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Original Research

The Validity and Reliability of Turkish Version of Obsessive Compulsive Eating Scale in University Students

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Abstract

Background: The aim of this study was to evaluate the reliability and validity of the Turkish Obsessive Compulsive Eating Scale in young adults.
Materials and Method: The sample of the study consisted of 265 undergraduate students (170 female, 95 male) with an age between 18-30 years studying at Ankara Yıldırım Beyazıt University. The research data were collected with a questionnaire consisting of 5 sections. The questionnaire included questions assessing the socio-demographic data and eating habits of university students, obsessive-compulsive eating behavior scale, yale food addiction scale and Eating Attitude Test-26.
Results: The mean age of the participants was 20.83 ± 1.96 years and the scale was found to have a 3-factor structure. The first factor was defined as Thought Suppression and Control; the second factor as Effort and Performance; and the third factor as Imagination. Items 4 and 6 of the scale were removed.. The χ^2/sd value of the scale was 2.258, NFI value was 0.919, CFI value was 0.953, AGFI value was 0.903 and RMSEA value was 0.069 (0.052-0.086) at 90% confidence interval. The ICC value was found to be 0.87. The cronbach-α coefficient for the total OCES scale was 0.886. Statistically significant correlations were found between total OCES and symptom count and EAT-26 scores (r=0.206 and r=0.197, respectively)
Conclusion: Obsessive-compulsive eating scale is a valid and reliable scale in university students**.** In order to better understand the relationship between obsessive-compulsive eating behavior and eating habits, studies should be conducted in different age groups in the community.

Keywords: *eating behavior, food addiction, obsessive compulsive eating scale, university students, validity and reliability*

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Introduction

Eating disorders are psychiatric illnesses that can lead to severe illness, and ultimately death, due to impaired eating-related attitudes and behaviors. (Fairburn & Harrison, 2003). Eating disorders, a common problem, affect approximately 5-10% of the young population (J, 2016). These disorders particularly observed in young girls (Barakat et al., 2023). Individuals with eating disorders may engage in disordered eating behaviors such as body dissatisfaction, restricting food intake, vomiting after eating, excessive exercise and laxative use. (Ünalan et al., 2009). Although the etiology of eating disorders is not fully known, various theories about the causes of this disorder have been reported (Kaye et al., 2009). According to these theories, eating disorders do not develop due to a single reason, but rather as the result of the combination of many factors (multifactorial), including psychological, physical and social reasons (Striegel-Moore & Cachelin, 2001).

Food cravings are defined as 'intense cravings for a specific food, the consumption of which is difficult to resist' (Heimowitz et al., 2017). Food cravings are a common phenomenon in adults (Yanovski, 2003). In modern societies, the presence of any food at unexpected times and places stimulates food cravings and increases thoughts about food. Intrusive thoughts and images about food lead to food cravings (Kavanagh et al., 2005; May et al., 2015; Schumacher et al., 2019). The mechanism of the relationship between mental imagery and food cravings is explained by the Elaborated Intrusion Theory of Desire. According to this theory, there are two different stages of food craving process (Schumacher et al., 2018). In the first step, anticipated responses such as physiological deficit, negative affect, external cues, other cognitive activities and increased salivation potentially lead to food cravings and intrusive thoughts. These thoughts are initially mild and share some of the same cognitive pathways as ordinary craving for an object or activity (May et al., 2012). People are often not consciously aware of this process. Initially, awareness is conditioned by responses such as salivation, which is expected conditionally (Kavanagh et al., 2005; May et al., 2015). In the second step, these intrusive thoughts are processed by imagining the visual, olfactory and flavor characteristics of food (Schumacher et al., 2018). For example, an individual may automatically imagine a craving for a food such as chocolate. Individuals then begin to imagine the sight, smell and taste of chocolate. The imagining process leads to increased food cravings (Schumacher et al., 2018). In order to avoid these situations, individuals try to suppress these thoughts by thinking less about these thoughts. (Johnston et al., 1999; May et al., 2012). If these thoughts are suppressed and the food craved is not consumed, the compulsiveness, number and frequency of the

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thoughts and cravings increase significantly. The aim of this study is to translate the Obsessive Compulsive Eating Scale (OCES) into Turkish and to conduct validity and reliability analyses.

Materials and Methods

Research Place, Time and Sample Selection

This research was carried out on 265 university students (35.8% males and 64.2% females) who avoided any food or food group, aged between 18-30 years, who were undergraduate students at Ankara Yıldırım Beyazıt University Faculties of Health Sciences, Dentistry, Engineering and Natural Sciences, and Law and who volunteered to participate in the study. The research data were gathered between December 2017 and May 2018. In validity and reliability studies, since the sample size is recommended to be at least 10 times the number of items, the study was conducted with 265 university students (Kline, 1994). The necessary permissions were taken for the study to be conducted and the students were asked to complete the questionnaire form during class time. Pregnant and breastfeeding women, individuals with any severe psychological disorders, students of Ankara Yıldırım Beyazıt University Department of Nutrition and Dietetics, students who were in the exam period, individuals who were thought by the researcher not to complete the questionnaire reliably, and individuals who left the questionnaire form without fulfilling it were excluded from the study.

