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Examination of eating disorder risk and effective factors in university students

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Abstract

The aim of this study; determine the eating attitudes and behaviors of university students, who are a sensitive population in terms of eating disorders, and to examine some related factors. A structured questionnaire and face-to-face interviews collected the data. The data collection form has two sections: one for sociodemographics and health behaviors, and one for dietary habits and eating disorders using eating disorders scale (REZZY). The questionnaire explained voluntary study participation. The mean age of the 762 university students included in the study was 23.44 ± 5.33 years and 58.40% were female. Variables that one-off analyses suggested might be connected to the risk of developing eating disorders were examined using the logistic regression model. There was a significant and positive correlation between the REZZY-Total (REZZY-T) score, bulimia and food preoccupation (EAT-1) and dieting (EAT-2) ($p < 0.01$). The study group's female had an eating disorder risk that was 2.1 times greater than that of the male. As students advance through their educational phase, the risk of eating disorders significantly declines ($p < 0.001$). Positive factors reduced the risk of eating disorders by 1.4 times, whereas negative factors roughly doubled it ($p < 0.001$). Impaired eaters eat when they're not hungry, restrict their diet, obsess over their diet, and use food to cope with negative emotions. This will cause emotional, physical, and social problems and lower their quality of life. To prevent disease, improve mental health, and reduce social issues, examine eating behavior.

Keywords: Eating behavior, university students, emotional situations

Introduction

Many eating disorders start in adolescence or early adulthood. People are especially vulnerable to the effects of the environment during these times [1]. Over 90% of those who suffer from eating disorders are under the age of 25 [2]. At this age, young people experience both the difficulties of puberty and stressful life events like moving away from home to attend college [3]. The transition from their familiar home environment to new living arrangements in dorms and student houses can be extremely stressful for university students who are still in their adolescent years [1]. Trying to adjust to a new environment can cause stress and a sense of loneliness in people, which can lead to emotional eating. It is generally acknowledged that emotions can cause changes in eating habits. It is believed that stress and negative

emotions cause physiological reactions that resemble satiety, which would naturally lead to decreases in appetite and calorie intake. In contrast, the challenges new university students face at work, in their classes, and in their shifting social environments may also contribute to the emergence of eating disorders by heightening their levels of stress and anxiety. Studies on students' eating habits have shown that factors like simple preparation, affordable prices, and delectable food are important [4]. The fact that it is a quick and reasonably priced option frequently encourages students to eat fast food. Students' diets are becoming more unhealthy as fast food and ready-to-eat foods are consumed more frequently [5]. According to studies, eating disorders are estimated to affect 8% to 20.5% of college-aged students [6].

Eating attitude: This term refers to all of a person's dietary

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practices, food preferences, meal schedules, and eating patterns. However, nutrition is more than just a need and impulse created by physiological hunger; it is a phenomenon with psychological, socioeconomic and environmental interactions [7]. The individual's eating attitude; There are many factors that affect such as genetic factors, age, gender, social environment.

The emotional state of the individuals is one of the significant aspects of the psychological factors influencing the eating attitude. People's eating habits are affected by both positive emotions such as happiness, excitement and peace, as well as negative emotions such as stress, anxiety and loneliness.

In this study, it was aimed to determine the eating attitudes and behaviors of university students, who are a sensitive mass in terms of eating disorders, and to evaluate some related factors.

Material and Methods

Students of a university enrolled in the academic year 2022-2023 participated in this cross-sectional study in January and February 2023. Ethics approval was obtained from non-interventional clinical research, with the session decision dated 20.01.2023 and protocol numbered 82056. Through the use of a structured questionnaire and face-to-face interviewing, the data were collected. The data collection form is divided into two sections: one that asks participants about their sociodemographics and health behaviors, and the other of which uses eating disorders scale (REZZY) to assess their dietary habits and eating disorders. The possibility of voluntary participation in the study was explained at the outset of the questionnaire. The study was conducted in accordance with the Helsinki declaration at every stage.

Short-form eating attitude test (EAT 40)

The 26-item version of the EAT-26 (EAT-26) was administered to study participants in order to determine the frequency of disordered eating attitudes. Using this test, we can determine whether your likelihood of developing an eating disorder is low, medium, or high. Savaşır and Erol translated it into Turkish (1989) [8]. In EAT-26, there are 26 questions and 6 possible answers.

