1) + t^2 pq$ . The population size amounted to 2700 students, and the sample size was calculated as 655 according to this formula, where  $N$  is the number of individuals in target group,  $n$  is the number of individuals to be sampled,  $p$  is the occurrence frequency of the incident that is being reviewed,  $q$  is the non-occurrence frequency of the incident that is being reviewed (possibility of non-realization),  $t$  is the theoretical value found on the table  $t$  on a certain significance level, and  $d$  is the sampling error according to the occurrence frequency of the incident.

At the beginning of 2018-2019 academic year, the students who started studying at Dokuz Eylül University were randomly included in the study. The research data were collected by a questionnaire applied face-to-face, and students diagnosed with ED or who were under treatment were excluded. This study was approved by the ethics committee of the Dokuz Eylül University Medical Faculty (Date/Protocol Number: July 19, 2018/2018-18-41) and was conducted in accordance with the Declaration of Helsinki. Written informed consent was provided by all students, and in the case of those who were underage, also by their parents.

All students were briefed about the study, and participation was voluntary and a questionnaire was applied after their approval. The questionnaire included sociodemographic data, along with an Eating Attitude Test (EAT-40), a Family Structure-System Assessment Device (AYDA), and a Social Appearance Anxiety Scale (SAAS).

### Data Collection Tools

**Sociodemographic Data Form:** This form was prepared by the researchers based on the findings of previous studies about EDs, including their sociodemographic features such as age, sex, and medical information such as height and weight for body mass index (BMI) calculation, state of exercise, and presence of chronic disease in the respondents and their families.

**Eating Attitude Test-40:** The Eating Attitude Test (EAT) developed by Garner and Garfinkel<sup>11</sup> is a 40-item, self-rated scale that has proven to be effective in the measurement of disordered eating symptoms, with

an alpha coefficient of 0.94, demonstrating good internal consistency.<sup>12</sup> Eating Attitude Test-40 is used in a variety of cultures.<sup>13</sup> The validity and reliability study of the test in Turkey was performed by Savasir and Erol,<sup>14</sup> and a reliability coefficient of 0.70 was calculated.<sup>14,15</sup> Eating Attitude Test-40 is a 6-point Likert-type scale in which responses are rated from 1 (always) to 6 (never). The scores for each item differ from one another. The cut-off score of the scale was determined as 30, with scores above 30 indicating abnormal eating behavior, scores between 21 and 30 indicating moderate risk, and scores below 21 indicating low risk. The total score is the sum of all items.<sup>11</sup> Examples for the items are "I am terrified about being overweight," "I become anxious prior to eating," and "I feel foods control my life."

**Family Structure-System Assessment Device:** The Family Structure-System Assessment Device is a primary assessment device based on the Transformational Family Model. The device makes an overall evaluation of the psychological structures and systemic functioning of families in Turkey and was originally developed in Turkish for both empirical research purposes and clinical use. The device was developed with the aim to open the closed and neglected field of family to social research without compromising the privacy. It encourages the establishment of transformational and transformative links between a transdisciplinary perspective and psychological matters, and the individual/family/society in general.<sup>16,17</sup> The AYDA comprises 36 items in 5 subdimensions: communication, unity, management, competence, and emotional context, with responses given on a 10-point Likert-type scale, that is, from "similar to ours" to "opposite of ours." Each question has a response range of 1-5, with 180 being the highest possible score and 36 the lowest. The AYDA test-retest correlation coefficient was found to be 0.79, and its Cronbach's alpha was 0.70.<sup>16</sup> The Cronbach's alpha value of AYDA was found to be 0.83 in the present study.

The subdimensions of AYDA are as follows:

1. **Communication:** The first 9 questions of the scale are related to the functionality of communication within the family asked by questions such as "All kinds of issues and ideas are clearly discussed in our family."
2. **Unity:** This relates to familiarity, integrity, interpersonal, and external environments assessed by questions such as "The sense of solidarity and unity in our family is very strong."
3. **Management:** This relates to the structural organization in the family, decision-making, behavioral control, discipline, rules, norms, roles, and the flexibility of structural functioning assessed by questions such as "In our family, division of labor, duties for everyone and other rules are clearly evident." Cyclically, extreme flexibility, as well as extreme rigidity in family management, indicates that the overall harmony of the family system is negative.
4. **Competence:** This relates to problem-solving within the family, health, competence, and achievement of goals. It includes questions such as "Disruptions and conflicts encountered in our family are definitely resolved."
5. **Emotional context:** The last 5 questions of the scale assess the emotional atmosphere and advocacy in the family environment. For example, "We show each other enough love and affection."