The survey form designed within the scope of the research consists of 5 sections. Descriptive information and eating habits of the students participating in the study were recorded in the questionnaire form. In addition, OCES, Yale Food Addiction Scale (YFAS), Eating Attitude Test-26 (EAT-26) scale were administered to the individuals. All sections of the questionnaire designed for the individuals included in the study were completed by the researcher through face-to-face interview technique.

Obsessive Compulsive Eating Scale

The Food Craving Scale, a scale developed to determine food cravings, assesses external expressions and subjective experiences rather than the mechanism of food cravings. (Cepeda-Benito et al., 2000). For these reasons, the OCES was developed by Niemiec et al. to elucidate the cognitive mechanisms of food cravings (Niemiec et al., 2016). Scale questions (14 items) are evaluated between 0-4 points. A maximum of 56 points can be obtained from the scale. The internal reliability coefficient of the OCES was found to be 0.91 (Niemiec et al., 2016).

Yale Food Addiction Scale

The questionnaire includes the YFAS in this section, which assesses food addiction in

individuals. Overconsumption of food and substance addiction are similar to addiction criteria in terms of many features (Gearhardt et al., 2009). For these reasons, a new definition called 'food addiction' has emerged and it has been stated that this concept will play a role in the definition of eating disorders focused on overeating. The YFAS was developed by Gearhardt et al. to assess addictive behaviors towards specific foods. The Yale Eating Addiction Scale consists of 27 questions. There are 16 questions (questions 1-15) in the form of five-point Likert (never, once a month, 2-4 times a month, 2-3 times a week, more than 4 times a week or every day) and 8 questions (questions 17-24) in the format of yes-no. The last two questions are open-ended questions about which food individuals are addicted to (Gearhardt et al., 2009). A validity and reliability study was conducted in Turkey by Bayraktar et al. (Bayraktar et al., 2012).

Eating Attitude Test-26

The questionnaire includes the EAT-26, which assesses the eating disorder status of individuals, in this section. The EAT-26 was used to measure the eating attitudes and potential disorders in eating behaviors of the individuals participating in the study. The scale can be administered to all individuals between the ages of 11-70. The Eating Attitude Test (EAT) was developed by Garner and Garfinkel in 1979 to determine anorectic/bulimic behaviors and attitudes. (Garner & Garfinkel, 1979). The validity and reliability study of this form in Turkey was carried out by Savaşır and Erol in 1989. (Savaşır & Erol, 1989). The scale consists of 40 items and a 26-item short form was developed by Garner et al. (Garner et al., 1982). The Turkish translated form of the EAT-26 was used in the studies conducted by Baş et al. (Bas et al., 2004; Bas & Kiziltan, 2007) The scale is a six-point Likert-type scale. The cut-off value for EAT-26 is 20 points. The higher scores on the scale, the more clear the presence of an eating attitude disorder becomes. (Bas et al., 2004; Bas & Kiziltan, 2007; Savaşır & Erol, 1989).

Validity and Reliability of Obsessive Compulsive Eating Scale Translation-Retranslation Study

In order to assess the validity and reliability of the scale, it was initially translated from English to Turkish by 3 experts who are graduates of English Language and Literature. The understandability of the questions translated from English to Turkish was tested by a separate person who is fluent in English in the field of nutrition and a graduate of English Language and Literature, and sentence errors and translation errors were evaluated and edited by these experts. Afterwards, the items were translated back into English with the assistance of two different experts who are graduates of English Philology, and the consistency with the original scale was determined. After the consistency was determined, the Turkish form of the scale was prepared.

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In order to test the understandability of this scale translated into Turkish, a pilot study was conducted on 30 university students different from the research sample. In order to determine the reliability of the scale, this scale was administered again to at least 25% of the sample number of students 2-4 weeks after the research was conducted. In order to determine the time invariance of the test, the scale was administered to at least 65 people and the results were evaluated with the Interclass Correlation Coefficient. The items that were not understood and confused by the students were adjusted and the scale was made suitable for the main study. The reliability of the scale was evaluated with Cronbach's alpha coefficient and its construct validity was evaluated with factor analysis.

Eligibility of the Scale for Factor Analysis

Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity were used to analyze whether the sample size was suitable for factor analysis. (Kaiser, 1974). The Kaiser-Meyer-Olkin value of 0.80 and above indicates that the sample size of the study is adequate for factor analysis. (Alpar, 2022).

Explanatory and Confirmatory Factor Analyses

After the scale was tested for its appropriateness for factor analysis, factor analysis was conducted on the scale. Varimax rotation was performed to determine the loadings of the factors while conducting factor analysis. Eigenvalues greater than one were accepted as factors. Confirmatory factor analysis was performed using fit indices such as Chi-square Fit Test (χ^2/sd), Normed Fit Index (NFI), Comparative Fit Index (CFI), Root Mean Square Error of Estimation (RMSEA), Adjusted Goodness of Fit Index (AGFI), and Goodness of Fit Index (GFI). $\chi^2/sd<5$; NFI>0.90; CFI >0.90; RMSEA <0.10; AGFI >0.85 and GFI >0.90 were considered as 'acceptable fit'. (Erdoğan et al., 2007; Erkorkmaz et al., 2013; YAŞLIOĞLU, 2017).

