



Comparison of Emotion Regulation Strategies in University Students with and without Food Addiction

Yeme Bağımlılığı Olan ve Olmayan Üniversite Öğrencilerinde Duygu Düzenleme Stratejilerinin Karşılaştırılması

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Abstract

Aim: The purpose of the present study is to compare the emotion regulation strategies in university students with and without food addiction.

Material and Methods: 214 university students were included in the study. Each participant completed Yale Food Addiction Scale (YFAS), Difficulties of Emotion Regulation Scale (DERS) and a sociodemographic form. The body mass index (BMI) of each participant was calculated by dividing the body weight by the square of the height in meters.

Results: %18.7 of the participants (n=40) met the diagnostic criteria of food addiction according to the YFAS. The frequency of food addiction in male participants was statistically higher than female participants (p=0.006). Non-acceptance, strategies and impulses subscales scores of DERS were statistically higher in participants with food addiction than those without food addiction (p=0.005; p<0.001 and p=0.048 respectively). There were correlations between number of food addiction criteria and strategies subscale score and DERS total score (r=.41 and r=.36 respectively).

Conclusion: It can be said that individuals with food addiction experience more difficulty in emotion regulation

Keywords: Addiction, food addiction, emotion regulation, university students

Öz

Amaç: Bu çalışmanın amacı, yeme bağımlılığı olan ve olmayan üniversite öğrencilerinin duygu düzenleme stratejilerini karşılaştırmaktır.

Materyal ve Metot: Araştırmanın örneklemini 214 üniversite öğrencisi oluşturdu. Her katılımcı Yale Yeme Bağımlılığı Ölçeği (YYBÖ), Duygu Düzenleme Güçlüğü Ölçeği (DDGÖ) ve sosyodemografik formu doldurdu. Her katılımcının vücut kitle indeksi (VKİ) vücut ağırlığının, boyunun metre cinsinden karesine bölünmesiyle hesaplandı.

Bulgular: Katılımcıların %18.7'si (n=40) YYBÖ'ye göre yeme bağımlılığı tanı kriterlerini karşıladı. Erkek katılımcılarda yeme bağımlılığı yaygınlığı kadın katılımcılara göre daha yüksekti (p=0,006). DDGÖ kabul etmeme, stratejiler ve dürtüler alt ölçek puanları, yeme bağımlılığı olanlarda yeme bağımlılığı olmayanlara göre istatistiksel olarak daha yüksekti (sırasıyla p=0,005; p<0,001 ve p=0,048). Yeme bağımlılığı ölçüt sayısı ve stratejiler alt ölçek puanı ile DDGÖ toplam puanı (sırasıyla r=.41 ve r=.36) arasında pozitif yönde ilişki saptandı.

Sonuç: Bu çalışmanın bulgularına göre, yeme bağımlılığı olan bireylerin duygu düzenlemede daha fazla zorluk yaşadıkları söylenebilir.

Anahtar Kelimeler: Bağımlılık, yeme bağımlılığı, duygu düzenleme, üniversite öğrencileri

INTRODUCTION

In recent years, there has been evidence that some foods cause addictive consumption behaviors. Although the term food addiction has been used frequently in the last few decades, food addiction is still a controversial concept. It is still debated whether food addiction is a type of addiction that occurs with the direct biological effects of some foods,

or whether it is behavioral addiction (1,2). Food addiction (FA) has been defined as craving for certain foods with increased stress, loss of control over eating behavior, and excessive consumption of particularly tasty and high-carbohydrate foods (3). Although clinical studies have reported that it is more common in individuals followed up with a diagnosis of obesity, it has been emphasized that the frequency of FA in non-obese individuals also draws

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attention (3,4).

Some neuroimaging researches have shown that individuals who are thought to be food addicts have changes in the central nervous system similar to those in substance abusers. It has been reported that the changes observed in the amygdala, orbitofrontal cortex, insula and striatal areas in individuals with FA are similar to those of drug/substance addicted individuals (5,6). Gunnars structured the definition of FA based on the substance addiction diagnostic criteria, along with the similarities of clinical features and neurobiological changes (7). According to the definition of Gunnars, symptoms such as craving for some foods despite the feeling of satiety, not being able to control the eating behavior when starting to eat, failure in attempts to prevent eating, continuing to eat these foods continuously despite the negative physical effects are important diagnostic criteria for FA (7).