**Social Appearance Anxiety Scale:** The SAAS has been developed to assess the anxiety associated with the negative evaluations of others

### MAIN POINTS

- *Students with a negative family structure according to Family Structure-System Assessment Device (AYDA) are at a higher risk of developing eating disorders.*
- *Children of overweight mothers have higher EAT scores indicating a risk of developing EDs.*
- *The risk of developing an ED increases as the age decreases.*
- *Social appearance anxiety is higher among those at the risk of developing an ED.*

of one's overall appearance, including body shape. Research into the psychometric properties of the SAAS has confirmed its high test-retest reliability and its good internal consistency (Cronbach's alpha 0.94) in college age samples. The Cronbach's alpha of the Turkish version of the SAAS was found to be 0.93.<sup>5,7</sup> The Cronbach's alpha value of SAAS was found to be 0.93 in the present study. The scale comprises 16 items, scored with a 5-point Likert-type scale ranging from "strongly disagree" to "strongly agree." The first item was coded reversely, while the other 15 items were coded in a normal direction. The scores range between 16 and 80, and higher scores indicate an increased level of social appearance anxiety.

### Statistical Analysis

In the present study, the presence of ED risk, determined according to the EAT-40 results, was defined as the dependent variable, while the independent variables which are thought to be associated with ED were age, gender, income level, socio-cultural level of the family, the parental education level, the presence of an overweight and/or psychologically ill person in the family, the interest of the person in exercise, the presence of chronic disease, and the SAAS and AYDA scores. The data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 22.0 (IBM SPSS Corp.; Armonk, NY, USA) package.

Descriptive statistical values were reported as mean and standard deviation for continuous variables and as number (n) and percentage (%) for categorical variables. Pearson's chi-squared and Fisher's exact tests were utilized (where appropriate) to identify any potential differences in ED risk based on their sociodemographic characteristics, and to the independent sample *t*-test was used to compare SAAS and AYDA scores of the students with or without ED risk. The odds ratio was calculated by a multivariate logistic regression analysis for the independent associations between significant variables (age, gender, overweight of the mother, family history of psychiatric illness, AYDA, and SAAS scores) and ED risk by entering all into the model as the first step. The removal of variables in the final model was achieved through a backward stepwise likelihood ratio test, based on significance testing. Hosmer-Lemeshow Test for logistic regression was used to assess the model fit. Statistical significance of  $P < .05$  was accepted for all analyses.

### Results

The mean age of the participants was 18.43 (0.86) years. Table 1 shows some of the characteristics of the students and their families.

Table 2 presents the scores of the participants for AYDA and SAAS. Based on the results of the 40-question EAT, 70 (10.2%) students with EAT scores of 30 and above were found to have an ED risk.

Table 3 shows the relationship between the risk of developing EDs and some characteristics of the student, SAAS and AYDA scores. A risk of ED was identified statistically higher in women (12.9%) than in men (7.1%) ( $P = .013$ ). Considering the association between the risk of ED and age, 17-year-old students were found to be statistically significant ( $P = .022$ ) more at risk than other age groups as 20.7% were at the risk of developing EDs.

The AYDA scores were found to be lower in the group having EDs risk, whereas it was statistically significant in total scores and Unity

and Emotional Context subscales ( $P = .022$ ,  $P = .041$ , and  $P = .020$ , respectively).

The mean score of SAAS was also statistically significantly higher in those at risk of developing EDs than in those without risk ( $P = .010$ ).

Table 4 shows a multivariate logistic regression analysis of the factors related to the risk of EDs. Age, gender, overweight mother, family history of psychiatric illness, and AYDA and SAAS scores were included in the logistic regression model analysis as they showed statistical significance in bivariate analysis with the risk of EDs. In terms of gender, the risk of developing EDs was 2.08 times higher in women than in men ( $P = .008$ ), while having overweight mother increased the risk by 3.65 times compared to the mother with normal weight ( $P = .037$ ). Every 1 point increase in the SAAS increased the EDs risk by 1.02 times ( $P = .013$ ), and every 1 point increase in AYDA reduced the EDs risk of the students by 0.98 times ( $P = .026$ ).