The Eating Attitude Test (EAT), also known as the EAT-26, is a screening instrument that consists of 26 questions and evaluates a wide variety of symptoms associated with either anorexia nervosa or bulimia nervosa. The EAT-26 questionnaire by itself does not provide a definitive diagnosis of an eating disorder; however, it is a valuable first step in the screening process and should be used as such. Study has shown it to be useful in assessing "eating disorder risk". EAT-26 contains three sub-scales: dieting (13 items), bulimia and food preoccupation (6 items), and oral control (7 items). The dieting scale relates to the avoidance of fattening foods and a preoccupation with thinness. The bulimia and food preoccupation scale relates to food thoughts and bulimia. The oral control scale relates to displaying self-control around food and the perceived pressures from others to eat more and gain weight. The scores on each subscale are determined by adding up all of the items that are associated with that particular subscale.

A total score is calculated by adding up the results of all three subscales. Scores higher on the EAT's total indicate a greater likelihood of having an eating disorder. A positive EAT score is considered to be equal to or greater than 20, which indicates an increased risk of developing an eating disorder. Scale; it can be used with people ranging in age from 11 to 70 years old.

Scale for eating disorders (REZZY/SCOFF)

Eating Disorders Scale (REZZY/SCOFF) was developed by Hill et al. [9] in 2010 to determine the risk of eating disorders. Its Turkish validity and reliability were determined by Aydemir et al. [10] (2015) made by the scale, which consists of a total of five questions, questions eating control, omitting food and body dissatisfaction. Each item is given 1 point in the scale, and an individual with 2 or more points is considered at risk for eating disorders. The Cronbach's alpha internal consistency coefficient of the scale is 0.74.

Questionnaire for emotional appetite (EA)

The Emotional Appetite (EA) Questionnaire was intended to be used in the study to assess how the participants' positive and negative emotional states affected their appetite. In 2010, Nolan et al. [11] developed the emotional appetite questionnaire for the first time. Demirel et al. [12] (2014) validity and reliability study was carried out in Türkiye. The questionnaire has 22 items and was created using a Likert-type 9-point scoring system. The participants in the questionnaire used to assess emotional eating rate the impact of each expression as less (1-4), the same (5), or more (6-9). For each question, there is also the option of "not suitable" or "I don't know the answer" and such responses are not taken into account when calculating the score. The presence of emotional eating in the questionnaire with 14 items in positive and negative emotions; positive and negative cases are evaluated with 8 items. By summing the scores of negative emotions (NE) and negative situations (NS), the total score of Negative; Positive total score is obtained by summing the scores of positive emotions (PE) and positive situations (PS). The questionnaire does not have any cut-off points for emotional eating. The questionnaire assesses the emotions and situations in which emotional eating may be present. The cronbach alpha internal consistency coefficient of the test is 0.730.

Statistical analysis

The statistical software program SPSS 23.0 (IBM Corp, Armonk, Newyork) was used to analyze the data. For qualitative variables, descriptive statistics include numbers (n) and percentages (%); for measurement variables, they include means, medians, standard deviations, minimums, and maximums. The Shapiro-Wilk test was used to assess how closely the data adhered to the normal distribution. Comparisons of measurement variables between two independent groups were made using the Student's t-test and the Mann Whitney U test, respectively, for data with and without a normal distribution condition. The measurement variables were analyzed for correlation using the Spearman correlation test [13]. To compare qualitative variables between independent groups, the chi-square test was employed. The accepted statistical significance level was 0.05.

Results

The study included 762 university students, and it was discovered that the mean of age was 23.44±5.33 years. Female make up 58.40% of the participants. Regarding diet, it was found that 28.08% of the students only eat one meal per day, while 16.96% of them claimed not to skip meals. Of the participants, 54.07% admitted to having a regular smoking habit. Breakfast was the most frequently skipped meal, and 46.72% of the participants have living in Dormitory (Table 1).

In the study, it was observed that there was a positive and strong relationship between REZZY-T score and EAT-1 and EAT-2 (p<0.01). A statistically significant positive moderate correlation was found between the " bulimia and food preoccupation " sub-dimension of EAT-26 and the "REZZY Total" score of REZZY-T. A statistically significant negative very weak correlation was

found between the "dieting" sub-dimension of EAT-26 and the "Pozitif emotions and situations (EA-1)" sub-dimension of EA (Table 2).

