



**INVESTIGATION OF THE DISEASE-AFFECTING FACTORS IN ADOLESCENTS WITH EATING DISORDERS  
 YEME BOZUKLUĞU OLAN ERGENLERDE HASTALIĞI ETKİLEYEN FAKTÖRLERİN ARAŞTIRILMASI**

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**ABSTRACT**

This study was designed to investigate peer bullying, psychological issues, and dissociative behavior, which are some of the factors that may influence the condition in adolescents with eating disorders. The study consists of persons diagnosed with eating disorders (ED) (n:29) and undiagnosed adolescents (n:52). In collecting the data, the sociodemographic characteristics form, the Eating Attitudes Test (EAT-40) scale, the Peer Bullying Identification Scale, the Strengths and Difficulties Questionnaire (SDQ), and the Adolescent Dissociative Experiences Scale (ADES) were used to provide extensive literature support for the field. Eighty percent of the ED group had anorexia, while twenty percent had bulimia. The eating attitudes of adolescents in the ED group were substantially higher than those in the control group ( $Z: -3.947$ ,  $p < 0.05$ ). At the same time, the differences in the victim and bully sub-dimensions of the peer bullying identification scale were not statistically significant ( $p > 0.05$ ). The EAT-40 showed a strong positive correlation with the total score of the SDQ and the SDQ-Peer sub-dimension ( $r: 0.700$ ,  $r: 0.642$ ,  $p < 0.01$ ). A substantial correlation was also found between the EAT-40 and the total score of the ADES ( $r = 0.442$ ,  $p < 0.05$ ), although no strong correlation with peer bullying was established. This study highlights the impact of dissociative experiences and behavioral and emotional problems on eating attitudes in adolescents. Factors influencing the severity of the disorder should be considered in the ED treatment. These factors should be considered when establishing treatment protocols for adolescents with eating disorders. Furthermore, health professionals should engage in the treatment by offering awareness training to families.

**Keywords:** Adolescents, eating problems, emotional problems, peer bullying.

**ÖZ**

Bu çalışma, yeme bozukluğu olan ergenlerde durumu etkileyebilecek faktörler arasında olan akran zorbalığı, ruhsal sorunlar ve dissosiyasyon davranışları araştırmak amacıyla tasarlanmıştır. Bu çalışmayı yeme bozukluğu (YB) tanısı alan (n:29) ve almayan (n:52) ergenler oluşturmuştur. Verilerin toplanmasında sosyodemografik özellikler bilgi formu ve Yeme Tutum Testi (EAT-40) Ölçeği, Akran Zorbalığını Tanımlama Ölçeği, Güçlü Yönler ve Zorluklar Anketi (SDQ) ve Ergen Dissosiyatif Deneyimleri Ölçeği (ADES) alana literatür desteği sağlamak için kullanılmıştır. YB grubunun %80'inde anoreksiya ve %20'sinde bulimia vardı. YB grubundaki hastaların yeme tutumları kontrol grubuna göre anlamlı düzeyde yüksek bulunurken ( $Z: -3.947$ ,  $p < 0.05$ ), akran zorbalığını tanımlama ölçeğinin mağdur ve zorba alt boyutlarında istatistiksel olarak anlamlı değildi ( $p > 0.05$ ). YBT-40'nın SDQ toplam puanı ve SDQ-Akran sorunları alt boyutu ile pozitif yönde yüksek düzeyde korelasyon gösterdiği belirlendi ( $r: 0.700$ ,  $r: 0.642$   $p < 0.01$ ). YBT-40 toplam puanı ile ADES toplam puanı arasında anlamlı bir korelasyon mevcuttu ( $r = 0.442$ ,  $p < 0.05$ ) ve akran zorbalığı ile güçlü bir korelasyon bulunmadı. Çalışma, dissosiyatif deneyimlerin ve davranışsal ve duygusal sorunların ergenlerde yeme tutumları üzerindeki etkisini göstermektedir. Yeme bozukluklarının tedavisinde bozukluğun şiddetini etkileyen faktörler dikkate alınmalıdır. Yeme bozukluğu olan ergenlere yönelik tedavi protokolleri belirlenirken bu faktörler dikkate alınmalıdır. Ayrıca sağlık profesyonellerinin de ailelere farkındalık eğitimleri vererek tedavinin bir parçası olmaları gerekmektedir.