### Discussion

In this study, the risk of developing an ED was found to be more prevalent in females than in males, as reported in previous studies.<sup>18-20</sup> The risk of developing EDs varies according to the age group on which the study was conducted, the scale used, and the geographical and ethnic features, although studies show that the risk of developing EDs is higher in women.

As a striking finding of the present study, the risk of development of an ED increases as the age of the students decreases. Studies have shown that EDs usually occur during adolescence or early adulthood, while anorexia nervosa peaks at the age of 17-18. Furthermore, symptoms are more frequent and severe at younger ages.<sup>20-22</sup> The age and AYDA scores were not statistically significant; this may be due to the sample size of 17-year-olds, which was lower than other age groups. This is a limitation of the study. Nonetheless, in the present study, the risk of developing EDs by age is similar to that reported in the literature and shows the importance of questioning and recognizing EDs in these age groups. Studies conducted with university students found that the mean BMI of students at low risk of developing an ED was lower than those at high risk.<sup>19,22</sup> In the present study, BMI and EAT scores did not show this association. However, the children of overweight mothers were found to have high EAT scores, which may be related to a chaotic eating style at home. The presence of any ED symptoms in a non-clinical sample may be related to their mother's suboptimal parenting styles.<sup>23</sup> Another theme that could explain the relationship between the mother and the child within the family was social comparison. Since weight or size is an easy measure of contrast, this comparison between individuals may influence weight anxiety and preoccupation.<sup>24</sup> In the present study, social appearance anxiety was higher among those at the risk of developing an ED. In recent years, studies have been conducted to identify the factors associated with EDs. Rieger et al<sup>25</sup> reported that social appearance anxiety is associated with the symptoms of EDs and that those who emphasize physical appearance eat more irregularly. Koskina et al<sup>26</sup> stated that those diagnosed with EDs had higher social appearance anxiety than healthy controls. Again, in a study of university students in the United States, binge eating disorder was found to be associated with social anxiety and appearance anxiety, and a significant

**Table 1. Some Characteristics of the Students and Their Families**

	n (%)
Gender	
Female	373 (54.61)
Male	310 (45.39)
Age	
17	58 (8.49)
18	363 (53.15)
≥19	262 (38.36)
Faculties	
Maritime	52 (7.61)
Science	43 (6.30)
Law	105 (15.37)
Architecture	53 (7.76)
Engineering	214 (31.33)
Management	73 (10.69)
Literature	143 (20.94)
Living with	
Parents	661 (96.78)
Relative	9 (1.32)
Other	13 (1.90)
Exercising	
Yes, not regularly	369 (54.03)
Yes regularly	127 (18.59)
No	187 (27.38)
BMI	
Low	110 (16.11)
Normal	467 (68.37)
Overweight	90 (13.18)
Obese	16 (2.34)
Chronic disease	
Yes	69 (10.10)
No	614 (89.90)
Mother education status	
Middle school or low	288 (42.17)
High school	206 (30.16)
University	189 (27.67)
Father education status	
Middle school or low	210 (30.75)
High school	200 (29.28)
University	273 (39.97)
Parents alive	
Both	650 (95.17)
Mother alive	24 (3.51)
Father alive	9 (1.32)
Parents living	
Together	580 (84.92)
Separated	70 (10.25)
Family type	
Nuclear	545 (79.80)
Extended	35 (5.12)
Single-parent	103 (15.08)
Person at home	
2	34 (4.98)
3	165 (24.16)

	n (%)
4	304 (44.51)
≥5	180 (26.35)
Sibling	
None	86 (12.59)
1	347 (50.81)
2	139 (20.35)
≥3	111 (16.25)
Income of family	
Low	85 (12.45)
Middle	467 (68.37)
High	131 (19.18)
Overweighed mother	
Yes	89 (13.03)
No	594 (86.97)
Overweighed father	
Yes	82 (12.01)
No	601 (87.99)
Overweighed sibling	
Yes	31 (4.54)
No	652 (95.46)

BMI, body mass index.

relationship was found between perfectionism and nutritional restriction in these students.<sup>27</sup>