The logistic regression model was used to analyze variables that single analyses suggested might be linked to the risk of developing eating disorders. In the model, EAT-Total (EAT-T) was considered as a confounding factor and control was provided for this variable in the model. It was observed that women in the study group had a 2.1 times higher risk of eating disorders than men. The risk of eating disorders decreases significantly as students progress in their education period (p<0.001). Positive factors affecting students' emotional eating state reduce the risk of eating disorders, while negative factors increase it (p<0.001). Negative factors increased the risk of eating disorder approximately 1.2 times, while positive factors decreased it 1.4 times (Table 3).

Table 1. General characteristics of individuals (n=762)

Gender	n	%
Female	445	58.40
Male	317	41.60
Age (years)	23.44±5.33	
BMI	24.34±8.18	
BMI category		
Underweight < 18.5	85	11.15
Normal 18.5–25	389	51.05
Overweight 25–30	214	28.08
Obese I 30–35	38	4.99
Obese II > 35	36	4.72
Working status		
Yes	294	38.58
No	468	61.42
Educational status		
High school	240	31.50
Licence	322	42.26
Master	125	16.40
Doctorate	75	9.84
Alcohol habit		
Yes	89	11.68
No	673	88.32
Smoking habit		
Yes	412	54.07
No	200	26.25
Quit	150	19.69
The place of residence		
Dormitory	356	46.72
With friends at home	196	25.72
With family at home	210	27.56
Frequently skipped meals		
Breakfast	448	58.79
Lunch	164	21.52
Dinner	150	19.69

Table 2. Correlation coefficients between the scales and sub-dimensions used in the study

		EAT-1	EAT-2	EAT-3	EAT-T	REZZY-T	EA-1	EA-2	EA-T
EAT-1	r	1							
EAT-2	r	.371*	1						
EAT-3	r	.239*	.392	1					
EAT-T	r	.791**	.724***	.625**	1				
REZZY-T	r	.501*	.399*	-.081	.391*	1			
EA-1	r	-.021	-.220*	-.237*	-.194	.023	1		
EA-2	r	.237*	-.042	-.179	.021	.175	.412**	1	
EA-T	r	.201	-.189	-.091	-.099	.201	.791***	.901***	1

EAT-1: bulimia and food preoccupation, EAT-2: dieting, EAT-3: food oral control, EAT-T: EAT total, REZZY-T: REZZY total, EA-1: (positive emotions and situations), EA-2: (negative emotions and situations), EA-T: EA total, r: Pearson Product Moments Correlation Coefficient *:<0.05, **:<0.01, ***:<0.001

Table 3. Regression analysis of the risk factors connected to the study participants' risks for eating disorders

Model		B	p	OR	95% CI	
					Lower	Upper
REZZY-T score	Gender					
	Women (ref) Men	0.623	<0.001	2.113	1.401	2.805
	EAT(26)-T	0.321	0.042	1.129	1.000	1.802
	Education status					
	High School					
	Licence	-1.039	<0.001	2.108	1.081	4.624
	Master					
	Doctorate					
	EA1: (Pozitif emotions and situations)	0.899	<0.001	-1.390	1.901	4.197
	EA-2: (Negatif emotions and situations)	0.741	<0.001	1.187	1.001	3.158

EAT-1: bulimia and food preoccupation, EAT-2: dieting, EAT-3: food oral control, EAT-T: EAT total, REZZY-T: REZZY total, EA-1: (Positive emotions and situations), EA-2: (Negative emotions and situations), EA-T: EA total, r: Pearson Product Moments Correlation Coefficient *:<0.05, **:<0.01, ***:<0.001

Discussion

Eating disorders (EDs) are the third most common chronic disorder in adolescence after obesity and asthma. Eating disorders are serious psychiatric disorders that significantly impair physical health and psychosocial functioning, are disabling, fatal and costly to treat, and are characterized by abnormal eating or weight control behaviors [14]. Nutrition and eating disorders are very common all over the world, especially in adolescents and young adults [15].

Impaired eating attitudes are linked to impaired eating behaviors and a variety of other factors, according to studies done in both the clinical population and university and high school samples [16]. The aim of this study is to determine the frequency of nutrition and eating disorders in university students and to evaluate the factors that are effective. A total of 762 students, 445 female and 317 male, with an average age of 25.21±11.33 years, participated in the study.