**Anahtar kelimeler:** Adolesanlar, yeme bozukluğu, duygusal sorunlar, akran zorbalığı.

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## INTRODUCTION

Eating disorders (ED) are prevalent mental health conditions associated with psychological and physical issues, as well as increased mortality rates.<sup>1</sup> ED is categorized into eight subgroups based on the DSM-5 diagnostic classification system. Among these, anorexia nervosa, bulimia nervosa, and eating disorders are psychiatric conditions that frequently occur in adolescents and can lead to severe health issues. This can be attributed to various environmental, social, psychological, and biological factors.<sup>2,3</sup> ED affect daily life and can lead to psychological issues. Consequently, they may pose significant public health concerns.<sup>4</sup> Researches indicates that adolescents are more prone to developing eating disorders compared to adults.<sup>5</sup> The onset of eating disorders usually coincides with adolescence. This stage is a difficult time marked by numerous physical, cognitive, emotional, and social changes. Unhealthy eating habits are quite common among adolescents who are trying to adjust to these changes while also managing the challenges that arise during this period.<sup>2,5</sup> One factor that influences ED is bullying peers.<sup>3</sup> The rate of peer bullying among adolescents is increasing.<sup>2</sup> Research shows that 30% of adolescents worldwide experience bullying from their peers during adolescence. Peer bullying intensifies intentional aggression, including physical violence and social exclusion. In adolescence, close friendships become significantly important, as teenagers influence each other's lifestyles and viewpoints. Numerous studies highlight the lasting negative impacts of peer bullying, particularly concerning mental health.<sup>6</sup> Nevertheless, there is limited research investigating the connection between peer bullying and eating disorders.<sup>3,6</sup> Emotional issues and dissociative experiences are also acknowledged as factors that influence eating attitudes.<sup>7</sup> While dissociation is generally defined as "a deterioration" of emotional and behavioral characteristics, it remains a common phenomenon in society. Numerous studies have emphasized the impact of a dissociative state on eating disorders.<sup>8</sup> In recent years, studies have indicated that traumatic experiences and dissociative phenomena can significantly contribute to the development of eating disorders.<sup>4,9</sup> A review of the literature in this field highlights a shortage of research focused on investigating impaired or disordered eating behaviors in adolescents and the factors that influence them. Although the number of studies on eating disorders has been increasing in Türkiye, research illustrating the connection between peer bullying, dissociative disorders, and disordered eating attitudes remains limited in the country.<sup>10</sup>

Given this knowledge gap, studies investigating the relationship between bullying and eating behaviors during adolescence are essential for initiating early interventions and preventing the onset of these disorders. Therefore, this study aims to explain the connections among peer bullying, mental health issues, dissociation, and disordered eating behaviors in adolescents with eating disorders.

## MATERIALS AND METHODS

This cross-sectional study depends on the

Strengthening the Reporting of Observational Studies (STROBE) case-control studies standards. Before the study, the necessary permission was obtained from the Clinical Research Ethics Committee of Istanbul University, where the study would be conducted (Date: 14.06.2022, E-29624016-050.99-932942). After that adolescents and their parents filled out an 'Informed Voluntary Consent Form' and they were involved in the study.

### Sample

The research sample of this study included adolescents who visited the department of child and adolescent psychiatry outpatient clinics of a university hospital. To determine the research sample size of our study, a priori G\*Power 3.1.7 analysis was performed. In this context, with the two groups, the t-tests yielded a margin of error of 5%, a confidence interval of 80%, and a minimum sample size of 26 adolescents from each group in the study, given an effect size of 0.8.<sup>11</sup> The ED group (n:29) consisted of all adolescents who visited outpatient clinics between July 2022 and December 2022 provided the selection criteria, and accepted to join the study. The control group (n:52) consisted of adolescents of similar age without chronic disease who applied to the outpatient clinics for routine examination. A case-control design was chosen to examine potential risk factors.