Family relationships, sharing, and parental character traits and their approaches to their children all affect the future of the children. Overprotective parents, parents who maintain distant relationships with their children, and parents who prefer emotional distance can affect their children's eating behaviors in different ways. In some families, children may feel alone, rejected, and misunderstood by their families and so try to establish a mechanism through which they can prove themselves and gain approval through their physical attributes.<sup>28</sup> The students found to be at the risk of developing an ED recorded lower total scores in the AYDA. In other words, the family structure of those having EDs risk was found to be more negative than those not at such a risk. The AYDA total and subscales mean scores of students with EDs risk are lower than those without such a risk; this indicates that they perceive their family relationships more negatively, which is found significant in the mean scores of AYDA Unity and Emotional Context subscales. The relatively low average

**Table 2. AYDA and SAAS Scores of the Students**

	Mean (SD)	Min-Max
AYDA total	131.858 (17.858)	51-178
AYDA subgroups		
Communication	32.887 (6.984)	11-45
Unity	29.590 (4.389)	9-44
Management	30.048 (5.312)	10-40
Competence	21.521 (3.940)	5-25
Emotional context	17.811 (3.337)	5-25
SAAS	31.222 (12.325)	16-79

AYDA, The Family Structure-System Assessment Device; SAAS, Social Appearance Anxiety Scale; SD, standard deviation.

**Table 3. Relationship Between the Risk of Developing Eating Disorders, and Some Characteristics of the Student, SAAS and AYDA Scores**

	Eating Disorder Risk		P
	Yes n (%)	No n (%)	
Gender			
Male	22 (7.10)	288 (92.90)	.013
Female	48 (12.87)	325 (87.13)	
Age			
17	12 (20.69)	46 (79.31)	.022
18	35 (9.64)	328 (90.36)	
≥19	23 (8.78)	239 (91.22)	
BMI			
Low	12 (10.91)	98 (89.09)	.296
Normal	42 (8.99)	425 (91.01)	
Overweight	14 (15.56)	76 (84.44)	
Obese	2 (12.50)	14 (87.50)	
Exercising			
Yes, not regularly	33 (8.94)	336 (91.06)	.077
Yes, regularly	20 (15.75)	107 (84.25)	
No	17 (9.09)	170 (90.91)	
Overweighed family member			
Mother (+)	16 (17.98)	73 (82.02)	.010
Mother (-)	54 (9.09)	540 (90.91)	
Father (+)	10 (12.20)	72 (87.80)	.536
Father (-)	60 (9.98)	541 (90.02)	
Sibling (+)*	3 (9.68)	28 (90.32)	1.000
Sibling (-)*	67 (10.28)	585 (89.72)	
	<b>Mean (SD)</b>	<b>Mean (SD)</b>	
AYDA total	125.84 (23.295)	132.544 (17.017)	.022
AYDA subgroups			
Communication	31.06 (8.59)	33.10 (6.75)	.058
Unity	28.19 (6.13)	29.75 (4.12)	.041
Management	29.13 (5.99)	30.15 (5.22)	.126
Competence	20.76 (4.68)	21.61 (3.84)	.087
Emotional context	16.71 (4.18)	17.94 (3.21)	.020
SAAS	35.49 (14.51)	30.74 (11.96)	.010

\*Fischer’s exact test was used.

BMI, body mass index; AYDA, The Family Structure-System Assessment Device; SAAS, Social Appearance Anxiety Scale; SD, standard deviation.

score in the AYDA Unity subscale indicates that students at the risk of developing EDs perceive their families as either over-integrated or extremely disconnected. The lower mean Emotional Context

**Table 4. The Multivariate Logistic Regression Analysis of Factors Related to the Risk of Eating Disorders**

	Odds Ratio (95% CI)	P
Gender (reference group male)	2.08 (1.21-3.57)	.008
Mother (reference group normal weight)	3.65 (1.04-3.65)	.037
SAAS	1.02 (1.01-1.04)	.013
AYDA	0.98 (0.97-0.99)	.026

AYDA, The Family Structure-System Assessment Device; SAAS, Social Appearance Anxiety Scale.

scores show that those at the risk of developing EDs find their families to be less constructive and supportive and perceive the love and peace environment in their families relatively less than those who do not have the risk of developing EDs. In a study conducted by Tozzi et al<sup>29</sup> involving people diagnosed with EDs, 34% of the sample stated the presence of someone with an ED in their family structure and ranked this situation in first place as the cause of their disease.<sup>29</sup> In addition, Kugu et al<sup>30</sup> showed that students diagnosed with EDs perceived family functions as more problematic.<sup>30</sup>

In previous studies, familial structure disorder was reported in those diagnosed with EDs, but it was not investigated in those who were at the risk of developing EDs, as in our study. The fact that individuals at the risk of developing EDs also experienced problems in their family structures and family dynamics was found to play a role in the emergence of risky attitudes and behaviors related to EDs.