Eating disorders may differ based on gender. Many studies reveal that eating disorders are more common in women than in men, regardless of age group [17,18]. In addition, women have been reported to have more symptoms of food addiction than

men [19,20]. In a study investigating eating disorders in 2822 university students using the REZZY (SCOFF) questionnaire, 3.6% of men and 13.5% of women were found to be at risk [3]. In a large-scale (n:2527) study evaluating the validity of the REZZY (SCOFF) questionnaire in the German population by Richter et al. [21] (2017), it was stated that the prevalence of eating disorders was 10% and that women had a higher risk than men. In this study, it was observed that women had a 2.1 times higher risk of eating disorders than men. This could be due to the fact that women have different food preferences and hormone profiles.

When young adults go from high school to college, their eating habits change as they leave home, try to get used to a new social environment, and take more responsibility for their own eating habits. In particular, bad eating habits like skipping meals, eating out more often, snacking, and getting most of their nutrition from fast food are seen [4]. The majority of individuals participating in this study have licence. In this study, the number of students with eating disorders goes down in a statistically significant way as they get more education. Lipson et al. [22] did a study with 4000 college students and found that the number of eating disorders goes down as the students' education level goes up. This could

be because students eat at school or because their eating habits become routine as they spend more time in college. This can also be explained by the fact that the people in this study are college students. As their education goes on, they tend to eat healthier because they learn more about health.

It is well known that students' eating habits and their available income have a connection. Individual disposable income and food security and nutrition are correlated linearly [23]. A University of Hawaii study found that students living with their parents had the lowest rate of food insecurity compared to students with other living conditions [24]. The Chaparro study notes that previous research has linked high housing costs with increased risk for food insecurity. It also reports that students who live with their parents or spouses are likely to spend substantially less on housing than students in other living situations, which makes them less likely to be food insecure [24]. The majority of the students in this study had no paid employment and live in dormitories. This situation threatens the food safety of students and will cause them to be malnourished and unbalanced.

In the relationship between eating behaviors and eating disorders, eating behaviors are generally seen as the result, not the cause, of the eating disorder. As eating disorders progress, individuals may turn to unhealthy eating behaviors or excessive physical activity for purposes such as losing weight [25,26]. Although this situation has been shown as a risk factor in different studies, it may have emerged as a result of eating disorder, not as a cause, like other unhealthy eating behaviors [27].

One of the most important factors affecting the eating behavior of adolescents is body mass indeks (BMI). It has been reported that the risk of eating disorders is 2 times higher in overweight or obese individuals when compared to individuals with normal body weight [28]. The mean BMI of the students participating in this study is 24.34 ± 8.18 kg/m². And most of the students (51.05%) have normal BMI.

In adolescents, especially skipping meals, consumption of high simple carbohydrates, excessive consumption of fatty products, unhealthy eating habits, smoking, insufficient physical activity and emotional states increase the risk of eating disorders. The habit of smoking and alcohol use starts in adolescence and becomes permanent in the later stages of life and may adversely affect health [19]. In a study, it was stated that 97.2% of adolescents do not smoke [29]. In this study, it was stated that 54.07% of the students were smokers.

Alcohol and substance use among young people may be related to the desire to be accepted in the peer group, to show that they have transitioned to adulthood, to try to create an independent identity, to try different lifestyles and behaviors to cope with the problems or anxiety experienced [30]. Oguz et al. [31] determined that 23.9% of university students used alcohol, while in another study conducted with midwifery students, 7.1% of the students stated that they used alcohol and 1.6% used substances [32]. In this study, it was determined that 11.82% of the students used alcohol.

Eating irregularly, skipping meals, and unhealthy food consumption between meals are among the nutritional errors encountered in adolescents. The energy taken with daily foods should be provided with a balanced distribution between three main meals and snacks [33]. In a study evaluating eating disorders in adults, 46.1% of individuals skip the main meal. It is observed that the morning meal is skipped the most (56.1%) and 'lack of time' was the most common reason for skipping [34]. Examining the status of individuals aged 18 years and older having regular breakfast in Türkiye, it was determined that 79.6% of individuals who have breakfast every day and 6.6% of those who do not [35]. In this study, it was observed that the students mostly ate two meals and skipped breakfast the most. Behavior patterns that occur during the youth period (15-24 years) affect the whole life of the individual. Adequate and balanced nutrition is important for completing growth and development, sustaining life, preventing diseases and improving health. It should not be overlooked that adequate and balanced nutrition can only be achieved with regular meal habits. Preventive measures should be taken against malpractices that adversely affect health.