The concept of emotion regulation has been defined as recognizing emotions, recognizing what emotions they experience in which situations, having the ability to express emotions effectively and using emotions in a healthy way (8). Gratz and Roemer defined emotion regulation difficulties as difficulties in controlling impulses and acting in accordance with a purpose in the presence of negative emotions, inability to understand emotions and not accepting experienced emotions, and lack of awareness of emotions (9). Some studies have shown that individuals who have difficulty in coping with negative emotions consume foods with high caloric value and have more difficulty in controlling their eating behavior (10-12). The fact that the relationship between negative emotions accompanying the stress response and eating behavior has been shown in many studies has led to the use of the concept of "emotional eating" in the literature (13,14).

Although results suggesting that there may be a relationship between difficulty in emotion regulation and eating behavior have been reported in the literature, it has not been sufficiently investigated whether emotion regulation strategies differ in individuals with FA compared to individuals without FA. The purpose of the present study is to compare the emotion regulation strategies of individuals with and without FA in university students.

MATERIAL AND METHOD

214 university students who are continuing their education at a foundation university in Istanbul were included in the study. Inclusion criteria for the study; not having a known severe mental illness (schizophrenia, bipolar disorder, alcohol/substance use disorder), no history of psychotropic drug use in the last 6 months, and body/mass index below 30 kg/m². Non-Interventional Ethics Committee of Halic University was approved the study protocol (2018/60).

Sociodemographic form: It was a questionnaire that includes the participant's characteristics such as age, gender, marital status.

Yale Food Addiction Scale (YFAS): Gearhardt, Corbin, and Brownell developed the scale by considering The Diagnostic and Statistical Manual of Mental Disorders IV-Text Revision DSM-IV-TR substance addiction diagnostic criteria (15). The Turkish validity and reliability study of the scale was carried out by Bayraktar et al (16). The internal consistency coefficient (Cronbach alpha) for the Turkish version of the scale was .93. The scale consists of 27 items in total. For the diagnosis of FA, in addition to meeting at least 3 of the 7 diagnostic criteria, clinical significance is required. These sub-criteria include excessive and long-term consumption of food, desire to quit and unsuccessful attempts to quit, the level of time and activity spent in accessing and using food, the effect of social-occupational functioning, continued use despite knowing that it has adverse effects and consequences, tolerance, withdrawal symptoms.

Difficulties of Emotion Regulation Scale (DERS): It is a five-point Likert-type scale consisting of 36 items developed by Gratz and Roemer (9). DERS includes six-subscale as awareness, clarity, non-acceptance, strategies, impulse, and goals. These subscales assess awareness of emotional reactions, lack of understanding of emotional reactions, rejection of emotional reactions, narrow availability of emotion regulation strategies that are thought to be effective, difficulty in impulse control when experiencing negative emotions, and engaging in goal-oriented behaviors when negative emotions are felt. The Turkish validity and reliability study was carried out by Rugancı and Gençöz (17). The Cronbach's alpha coefficient for the Turkish version of the scale was .93, and the test-retest consistency was 83. The Cronbach's alpha coefficients of the sub-dimensions of the scale are .82 for clarity, .90 for goals, .90 for impulses, .83 for non-acceptance, .89 for strategies, and .75 for awareness. High scale scores indicate difficulty in emotion regulation.

Body/Mass Index (BMI): It was obtained by dividing the participants' body weight by the square of their height in meters (kg/m²) (18).

Statistical Analysis

All statistical analyzes of the study were performed using SPSS 23.0 package program. The normality distribution of continuous variables was evaluated with the Kolmogorov-Smirnov test. Parametric tests were used in the analysis of the data due to the normal distribution of the data. DERS subscale scores were compared by using independent samples t-test among students with and without FA. Categorical variables of the groups were compared using the chi-square test. The relationship between the number of FA symptoms and the DERS subscale scores of the participants with FA was analyzed using the Pearson correlation analysis. The level of significance was accepted as p<0.05 in all statistical analyzes.