Convergent and Divergent Validity of the Scale

In order to evaluate the convergent and divergent validity of the scale, a correlation analysis was conducted between the OCES, YFAS and EAT-26 scales.

Reliability of the Scale

To test the reliability of the OCYD scale, the scale was re-administered to the individuals 14-28 days later and the correlation between before and after was examined (test-retest). Intraclass Correlation Coefficient (ICC) analysis was performed to evaluate the difference between the initial and re-administered administrations of the scale. An Intraclass Correlation Coefficient (ICC) value of 0.80 and above indicates that the reliability of the scale

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is 'good'. (Liljequist et al., 2019). Moreover, Cronbach's α coefficient of the scale was analyzed to explain and evaluate the homogeneous structure of the items in the scale. A high Cronbach α coefficient indicates that the scale is reliable. A Cronbach-α value of 0.60 and above indicates that the reliability of the scale is considered adequate (Alpar, 2022).

Determining the Cut-off Point of the Scale

ROC analysis was performed to determine the cut-off point of the scale. The results of the ROC analysis are given in Figure 3.1. The cut-off point of the scale was identified according to the food addiction status of the individuals (Niemiec et al., 2016). In ROC analysis, the area under the chart is between 0.50 and 1.00. An area between 0.70 and 1.00 indicates that the cut-off point is accurately detected (Keçeoğlu et al., 2016; Okeh & Okoro, 2012).

Statistical Analysis

SPSS 20.0 package program (Statistical Package for Social Sciences) was used for statistical analyses during the research process. Descriptive statistics such as mean, standard deviation, minimum, maximum values, numbers and percentages were used to summarize the data.

Exploratory and confirmatory factor analyses were conducted to test the construct validity of the scale and correlations between the scales were assessed (convergent validity). The suitability of the scale for factor analysis was tested with Kaiser-Meyer-Olkin (KMO) and Bartlett Tests. In exploratory factor analysis, the number of factors of the scale was determined by the Eigenvalue value. One factor was determined for each case with an Eigenvalue value >1. In addition, the factor loading scores of the items in the scales were obtained by Varimax rotation method. SPSS AMOS 22 program was used for confirmatory factor analysis; χ^2/sd, CFI, AGFI and RMSEA values were examined (Gündüz et al., 2013; Schermelleh-Engel et al., 2003).

The scales of YFAS and EAT-26 were used for the convergent validity of OCES. "Spearman's Rank Correlation Test" analysis was used to determine the direction and degree of the relationship between the scales. ROC analysis was performed to determine the cut-off point of the scale (Egan, 1975). The highest sensitivity and specificity score was considered as the cut-off point of the scale. A value of $p<0.05$ was accepted as the significance level.

Results

Table 1 demonstrates the distribution of the individuals by gender, age, marital status, departments of study, educational status and accommodation. Regarding the age distribution,

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38.9% of individuals fell within the age range of 20-21 years, while 27.2% were aged 18-19 years. The mean age of the individuals was 21.72 ± 1.67 years for males and 20.34 ± 1.94 years for females. Most of the participants were single (98.1%). In total, 34.3% of the individuals studied nursing, 21.9% studied law and 16.6% studied engineering (machinery and construction). In the study, 36.2% of the individuals were second-year university students and 27.2% were third-year university students. While 57.7% of the individuals lives at home with their families, 29.4% lives in dormitories.

Table 1. Distribution of individuals according to their general characteristics (%)

General Characteristics	Male (n=95)		Female (n=170)		Total (n=265)	
	N	%	N	%	N	%
Age (years)						
18-19	7	7,4	65	38,2	72	27,2
20-21	34	35,8	69	40,6	103	38,9
22-23	39	41,1	30	17,6	69	26,0
24-25	15	15,8	3	1,8	18	6,8
26-30	-	-	3	1,8	3	1,1
Age (years) ($\overline{X}$±SS)	21,72±1,67		20,34±1,94		20,83±1,96	
Marital Status						
Married	2	2,1	3	1,8	5	1,9
Single	93	97,9	167	98,2	260	98,1
Department						
Nursing	7	7,4	84	49,4	91	34,3
Audiology	2	2,1	11	6,5	13	4,9
Physiotherapy	3	3,2	27	15,9	30	11,3
Social Service	-	-	10	5,9	10	3,8
Law	35	36,8	23	13,5	58	21,9
Sport Sciences	4	4,2	2	1,2	6	2,3
Engineering Departments (Civil and Mechanical)	36	37,9	8	4,7	44	16,6
Dentistry	8	8,4	5	2,9	13	4,9
Education Status						
1st .	20	21,1	49	28,8	69	26,0
2nd.	19	20,0	77	45,3	96	36,2
3rd .	33	34,7	39	22,9	72	27,2
4th .	23	24,2	5	2,9	28	10,6
Accomodation						
At home with his family	63	66,3	90	52,9	153	57,7
At home with friends	15	15,8	13	7,6	28	10,6
Home alone	4	4,2	2	1,2	6	2,3
Dormitory	13	13,7	65	38,2	78	29,4

In order to determine the nutritional habits of the individuals, their consumption of main meals and snacks, the number of main meals and snacks, the main meals they skipped and the reasons for skipping main meals were assessed and shown in Table 2.