These associations should be carefully considered, as the study group is composed of young people, as they may be in the early stages of an eating disorder and the resulting unhealthy eating behaviors have not yet taken place. It has been shown that deterioration in eating attitudes is highly correlated with deterioration in eating behaviors and increase in psychological symptoms [16].

The eating behaviors and psychopathology measurements of people with impaired eating attitudes as measured by the EAT-26 scale and people with normal eating attitudes were different, as expected, in a study by Ergüney et al. [36] (2019) The most significant factor in the psychopathology of eating disorders is closely related to the sub-dimension of preoccupation with eating, as well as the rise in preoccupations with the body and individuals. The second sub-dimension, restriction, is connected to people's ongoing attempts to diet and steer clear of particular food groups. Individuals are linked to embarrassment and reluctance about eating in public in the social pressure sub-dimension. The three aforementioned sub-dimensions' disease experiences, which are quite typical in eating disorder cases, are parallel to the key elements of eating disorders' pathology. In the study by Nolan et al. [11] on the impact of the imposition of thinness caused by media pressure on eating behaviors, it was discovered that women with high delicacy sensitivity and body dissatisfaction had higher rates of emotional, restrictive, and external eating behaviors. It was discovered in a study by Farchakh, et al. [37] (2019) that it had an impact on the Ortho-15 scores and the overall eating attitude score. The relationship between the overall score for eating disorders and obsession with food, dietary restriction, and social pressure was demonstrated in this study. The eating disorder sub-dimensions of preoccupation and restriction, as well as the REZZY (SCOFF) total score, were found to be positively and significantly correlated.

Emotional eating is an eating behavior that can be seen in both positive and negative emotions, in which the individual goes beyond normal consumption. It is known that emotional states cause 30-48% increase or decrease in appetite and food intake [38]. Although there are individual differences, negative emotional states such as stress, anxiety, depression, and anger generally increase food consumption. In his study, Macht stated that individuals feel higher levels of hunger during joy and anger compared to unhappiness and fear [38]. Patel et al. [39] concluded in their study that positive and negative situations, more so in positive situations, lead to eating more than normal eating behavior. In another study investigating the extent to which negative emotions are associated with high food intake, it was found that sad mood triggers food intake more than happiness [40]. In this study, it was observed that positive factors affecting the emotional eating status of students decreased the risk of eating disorder 1.4 times, while negative factors increased the risk of eating disorder 1.2 times ($p<0.001$). A negative relationship has been shown between positive factors affecting emotional eating status and dieting, food preoccupation, food oral control, affecting eating attitude. At the same time, it was determined that the negative factors affecting the emotional eating state were related to the preoccupation of eating.

There are some limitations in this study. The study was carried out only in university students. It limits its generalizability to society. Since it is a cross-sectional study, it limits the causality explanation.

Conclusions

In terms of both individual and public health, it is crucial to identify the risk of eating disorders among university students because they have both psychological and physical components. A person with impaired eating behavior will frequently eat when they are not hungry, restrict their food intake excessively, be preoccupied with their diet all the time, and attempt to cope with negative emotions by eating. This will lead to emotional, physical, and social issues and lower the quality of their daily lives. In this study there was a significant and positive correlation between REZZY-T score, EAT-1 and EAT-2. Furthermore, it has been found that the women are at a higher risk of developing a eating disorder. But the risk of eating disorders decreased significantly as students' education levels increased. For this reason, people should be made aware of how their eating habits change when they are in both positive and negative emotional states, and they should use coping mechanisms other than eating in order to get through these emotional states.

It is believed that a multidisciplinary strategy may be more successful in controlling the eating disorder that often emerges during distressing emotional states. It is advised to thoroughly examine the idea of eating behavior in order to prevent future illnesses, enhance psychological health, and lessen social issues.

Conflict of Interests

The authors declare that there is no conflict of interest in the study.

Financial Disclosure

The authors declare that they have received no financial support for the study.

Ethical Approval

Ethics approval was obtained from the Ethics Committee of Mardin Artuklu University, non-interventional clinical research, with the session decision dated 20.01.2023 and protocol numbered 82056.

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