RESULTS

Of the 214 participants, 72.9% (n=156) were male and 27.1% (n=58) was female. The mean age of the participants was 21.67 ± 3.12 . All sociodemographic features of the participants were shown in Table-1.

Table 1. Sociodemographic features of the participants		
	n(X)	%(ss)
Gender		
Male	156	72.9
Female	58	27.1
Age		
20 ≤	112	52.3
21-23	66	30.8
≥ 24	36	16.8
Class		
First	44	20.6
Second	38	17.8
Third	66	30.8
Fourth	66	30.8
Mother's Education Level		
Primary	94	43.9
High	74	34.6
University	46	21.5
Father's Education Level		
Primary	68	31.8
High	84	39.3
University	62	29.0
Number of Siblings		
Single	51	23.8
1	74	34.6
2	54	25.2
≥ 3	35	16.4
Monthly spending amount		
≤750 Turkish Lira	72	33.6
751-1000 Turkish Lira	86	40.2
≥ 1001 Turkish Lira	56	26.2

18.7% of the participants (n=40) met the diagnostic criteria for FA according to the YFAS. 23.1% (n=36) of male participants and 6.9% (n=4) of female participants met the criteria for FA, and the frequency of FA in male participants was found to be statistically significantly higher than in females ($\chi^2=7.283$; $p=0.006$).

DERS non-acceptance, strategies, and impulse subscales scores were higher in the participants with FA than those without FA ($p=0.005$, $p<0.001$ and $p=0.048$, respectively). There was no difference between the DERS awareness, clarity and goals subscale scores of the participants with and without FA ($p=0.072$, $p=0.099$ and $p=0.965$, respectively) (Table-2).

Table 2. Comparison of emotion regulation scale subscale and total scores of participants with and without food addiction

	n	X	ss	t	p
Awareness					
Yes	40	22.20	3.70	1.81	0.072
None	174	20.98	3.89		
Clarity					
Yes	40	12.60	1.88	-1.66	0.099
None	174	13.18	2.04		
Non-acceptance					
Yes	40	14.40	5.68	2.93	0.005
None	174	11.61	4.16		
Strategies					
Yes	40	23.70	7.36	4.44	0.000
None	174	18.29	4.83		
Impulse					
Yes	40	15.00	5.20	2.03	0.048
None	174	13.24	3.56		
Goals					
Yes	40	14.30	4.44	-0.04	0.965
None	174	14.33	3.62		
Total					
Yes	40	102.20	19.73	3.23	0.002
None	174	91.63	13.14		

There was positive correlation between the number of FA diagnostic criteria and the DERS strategies subscale score and DERS total score of the participants with FA ($r=.41$ and $r=.36$, respectively) (Table-3).

Table 3. Correlations between the number of food addiction symptoms and emotion regulation strategies in participants with food addiction

	Number of FA symptoms
DERS-Awareness	.14
DERS-Clarity	.09
DERS-Non-acceptance	.27
DERS-Strategies	.41*
DERS-Impulse	.22
DERS-Goals	.09
DERS-Total	.36*

* p<0.05

DISCUSSION

The purpose of the present study was to compare emotion regulation strategies in university students with and without FA. Our findings showed a significant portion of university students (18.7%) met the diagnostic criteria for FA according to the YFAS, and university students who were thought to be food addicts had more difficulties in emotion regulation.

There has been a notable increase in the number of national and international studies investigating the prevalence of FA. Studies with different sample groups have shown that the frequency of FA varies in a wide range (4,19,20). According to the results of the study conducted by Brunault et al. in a non-clinical sample, the frequency of FA is found to be 16.9% (21). In a study conducted in Turkish population, the frequency of FA among university students is reported as 11.4% (22). The rate of FA obtained in the sample of this study differs from the rates reported in previous studies. This difference between the results obtained can be explained by the cross-sectional characteristics of the studies and the different sociodemographic features of the selected samples. However, the use of self-report scales for the diagnosis of FA may be effective in the emergence of different findings. Future studies that will help define food addiction clinically may help to interpret self-reported findings more objectively.