Regarding the skipping of main meals, 33.6% of individuals reported regularly skipping them, while 41.9% reported occasionally skipping them. It was found that 66.0% of the

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individuals consumed three main meals. The mean number of main meals was 2.64 ± 0.52 meals in men and 2.65 ± 0.52 meals in women. Individuals mostly skip the breakfast (50.0%). It was determined that 57.7% of the individuals skipped meals because they had no time and 39.7% skipped meals because they had a poor appetite. The majority of male and female individuals consume only one snack (33.7% and 44.7%, respectively). The mean number of snacks consumed by men was 1.43 ± 1.06 meals, while the mean number of snacks consumed by women was 1.12 ± 0.87 meals.

Table 2. Distribution of individuals according to meal consumption status (%).

Meal Consumption	**Male (n=95)**		**Female (n=170)**		**Total (n=265)**	
	N	**%**	**N**	**%**	**N**	**%**
Skipping main meals						
No	17	17,9	48	28,2	65	24,5
Yes	34	35,8	55	32,4	89	33,6
Sometimes	44	46,3	67	39,4	111	41,9
Number of main meals						
1	2	2,1	3	1,8	5	1,9
2	29	30,5	56	32,9	85	32,1
3	64	67,4	111	65,3	175	66,0
Number of main meals *(X̄±SS)*	2,64 ± 0,52		2,65 ± 0,52		2,64 ± 0,52	
Skipped main meal*						
Breakfast	41	52,6	59	48,4	100	50,0
Noon	34	43,6	46	37,7	80	40,0
Evening	3	3,8	17	13,9	20	10,0
Reasons for skipping main meals*						
Lack of time	45	57,7	70	57,4	115	57,5
Lack of appetite	31	39,7	60	49,2	91	45,5
Since the food wasn't ready.	13	16,7	20	16,4	33	16,5
Weight loss	5	6,4	17	13,9	22	11,0
Lack of habit	5	6,4	17	13,9	22	11,0
Lack of financial availability	5	6,4	3	2,5	8	4,0
Other	1	0,5	2	1,6	3	4,0
Snack consumption status						
Non-consumers	21	22,1	43	25,3	64	24,2
1	32	33,7	76	44,7	108	40,8
2	22	23,2	39	22,9	61	23,0
3	20	21,0	12	7,1	32	12,0
Number of snacks (X̄±SS)	1,43 ± 1,06		1,12 ± 0,87		1,23 ± 0,95	

* *Percentages (%) were computed using the number of individuals who skipped a main meal ("Yes" or "Sometimes").*

Evaluation of the Appropriateness of the Scale for Factor Analysis and Results of Exploratory and Confirmatory Factor Analysis

According to the KMO analysis carried out to evaluate the suitability of the scale for factor analysis, the KMO value was found to be 0.877 ($\chi 2$= 1393.145; $p<0.05$). This value indicates that the OCES scale is highly suitable for factor analysis. Furthermore, it was

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determined that the scale showed a 3-factor structure in the explanatory factor analysis. Items 4 and 6 were removed from the scale because the difference between their loadings on the two factors was less than 0.1 (Kaya, 2013). After the removal of the items, it was determined that items 5, 7, 11, 12, 13, 14 were in the first factor; items 3, 8, 9 and 10 were in the second factor; and items 1 and 2 were in the third factor. The items were evaluated and it was determined that the first factor was defined 'Thought Suppression & Control', the second factor was defined 'Effort & Performance' and the third factor was defined 'Imagination'. These 3 factors accounted for 64,627% of the total variance. Factor loadings of the OCES and eigenvalues, variance of factors according to factor analysis are given in the Table 3.

Tablo 3. Factor loadings of the OCES and eigenvalues, variance of factors according to factor analysis

OCES	**Thought Suppression & Control**	**Striving & Performance**	**Imagination**
OCES 14	0,821		
OCES 13	0,759		
OCES 12	0,735		
OCES 11	0,707		
OCES 5	0,594		
OCES 7	0,593		
OCES 8		0,797	
OCES 9		0,715	
OCES 3		0,686	
OCES 10		0,649	
OCES 2			0,862
OCES 1			0,812
Eigenvalues	5,409	1,325	1,021
Variance (%)	45,078	11,044	8,505
Cumulative Variance (%)	45,078	56,122	64,627

In the confirmatory factor analysis performed according to the three factors, it was determined that the χ^2/sd value was 2.258, the NFI value was 0.919, the CFI value was 0.953, the AGFI value was 0.903, and the RMSEA value was 0.069 (0.052-0.086) in the 90% confidence interval.