Our study has some limitations. First, due to the nature of the cross-sectional study design, it contained no evidence of a temporal relationship between exposure and outcome because they were evaluated concurrently. Second, it cannot represent the entire university student population. Finally, the scales used are self-reports that may bias students objectively.

Recent studies have highlighted the problem of EDs on university campuses. The majority of them found a greater increase in prevalence than the general population.<sup>22</sup> Family relationships should be questioned when assessing young people for EDs. In addition, there is a need for further studies that include the thoughts of their parents about their family structures, along with intervention studies showing the effect of family therapies on the impaired eating attitudes and behaviors identified in these families.

Eating disorders have been subjected to considerable number of studies in recent years, and their frequency is increasing. Given the potential to affect young people at every socioeconomic level, these disorders can be linked to many factors. The relationship between EDs and the family structure should be kept in mind, and individuals at risk should be evaluated as a whole with their families. In addition, the social appearance concerns of young people should be evaluated appropriately, and the relationship between eating attitudes and anxiety should be noted.

**Ethics Committee Approval:** Ethics committee approval was received from the Non-invasive Research Ethics Committee of Dokuz Eylül University (Date/Protocol Number: July 19, 2018/2018-18-41).

**Informed Consent:** Written informed consent was obtained from all participants who participated in this study.

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## References

1. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. 5th ed (DSM-5). Arlington, VA: American Psychiatric Association; 2013.
2. Yeo M, Hughes E. Eating disorders: early identification in general practice. *Aust Fam Physician*. 2011;40(3):108-111.
3. Fitzsimmons-Craft EE, Karam AM, Monterubio GE, Taylor CB, Wilfley DE. Screening for eating disorders on college campuses: a review of the recent literature. *Curr Psychiatry Rep*. 2019;21(10):101. [\[CrossRef\]](#)
4. Striegel-Moore RH, Bulik CM. Risk factors for eating disorders. *Am Psychol*. 2007;62(3):181-198. [\[CrossRef\]](#)
5. Milos G, Spindler A, Schnyder U, Martz J, Hoek HW, Willi J. Incidence of severe anorexia nervosa in Switzerland: 40 years of development. *Int J Eat Disord*. 2004;35(3):250-258. [\[CrossRef\]](#)
6. Dancyger I, Fornari V, Scionti L, Wisotsky W, Sunday S. Do daughters with eating disorders agree with their parents' perception of family functioning? *Compr Psychiatry*. 2005;46(2):135-139. [\[CrossRef\]](#)
7. Hart TA, Flora DB, Palyo SA, Fresco DM, Holle C, Heimberg RG. Development and examination of the social appearance anxiety scale. *Assessment*. 2008;15(1):48-59. [\[CrossRef\]](#)
8. Doğan T. Adaptation of the Social Appearance Anxiety Scale (SAAS) to Turkish: a validity and reliability study [Turkish]. *Hacettepe Univ J Educ*. 2010;39:151-159.
9. Levinson CA, Rodebaugh TL. Social anxiety and eating disorder comorbidity: the role of negative social evaluation fears. *Eat Behav*. 2012;13(1):27-35. [\[CrossRef\]](#)
10. Koc I. The timing of leaving parental home and its relationship with other life course events in Turkey. *Marriage Fam Rev*. 2007;42(1):15-22.
11. Garner DM, Garfinkel PE. The eating attitudes test: an index of the symptoms of anorexia nervosa. *Psychol Med*. 1979;9(2):273-279. [\[CrossRef\]](#)