### Inclusion and Exclusion Criteria

The ED group's participants were followed up with ED (Anorexia and Bulimia Nervosa). The faculty members of the Department of Child and Adolescent Psychiatry diagnosed this group based on the DSM-5 diagnostic criteria. The other inclusion criteria were for the ED group: age among the ages of 12 and 18 years, who were able to read and write in Turkish, and who did not have a diagnosis of intellectual disability, active psychotic-manic episodes, or a history of substance abuse and parental permission for adolescents (completed the informed consent form). Adolescents with any diagnosed inflammatory bowel disease and metabolic syndrome were also removed from the ED group.

The control group consisted of adolescents from outpatient clinics for Child Health and Diseases, aged 12 to 18, who had no previous diagnosis of an eating disorder, could read and write in Turkish, and had no diagnosis of intellectual disability, active psychotic or manic episodes, or a history of substance abuse. Adolescents diagnosed with any inflammatory bowel disease or metabolic syndrome were also excluded from the control group.

### Data Collections Tools

**Socio-Demographic Information Form:** It contains of 14 questions prepared by the researchers. It includes sociodemographic information such as gender, age, grade, number of siblings, and parental education level.

**Eating Attitude Test (EAT-40):** This scale consists of 40 items replied on a 6-point Likert scale. It was refined by Garner and Garfinkel to find adolescents with ED and to measure the symptoms of ED.<sup>12</sup> In Türkiye, this scale was translated into Turkish by Savaşır and Erol. The possible score range is 0-120. The cut-off score for abnormal eating attitudes is 30.<sup>13</sup>

**Peer Bullying Identification Scale:** This scale determines school children being targeted by peer

bullying.<sup>14</sup> The "Peer Bullying Identification Scale" was adapted into Turkish by Gültekin and Sayıl and it involves 28 items.<sup>15</sup>

**Adolescent Dissociative Experiences Scale (ADES):** It was enhanced by Armstrong and colleagues to detect dissociative symptoms in adolescents.<sup>16</sup> It consists of 30 statements designed to assess dissociative experiences. The overall ADES is obtained by summing the points gained from 30 items and splitting by the number of items. A score of three and above is considered significant for dissociative symptoms.<sup>17</sup>

**Strengths and Difficulties Questionnaire (SDQ):** Developed by Goodman R. this tool assesses behavioral and emotional issues.<sup>18</sup> Its Turkish adaption progress was conducted by Güvenir et al.<sup>19</sup> The SDQ includes of 25 questions that evaluate emotional and behavioral characteristics. The scale is divided into five subscales, each containing five questions. According to the scale, students with a total emotional-behavioral issues point between 0-13 are conceived "normal" in terms of emotional-behavioral issues, those with scores between 14-16 are conceived "borderline" and students with a score between 17-40 are conceived "abnormal" in terms of emotional-behavioral issues.<sup>20</sup>

#### Statistical Analysis

Statistical calculations were performed with IBM SPSS Statistics, Version 25.0 (SPSS INC., Chicago, IL, USA). The normality presumption of variables was determined by the Shapiro-Wilk test. Categorical variables were indicated as frequency (%). Other variables were indicated as mean $\pm$ SD, median, and range. Comparisons between two groups in categorical variables were tested with Chi-Square and Fisher Exact tests. Checking among two groups in continuous variables were

performed with the Mann-Whitney U test and student T-test. The Spearman correlation test was chosen to analyze the level of correlation between two continuous variables. Results were measured at a 95% confidence interval, and significance was evaluated at  $p < 0.05$ .