Criterion-Related Validity

Correlations regarding the criterion-related validity of the OCES are given in Table 4.

It was found that there was a positive correlation between Thought Suppression & Control subscale and the food addiction symptom count and EAT-26 scale (r=0.156, p= 0.011;

r=0.165, p= 0.007, respectively). As in the Thought Supression & Control factor, there was a positive correlation between the Striving & Performance factor and the food addiction symptom count (r=0.277, p<0.0001) and the EAT-26 scales (r=0.216, p<0.0001). There was a positive correlation between the imagination subscale the food addiction symptom count (r=0.130; p=0.035) and the EAT-26 total score (r=0.174; p= 0.004). In our study, the correlation coefficient between the imagination subscale and the number of food addiction symptoms was found to be r=0.206 (p=0.001), and the correlation coefficient between the EAT-26 was found to be r=0.197 (p=0.001).

In overall, it was determined that there was a positive correlation between the factors and total score of the OCES and the scores of the YFAS symptom count and EAT-26 and that convergent validity criteria were met.

Table 4. Correlations between the total score of the OCES and the food addiction symptom count and EAT-26.

OCES Factors	**Corelation Coefficient**	**Total OCES**	**YFAS Symptom Count**	**EAT-26**
Thought Suppression & Control	r[a]	0,940**	0,156*	0,165**
Striving & Performance	r[a]	0,756**	0,277**	0,216**
Imagination	r[a]	0,803**	0,130*	0,174**
Total OCES	r[a]	-	0,206**	0,197**

Reliability of Obsessive Compulsive Eating Scale

As a result of the test-retest study, the ICC value was found to be 0.87. The cronbach-α coefficient for the Thought Suppression & Control factor was 0.823; the cronbach-α coefficient for the Coping, Striving & Performance factor was 0.788; the cronbach-α coefficient for Imagination was 0.847; and the cronbach-α coefficient for the total OCES scale was 0.886.

Cut-off Point of The Obsessive Compulsive Eating Scale

As a result of the ROC analysis, the area under the curve was found to be 0.726. This value indicates that the diagnostic accuracy of the scale is 'good' (Okeh & Okoro, 2012). The cut-off point of the OCES scale was determined as 11 points with a sensitivity of 0.667 and specificity of 0.771. Individuals with a score of <11 on the OCES scale were defined as non-obsessive compulsive eating behavior (OCEB) and individuals with a score of ≥11 on the OCES were defined as OCEB.

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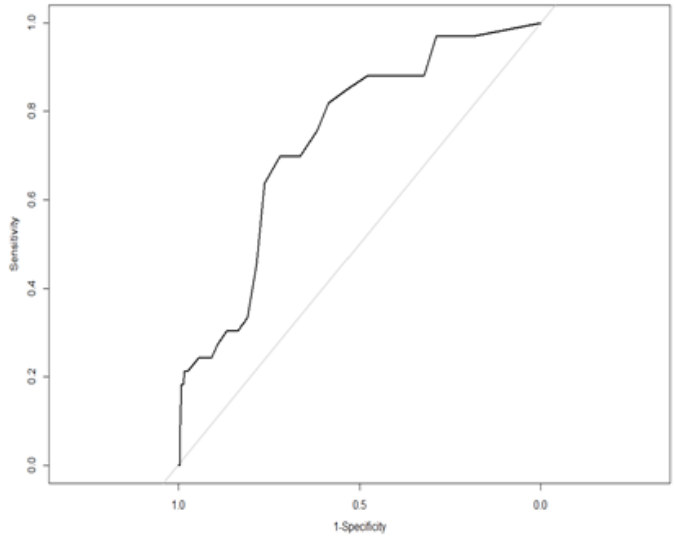

Figure 1. ROC analysis curve perfomed to the OCES.

Discussion and Conclusion

Food cravings are a condition that leads to eating behavior disorders and food addiction (Joyner et al., 2015). Food cravings may occur during pregnancy and menstural period, with restriction of food intake, external stimuli related to food, intrusive thoughts (Haddad-Tóvolli et al., 2022; Shahriari et al., 2020; Zhang et al., 2021). Intrusive thoughts related to food are similar to obsessions and compulsions in obsessive-compulsive disorder (Niemiec et al., 2016). These obsessive thoughts can become more intense with the presence of any food stimulus. According to the Elaborated Intrusion Theory of Desire, refraining from or consciously avoiding an excessively craved food increases the frequency and compulsiveness of these thoughts. As a result, intrusive thoughts lead to excessive consumption of the craved food (Kavanagh et al., 2005; May et al., 2012). Therefore, food cravings and intrusive thoughts related to these foods are thought to have an important role in eating pathology.

This study was conducted to determine the validity and reliability of the obsessive-compulsive eating behavior scale in university students. The university period is the transition period from adolescence to adulthood. The eating habits gained in these periods are very important in terms of affecting the nutritional and health status of the individual in adulthood.