12. Loeb KL, Brown M, Goldstein MM. Assessment of eating disorders in children and adolescents. In: Grange DL, Lock J, eds. *Eating Disorders in Children and Adolescents: A Clinical Handbook*. NY: Guilford Press; 2011:156-199.
13. Garfinkel PE, Newman A. The Eating Attitudes Test: twenty-five years later. *Eat Weight Disord*. 2001;6(1):1-24. [\[CrossRef\]](#)
14. Savasir I, Erol N. Eating Attitudes Test: anorexia nervosa symptoms index. *J Psychol*. 1989;7:19-25.
15. Elal G, Altug A, Slade P, Tekcan A. Factor structure of the Eating Attitudes Test (EAT) in a Turkish university sample. *Eat Weight Disord*. 2000;5(1):46-50. [\[CrossRef\]](#)
16. Gülerce A. *AYDA: Family Structure Assessment Device: The Manual and the Turkish Norms*. Istanbul: Alphagraphics; 1992.
17. Demirel H, Erdamar G. Family structure and family ties depending on generation. In: Rata G, Arslan H, Runčan P, Akdemir A, eds. *Interdisciplinary Perspectives on Social Sciences*. 1st ed. Newcastle, UK: Cambridge Scholars Publishing; 2014:251-260.
18. Büyükgöze-Kavas A. Eating attitudes and depression in a Turkish sample. *Eur Eat Disord Rev*. 2007;15(4):305-310. [\[CrossRef\]](#)
19. Şanlıer N, Yabancı N, Alyakut O. An evaluation of eating disorders among a group of Turkish university students. *Appetite*. 2008;51(3):641-645. [\[CrossRef\]](#)
20. Tozun M, Unsal A, Ayranç U, Arslan G. Prevalence of disordered eating and its impact on quality of life among a group of college students in a province of west Turkey. *Salud Publica Mex*. 2010;52(3):190-198. [\[CrossRef\]](#)
21. Rowa K, Kerig PK, Geller J. The family and anorexia nervosa: examining parent-child boundary problems. *Eur Eat Disorders Rev*. 2001;9(2):97-114. [\[CrossRef\]](#)
22. Fitzsimmons-Craft EE, Balantekin KN, Eichen DM, et al. Screening and offering online programs for eating disorders: reach, pathology, and differences across eating disorder status groups at 28 U.S. universities. *Int J Eat Disord*. 2019;52(10):1125-1136. [\[CrossRef\]](#)
23. Haycraft E, Blissett J. Eating disorder symptoms and parenting styles. *Appetite*. 2010;54(1):221-224. [\[CrossRef\]](#)
24. Goodman JR. Mapping the sea of eating disorders: a structural equation model of how peers, family, and media influence body image and eating disorders. *Vis Commun Q*. 2005;12(3-4):194-213. [\[CrossRef\]](#)
25. Rieger E, Van Buren DJ, Bishop M, Tanofsky-Kraff M, Welch R, Wilfley DE. An eating disorder-specific model of interpersonal psychotherapy (IPT-ED). Causal pathways and treatment implications. *Clin Psychol Rev*. 2010;30(4):400-410. [\[CrossRef\]](#)
26. Koskina A, Van Den Eynde F, Meisel S, Campbell IC, Schmidt U. Social appearance anxiety and bulimia nervosa. *Eat Weight Disord*. 2011;16(2):e142-e145. [\[CrossRef\]](#)
27. Brosio LC, Levinson CA. Social appearance anxiety and dietary restraint as mediators between perfectionism and binge eating: A six month three wave longitudinal study. *Appetite*; 2017(1);108:335-342. [\[CrossRef\]](#)
28. Call CC, Attia E, Walsh BT. Feeding and eating disorders. In: Sadock B, Sadock V, Ruiz P (eds.) *Kaplan and Sadock's Comprehensive Textbook of Psychiatry*. 10th ed. Philadelphia, USA: Lippincott Williams & Wilkins; 2017:5285-5330.
29. Tozzi F, Sullivan PF, Fear JL, McKenzie J, Bulik CM. Causes and recovery in anorexia nervosa: the patient's perspective. *Int J Eat Disord*. 2003;33(2):143-154. [\[CrossRef\]](#)
30. Kugu N, Akyuz G, Dogan O, Ersan E, Izgic F. The prevalence of eating disorders among university students and the relationship with some individual characteristics. *Aust N Z J Psychiatry*. 2006;40(2):129-135. [\[CrossRef\]](#)