## RESULTS

### Demographic Characteristics

The research sample comprised of 29 adolescents in the ED group and 52 adolescents in the control group, 80% of the patients were diagnosed with anorexia and 10% had been hospitalized at least once before. 14% of the ED group remained under supervision and 62% reported experiencing nausea and vomiting. The difference among the groups was statistically remarkable in nausea/vomiting and Mother's Mental Problem variables ( $p < 0.05$ ). There was no statistical importance in hospitalization status, sex, income status, and School Success variables in the two groups ( $p > 0.05$ ). The mean age of the ED group was 15.57 (11-18) and the control group's was 13.71 (12-17) years (Table 1).

### Mean Scores and Comparisons Between Groups

The total ADESp points of the ED group were significantly higher than those of the control group (Figure 1). The mean SDQ score of the ED group was  $54.7 \pm 24.40$  points, indicating the presence of an eating disorder. In the assessing SDQ-Total scores, a score between 17-40 is classified as "abnormal" in terms of emotional-behavioral issues (20). The mean SDQ-Total score of the ED group was  $18.34 \pm 7.06$  points, which was also determined as abnormal. It was observed that the eating attitudes of the patients in the ED group were dramatically more pronounced than those in the control

**Table 1.** Characteristics of the case and control groups

Groups Variables	Case n:29 n	%	Control n:52 N	%	Chi Square	p*
<b>Diagnosis</b>						
Anorexia	23	80	-	-	-	-
Bulimia	6	20	-	-		
<b>Hospitalization status</b>						
Yes	3	10	3	6		
No	26	90	49	94	0.568	0.661
<b>Nausea and Vomiting</b>						
Yes	18	62	3	6		
No	11	38	49	94	27.866	<0.001
<b>Sex</b>						
Boy	4	14	16	31		
Girl	25	86	36	69	2.045	0.153
<b>Mother's Mental Problem</b>						
Yes	6	21	0	0	100	0.001
No	23	79	52			
<b>Income status</b>						
Below min wage	5	17	17	33		
Above min wage	24	83	35	67	1.533	0.216
<b>School Success</b>						
Good	8	27	26	50		
Middle/not good	21	73	26	50	2.975	0.085
<b>Variables</b>	<b>Median</b>	<b>Min-Max</b>	<b>Median</b>	<b>Min-Max</b>	<b>Test</b>	<b>p*</b>
Age	15.57	11-18	13.71	12-17	-2.738	0.006
BMI	19.30	13-31	19.88	15-32	-0.764	0.445
Year of diagnosis	1.71	1-4	-	-	-	-

\*Mann-Whitney U test

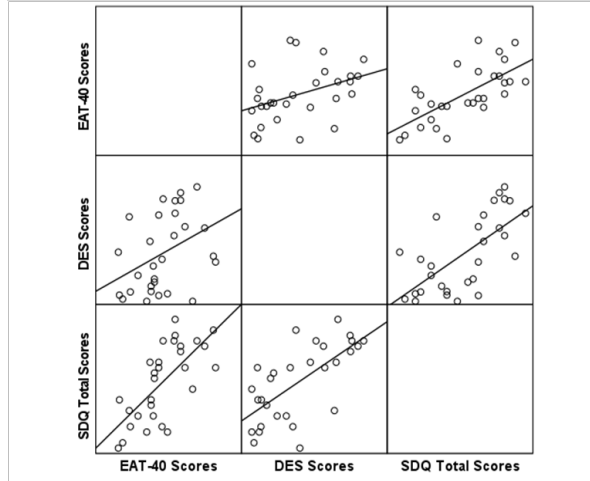


Figure 1. Relations between scale scores

group ( $Z=-3.947$ ,  $p<0.05$ ), and the sub-dimension of SDQ scale related to Emotional problems was significantly higher than the control group ( $Z=2.855$ ,  $p=0.007$ ). However, no statistically significant differences were found in the victim and bully sub-dimensions of the peer bullying identification scale ( $Z=-1.222$ ,  $Z=-1.442$ ,  $p>0.05$ ) (Table 2).