The OCES was developed by Niemiec et al. (2016) to assess the cognitive aspects of food cravings. In the study conducted by Niemiec et al. (2016), it was determined that the 14-item version of the scale showed a 2-factor structure ('obsessive' and 'compulsive' subscales) and this structure was found to be a good fit in terms of fit index values (Niemiec et al., 2016).

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In the study conducted to translate the OCES into Turkish and to conduct validity and reliability analyses in university students, Items 4 and 6 were removed from the scale because the difference between their loadings on the two factors was less than 0.1 (Kaya, 2013). When the items were removed, it was found that the fit index values of the scale showed a good fit and the internal consistency coefficient of the 3-factor structure of the scale was high. The thought suppression & control subscale evaluates the effort made to change and suppress the cravings, images and thoughts related to the avoided foods and the effort made to control them. The 'Striving & performance' subscale examines the extent to which excessive cravings, images and thoughts related to avoided foods affect individuals' daily activities and coping. The 'Imagination' subscale assesses the amount of time and frequency spent with excessive cravings, images and thoughts associated with the avoided foods.

Examining the cronbach-α values of the scale, Niemiec et al. (2016) reported that the obsessive, compulsive subscale and total scale cronbach-α values were 0.85, 0.85 and 0.91, respectively (Niemiec et al., 2016). In the Turkish translation study, Thought Suppression & Control, Striving & Performance, Imagination subscale and total cronbach-α values were found to be 0.82, 0.79, 0.85 and 0.85, respectively, and the ICC value was 0.87. It was determined that the items in the scale were consistent with each other and the cronbach-α values were similar to the study conducted by Niemiec et al. (2016).

In this study, statistically significant positive correlations were found between the total scale, thought suppression & control, effort & performance, and imagination subscales and the food addiction symptom count and EAT-26 scores. In the study conducted by Niemiec et al. (2016), statistically significant positive correlations were found between obsessive and compulsive subscales, food addiction symptom count and binge eating scale (Niemiec et al., 2016). In addition, statistically significant positive correlations were also found between the obsessive subscale score and dieting and bulimic behavior subscale scores, and between the compulsive subscale and dieting, bulimic behavior and oral control subscale scores (Niemiec et al., 2016). According to the Ironic Process Theory, attempting to suppress certain thoughts can paradoxically lead to their increased occurrence. Trying to avoid unwanted thoughts related to eating behavior and body weight may not only result in an increase in the number and severity of unwanted thoughts. Increased food-seeking behaviors may also be a result of thought suppression (Barnes et al., 2010). In studies, suppression of food-related thoughts may cause an increase in food intake in mildly obese and obese individuals on a diet and may be associated with binge eating behavior (Peterson, 2008; Pop et al., 2004). Furthermore, it is known that

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individuals with restrictive eating behaviors can not attain the targeted body weight loss and that these individuals suppress cravings and thoughts associated with delicious foods. Therefore, this situation makes it difficult to control eating behaviors. It has been reported that individuals who suppress food-related cravings and thoughts prefer foods with high energy content more (Zhang et al., 2021). Accordingly, as the excessive cravings, images and thoughts about avoided foods increase in university students, these excessive cravings, images and thoughts can disturb individuals and negatively affect their daily lives and activities. It is thought that trying to suppress excessive cravings, images and thoughts about avoided foods may be related to excessive consumption of these foods.

The Obsessive-Compulsive Eating Scale has demonstrated validity and reliability among university students. It is known that impaired eating behaviors can be observed in university students. During the university period, estrangement of young people from their families, friendship relationships, exam period and changes in sleep patterns may lead to changes in eating habits and deterioration of healthy eating behaviors in students. It is known that eating habits and behaviors gained during the university period may continue in adulthood and old age.

The OCES is a tool that aims to determine the cognitive mechanisms underlying food cravings. Studies to evaluate eating habits in different age groups with the OCES should be increased.

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Conflict of Interest

The authors declare that they have no conflict of interest.

Ethical Approval

Ethical approval for this study was obtained from Ankara Yıldırım Beyazıt University Social and Human Sciences Ethics Committee (Decision number/code: 07/657, Date: 25.10.2017) and completed in conformity with the standarts set by the Declaration of Helsinki.

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Supplementary Material 1. The final version of translated version

Obsesif Kompulsif Yeme Davranışı Ölçeği (OKYÖ)