The findings of this study have shown that the prevalence of FA is higher in males than in females. Dinçyürek et al. (2018) have reported that FA is higher in male university students than those in females (23). In a study conducted by Özgür and Uçar (2018), it has been found that FA differed between genders (24). Different reports on the prevalence of FA among the gender may be related to the cross-sectional nature of the studies and, accordingly, the different distribution of FA among university students. On the other hand, the presence of evidence showing lower impulse inhibition in young adult males may explain the higher addiction rate in males (25,26). Indeed, according to the findings of a recently published study, impulsivity

may be a predictor for food addiction (27). Future studies may better explain whether food addiction differs between genders, and the relationship between impulse inhibition and addiction severity in individuals with FA.

The findings of this study have shown that individuals with FA have more difficulty in using functional strategies in emotion regulation. Some studies reveal that individuals with FA generally have insufficient skills to cope with undesirable emotions and experience more emotion regulation difficulties. Individuals who cannot use functional emotion regulation strategies resort to non-adaptive cognitive emotion regulation strategies. Some studies have shown that the inability to cope with emotions causes eating disorders (28,29). However, the fact that mood disorders often accompany eating disorders reveals that these individuals experience more negative emotions (30,31). It is stated in many studies that emotion regulation difficulties, which are frequently related to anorexia nervosa and bulimia nervosa, appear as purging and binge eating disorders in bulimia nervosa and excessive exercise behaviors in anorexia nervosa (32,33). Svaldi et al. have compared difficulty in emotion regulation between eating disorders patients and healthy controls (34). Accordingly, while the group with eating disorder had higher emotional intensity and difficulty in emotion regulation than the control group, it was determined that emotion acceptance, emotional openness and awareness were higher in the healthy control group. In another study by Sternheim et al., it is revealed that patients with eating disorders experienced more anxiety and designed more catastrophizing anxiety than the healthy controls (35). Brockmeyer et al. have reported that individuals diagnosed with anorexia nervosa and bulimia nervosa have more emotion regulation difficulties than healthy controls (36). In another study, emotion regulation difficulties are found to be higher in patients with anorexia nervosa than in the healthy volunteers (37). In another study conducted with male students by Lavender and Anderson, it is reported that difficulty in emotion regulation is a predictor of FA (38). It can be said that the results of the presents study are generally similar to the results in the literature. As a matter of fact, according to the results of the study, it is thought that participants with FA have more difficulty in accepting negative emotions, developing functional strategies to cope with negative emotions, and providing impulse control when they encounter negative emotions. Observing more difficulty in emotion regulation in food addiction is interpreted as a maladaptive coping strategy that mediates the reduction of negative emotional pressure of inappropriate eating behavior. In other words, it can be said that individuals who have difficulty in accepting negative emotions and maintaining impulse control have more difficulty in controlling their eating behavior (27). In this study, the determination of a relationship between the number of symptoms of the participants with FA and the difficulty in developing functional strategies to cope with negative emotions can be interpreted as the severity of addiction may be related to experiencing more problems

in some areas of emotion regulation. As a matter of fact, according to the results of some studies, it has been reported that individuals with FA may encounter more difficulties in the severity of addiction and emotion regulation (39).

This study has some limitations. First of all, there is no clear clinical consensus on the diagnosis of FA yet. In this case, the interpretation of the diagnosis of FA with the self-assessment scale can be interpreted as a limitation. Although YFAS evaluates food addiction according to substance addiction diagnostic criteria, the fact that this scale was prepared according to DSM-IV diagnostic criteria can also be considered as a limitation. As a matter of fact, some changes were made in the diagnostic criteria of substance abuse with the DSM-5. The fact that other findings obtained from the study were obtained with self-evaluation scales is limited to the subjective definitions of the findings. In addition, it can be stated as a limitation that the study sample is limited to only university students in an educational institution.

CONCLUSION

It has been concluded that individuals with FA have more difficulty in accepting negative emotions, reaching functional coping strategies that can be used to manage negative emotions, and maintaining impulse control while experiencing negative emotions. Therefore, psychosocial intervention strategies focused on emotion regulation may help to obtain positive results in treatment in individuals with FA.

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Conflict of Interest: The authors declare that they have no competing interest.

Ethical approval: Non-Interventional Ethics Committee of Halic University was approved the study protocol (2018/60).

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