#### The Analysis of the EAT and the SDQ Scale for the ED Group

The EAT-40 strongly correlated with the overall SDQ score and the SDQ Peer Problems subscale ( $r=0.700$ ,  $r=0.642$ ,  $p<0.001$ ). A significant correlation was also found between the total score of the EAT-40 and the overall score of the ADES ( $r=0.442$ ,  $p<0.05$ ). In contrast, no correlation was observed with peer bullying (Table 3).

#### DISCUSSION

The impact of dissociative experiences, along with behavioral and emotional issues, on adolescents' eating attitudes is significant today. As a result, eating disorders are common among adolescents. This may also relate to the sociodemographic characteristics of families.<sup>21</sup> Research confirms that relationships among family members play a very important role in the emergence of dysfunctional ED in adolescence.<sup>22,23</sup> Chronis et al. stated that the rate of anxiety disorders in mothers of children with psychiatric diagnoses was 23.3%. When the groups were compared, it was found that the mothers in the ED group had known psychiatric disorders in our study. Studies also show that nearly two-thirds of the adolescents who applied to the hospital care were firstborns in their families. In our study, 65% of the children in the ED group were also the firstborn in their families. These findings align with previous studies, highlighting that firstborns are particularly affected.<sup>24,25</sup>

Eating disorders were found to be associated with childhood emotional abuse experiences and dissociation mediated this connection.<sup>26</sup> Research has shown that more bullying of adolescents with eating disorders may have a facilitating effect on dissociation.<sup>7</sup> This stress experienced by the adolescent negatively affects dissociative experiences.<sup>27,28</sup> Studies have found a positive relationship between the number of episodes of uncontrolled binge eating and dissociative experiences.<sup>4,8</sup> In our study, a strong correlation was established between symptom severity and Dissociative Experiences in the ED group ( $p<0.05$ ). It was also discovered that the mean points of Adolescent Dissociative Experiences in the ED group were higher than those of healthy children. All this proof is in line with the literature. One additional relevant

Table 2. ADES, EAT-40, Peer bullying and SDQ scale score averages and comparisons

Scales	Case (n=29)		Control (n=52)		Test	p
	Median/ Mean $\pm$ SD	Min-Max	Median/ Mean $\pm$ SD	Min-Max		
ADES	118.20	7-263	81.37	3-249	1.522**	0.128
EAT	54.40	14-103	20.56	4-59	-3.947**	<b>&lt;0.001</b>
Peer Bullying						
Peer victim	8.17	0-30	7.71	0-37	1.222**	0.222
Peer bully	2.87	0-20	2.39	0-15	1.442**	0.149
SDQ						
Emotional Problems	6.10 $\pm$ 2.60	1-10	4.30 $\pm$ 2.76	0-10	2.855*	<b>0.005</b>
Behavior Problems	4.00	0-7	2.50	0-13	-1.659**	0.097
AttentionDeficit/Hyperactivity	5.31 $\pm$ 2.34	0-9	4.48 $\pm$ 2.10	0-9	1.630*	0.107
Peer Problems	4.00	0-7	4.00	0-10	-0.195**	0.845
SDQ-Total	18.34 $\pm$ 7.06	6-30	15.30 $\pm$ 6.90	3-35	1.867*	0.079

\*Student t test, \*\*Mann-Whitney U Test

Table 3. Relationship between EAT-40 and SDQ, ADES and Peer Bullying for the case group

EAT	rho	P
<b>ADES, SDQ and Peer Bullying</b>		
ADES	<b>0.442</b>	<b>0.016</b>
SDQ-Total	<b>0.700</b>	<b>&lt;0.001</b>
SDQ- Emotional Problems	<b>0.681</b>	<b>&lt;0.001</b>
SDQ-Behavior Problems	<b>0.615</b>	<b>&lt;0.001</b>
SDQ- Attention Deficit/Hyperactivity	0.325	0.086
SDQ-Peer Problems	<b>0.642</b>	<b>&lt;0.001</b>
Peer victim	-0.001	0.997
Peer Bullying	0.007	0.972