1.Herhangi bir besini, bir besin grubunu ya da bir besin içeriğini, diyetinizden tamamen çıkarmak için çaba gösterip hayatınızdan uzak tutuyor musunuz? Uzak durduğunuz besin örnekleri ekmek veya diğer karbonhidratlar ya da buğday ve gluten içeren gıdalar, çikolata ya da diğer yüksek kalorili ve şekerli gıdalar, tuz, et, koşer olmayan gıdalar (helal gıdalar), süt ürünleri ya da işlenmiş hazır gıdalar olabilir. *Fakat biz sizin herhangi bir sebepten dolayı uzak durduğunuz herhangi bir besini de bilmek istiyoruz.*	o Evet o Hayır
2.Eğer ***cevabınız Hayır*** ise, lütfen devam etmeyin. Eğer ***cevabınız Evet*** ise, ne tür besinlerden uzak duruyorsunuz?	Uzak durulan ***besin*** adı……
3. Neden bu besinden uzak duruyorsunuz? (Lütfen uygun olanları işaretleyiniz.)	o Sağlık nedeniyle: Daha sağlıklı hissetmek için ya da bir hastalık, intolerans ya da alerji nedeniyle bu besinden uzak duruyorum. (örn: Çölyak hastalığı, laktoz intoleransı) o Ağırlık kazanımı nedeniyle: Enerji alımını azaltmak ve vücut ağırlığımı denetlemek için bu besinden uzak duruyorum. o Dış görünüş nedeniyle: Dış görünüşümü etkilemesi nedeniyle bu besinden uzak duruyorum. (örn: Bu besini tüketmediğimde, cildim daha parlak gözüküyor) o Dini nedenlerle: Dini inançlarım bu besini tüketmeme izin vermiyor. o Ahlaki nedenlerle: Bu besinin tüketilmesine ahlaki itirazlarım var. o Çevresel nedenlerle: Bu besini tüketmenin çevre üzerinde negatif etkisi olduğuna inanıyorum. o Maliyet nedeniyle: Çok fazla para harcamamak için bu besinden uzak duruyorum. o Lezzet nedeniyle: Bu besini yemekten hoşlanmadığım için, ondan uzak duruyorum. o Diğer (lütfen belirtiniz) ……
Açıklamalar :Aşağıdaki sorular, geçtiğimiz hafta içinde, tüketmekten kaçındığınız besinler ve bu kaçınmayı kontrol etme çabalarınız hakkındadır. Lütfen, size en uygun gelen ifadenin yanındaki duruma **tik** atınız (✓).	
1. Bu besini tüketmediğinizde, zamanınızın ne kadarını bu besinden uzak durmakla ilgili düşünce, fikir, ani istek ve görüntülerle geçiriyorsunuz?	o Hiç o Günde 1 saatten az o Günde 1-3 saat arası o Günde 4-8 saat arası o Günde 8 saatten daha fazla
2. Bu düşünceler ne sıklıkla oluşuyor?	o Hiç o Günde 8 den fazla değil o Günde 8 den fazla ve günün çoğu saatinde, bu düşünceler olmuyor o Günde 8 den fazla ve günün çoğu saati boyunca o Düşünceler sayamayacağım kadar çok ve bu tür düşünceler olmadan geçirdiğim bir saat neredeyse hiç yok.

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3. Bu besinden uzak durmakla ilgili düşünce, fikir, ani istek ve görüntüler sosyal ve iş (veya rol) yaşantınızı nasıl etkiliyor? Bunlar yüzünden yapmadığınız ya da yapamadığınız herhangi bir şey var mı? (örn: Eğer şu anda çalışmıyorsanız, çalışıyor olsaydınız, performansınızın ne kadarı etkilenirdi?)	o Uzak durduğum besinle ilgili düşünceler beni hiç etkilemiyor – hayatıma normal devam ediyorum. o Uzak durduğum besinle ilgili düşünceler sosyal ve mesleki faaliyetlerimi çok az etkiliyor ama genel performansım zarar görmüyor. o Uzak durduğum besinle ilgili düşünceler sosyal ve mesleki faaliyetlerimi kesinlikle etkiliyor ama yine de idare edebiliyorum. o Uzak durduğum besinle ilgili düşünceler sosyal ve mesleki faaliyetlerimi önemli derecede etkiliyor o Uzak durduğum besinle ilgili düşünceler sosyal ve mesleki faaliyetlerimi tamamen etkiliyor.
4.Bu besini tüketmediğiniz zaman, ondan uzak durmakla ilgili fikir, düşünce, ani istek ve görüntüler sizde ne kadar stres ve rahatsızlığa neden oluyor?	o Hiç o Hafif ,çok seyrek ve çok rahatsız edici değil o Ortalama, sıklıkla ve rahatsız edici, ama yine de kontrol edilebilir o Şiddetli, çok sık ve çok rahatsız edici o Aşırı, neredeyse sürekli ve stresle baş edememe
5.Uzak durduğunuz besini tüketmediğiniz zaman, bu düşünceler aklınıza geldiğinde, onlara direnmek veya onları göz ardı etmek ya da dikkatinizi başka bir yöne çevirmek için ne kadar çaba harcıyorsunuz ?	o Düşüncelerim çok az, onlara direnmem gerekmiyor. Eğer böyle bir düşüncem olursa, her zaman direnç gösteririm. o Çoğu zaman direnç gösteririm. o Direnmek için biraz çaba gösteriyorum. o Onları kontrol etmeye çalışmadan, bu düşüncelere teslim oluyorum ama bunu isteksizce yapıyorum. o Tamamen ve kendi irademle bu tür düşüncelere teslim oluyorum.
6.Bu besinden uzak durduğunuz zaman, bu düşünceleri durdurma ya da başka bir şey düşünme konusunda ne kadar başarılısınız?	o Bu tür düşünceleri durdurma ya da başka bir şey düşünme konusunda kesinlikle başarılıyım. o Biraz çaba ve konsantrasyon ile bu tür düşünceleri durdurabiliyor ya da başka bir şey düşünebiliyorum. o Bazen bu tür düşünceleri durdurabiliyor ya da başka bir şey düşünebiliyorum. o Bu tür düşünceleri durdurma konusunda neredeyse hiç başarılı değilim ve güçlükle başka bir şey düşünebiliyorum. o Bir anlık bile olsa, neredeyse başka hiç bir şey düşünemiyorum.
7. Uzak durduğunuz besini haftanın kaç günü tüketiyorsunuz?	o Hiç o En fazla bir gün o Haftada 2-3 gün o Haftada 4-5 gün o Haftada 6-7 gün
8. Uzak durduğunuz besini tükettiğiniz günlerde, o besini elde etmek ve yemek, uzak durduğunuz besini tüketmiş olmanın getirdiği sonuçlarla başa çıkmak için kaç saat harcıyorsunuz?	o Günde 1 saatten az o Günde 1-3 saat o Günde 3-6 saat o Günde 6-12 saat o Günde 12-24 saat

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9.Bu besinden uzak durmanız günlük yaşantınızı ne kadar etkiliyor? Bu besinden kaçındığınız için, yapmadığınız ya da yapamadığınız herhangi bir şey var mı? (örn: Eğer şu an çalışmıyorsanız, çalışıyor olsaydınız, performansınızın ne kadarı etkilenirdi?)	o Bu besinden uzak durmak beni hiç etkilemiyor. Yaşantımı normal bir şekilde sürdürebiliyorum. o Bu besinden uzak durmak mesleki faaliyetlerimi çok az etkiliyor, fakat genel performansım etkilenmiyor. o Bu besinden uzak durmak kesinlikle mesleki faaliyetlerimi etkiliyor, fakat yine de başa çıkabiliyorum. o Bu besinden uzak durmak mesleki performansıma büyük ölçüde zarar veriyor. o Bu besinden uzak durmak iş performansımı tamamen etkiliyor
10. Bu besinden uzak durmanız sosyal yaşantınızı ne kadar etkiliyor? Bu besinden uzak durduğunuz için, yapmadığınız ya da yapamadığınız herhangi bir şey var mı?	o Bu besinden uzak durmak beni hiç etkilemiyor. Yaşantımı normal bir şekilde sürdürebiliyorum. o Bu besinden uzak durmak sosyal yaşantımı çok az etkiliyor, fakat genel performansım etkilenmiyor. o Bu besinden uzak durmak kesinlikle sosyal performansımı etkiliyor. o Bu besinden uzak durmak sosyal performansıma büyük ölçüde zarar veriyor. o Bu besinden uzak durmak sosyal performansımı tamamen etkiliyor.
11.Uzak durduğunuz besini yemek istediğiniz zaman, o besini tüketiminiz engellenseydi ne kadar endişelenirsiniz ya da üzülürsünüz?	o Herhangi bir kaygı ya da kızgınlık duymazdım. o Çok az kaygılanır ya da kızardım. o Kaygı ya da kızgınlığım artardı ama başa çıkabilirdim. o Kaygı ve kızgınlık seviyelerimde belirgin ve çok rahatsız edici bir artış olurdu. o Çok şiddetli kaygı ve kızgınlık yaşardım.
12. Uzak durduğunuz besinin tüketimine karşı koymak için ne kadar çaba harcıyorsunuz? (Yalnızca direnç gösterme çabanızı düşünün, uzak durmayı kontrol etmedeki başarı ya da başarısızlığınızı değil)	o Uzak durma konusunu benimsedim, direnç gösterme ihtiyacı hissetmiyorum. o Çoğu zaman aktif olarak direnç göstermeye çalışıyorum. o Aktif olarak direnç göstermek için biraz çaba harcıyorum. o Kontrol etmeye çalışmadan, neredeyse hiç direnç göstermiyorum ama bunu biraz isteksizce yapıyorum. o Tamamen ve kendi irademle hiç bir direnç göstermiyorum.
13.Uzak durduğunuz besini tüketme arzusu ne kadar güçlü?	o Böyle bir arzum yok. o Bunu tüketmeye biraz baskı oluyor. o Bunu tüketmeye yoğun bir baskı oluyor. o Bunu tüketmeye çok yoğun bir baskı oluyor. o Yeme arzusu o kadar güçlü oluyor ki, boyun eğiyor ve yiyorum
14. Uzak durduğunuz besini tüketme arzunuz üzerinde ne kadar kontrolünüz var?	o Kontrol tamamen bende. o Genellikle bilinçli kontrol uygulayabiliyorum. o Zorlukla kontrol edebiliyorum. o Onu yemeliyim ve onu yemeyi güçlükle erteleyebilirim. o Bir anlık bile olsa o besini tüketmeyi neredeyse hiç erteleyemem.

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