proofindicates the presence of childhood traumas in adolescents with ED.<sup>29,30</sup> Studies have demonstrated that dissociative symptoms tend to be prevalent among teenagers who have encountered abuse and undergone traumatic experiences, particularly within the realm of familial relationships at home. It is also known that people exposed to violence in childhood have low academic achievement.<sup>7</sup> We observed that the level of dissociative experiences was high and school achievement was same in the ED group. When these findings are evaluated together, it suggests that as dissociative symptoms increase, this may cause a decrease in academic achievement.<sup>31</sup> Therefore a deeper understanding of the interaction between the reasons behind the development of ED and dissociative experiences may help reduce the risk of ED among adolescents.<sup>4</sup> Interventions aimed at increasing the level of mindfulness of adolescents to help them tolerate negative effects and prevent dissociation are of great importance.<sup>8</sup>

Adolescents face significant emotional challenges due to the difficulties they encounter during their growth and development. In this context, anxiety, depression, and stress are viewed as critical factors in diagnosing eating disorders among adolescents.<sup>27</sup> Research indicates that the prevalence of disordered eating attitudes increases among adolescents as a way to cope with anxiety and stress.<sup>28</sup> When evaluating the responses to the questions regarding the SDQ scale, the ED group was classified as "abnormal." Within the group diagnosed with eating disorders, a significant correlation was found between symptom severity and SDQ sub-dimensions (excluding hyperactivity), as well as with the total score ( $p < 0.05$ ). The strong positive correlation between the EAT-40 and the SDQ total score also indicated that adolescents involved in the disease process were psychologically impacted (Figure 1). Therefore, this study concludes that eating attitude disorder in adolescents is affected by emotional problems.

Research indicates that female adolescents experience more emotional challenges and difficulties than their male counterparts. Most young women in our group probably contributed to this outcome. Cultivating and maintaining positive peer relationships, engaging in healthy lifestyles, achieving academic success, and pursuing other interests are advantageous for teenagers during their adolescent years.<sup>32</sup>

Based on the analysis above, it is evident that peer bullying can lead to the development of ED symptoms in both the perpetrators and the targets. Numerous research studies have shown that issues in peer interactions can create challenges. Contrary to common assumptions, our research reveals that peer bullying affects both the bullies and the victims. However, no significant correlation was found between peer bullying and eating attitude disorders across the dimensions of bullying ( $p > 0.05$ ). This outcome may stem from the limited sample size used in our study.

As a result, issues related to eating attitudes are common among adolescents seeking care at child and adolescent psychiatry outpatient clinics. Research indicates that emotional problems and dissociative experiences influence the prevalence of eating disorders in this group. The challenges that adolescents face

during this period can have lasting consequences. Therefore, healthcare professionals have to play crucial roles and bear significant responsibilities in alleviating these effects. Adolescents can receive support in developing strategies to cope with emotional challenges. Training programs on diet and eating disorders for adolescents and their families can be implemented in schools. Public health initiatives can be integrated into psychiatric treatment to promote positive nutritional attitudes and behaviors among adolescents.

This study has some limitations. In the research measured with the control group, we think that while the differences between the groups were revealed, limited results were obtained in intragroup relationships. We believe that the results obtained from studies that will look at intragroup relationships by increasing the number of samples may provide different perspectives on the subject. Another limitation of the study is that the age range was kept wide due to the difficulty in reaching the sample due to the characteristics of the individuals who make up the sample. Further studies with a more limited age range may provide a new perspective on the subject.

## CONCLUSION

In conclusion, adolescents are at risk because of eating problems. It is crucial to consider the factors that influence the severity of these disorders during treatment. Furthermore, healthcare professionals should support treatment by providing awareness training for families and educators. Additional research is needed to evaluate the long-term effects of eating disorders on adolescents.

**Ethics Committee Approval:** The study has ethical approval from the İstanbul Faculty of Medicine, Clinical Research Ethics Committee (Date: 14.06.2022, No: E-29624016-050.99-932942).

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