




Determination Food Addiction Frequency and Its Affecting Factors in People Who Consulting to Trabzon Fatih Healthy Life Center Healthy Nutrition Consultancy

Trabzon Fatih Sağlıklı Hayat Merkezi Sağlıklı Beslenme Danışmanlığına Başvuranlarda Yeme Bağımlılığı Sıklığının ve Yeme Bağımlılığı Sıklığını Etkileyen Faktörlerin Belirlenmesi

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Makale Tarihleri/Article Dates:

Geliş Tarihi/Received: 9 May 2023

Kabul Tarihi/Accepted: 7 June 2024

Yayın Tarihi/Published Online:

20 August 2024

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Açıklama/Disclosure: Yazarların hiçbirisi, bu makalede bahsedilen herhangi bir ürün, aygıt veya ilaç ile ilgili maddi çıkar ilişkisine sahip değildir. Araştırma, herhangi bir dış organizasyon tarafından desteklenmedi. Yazarlar çalışmanın birincil verilerine tam erişim izni vermek ve derginin talep ettiği takdirde verileri incelemesine izin vermeyi kabul etmektedirler.

ÖZET

Amaç: Bu araştırmanın amacı Trabzon/Ortahisar'da sağlıklı beslenme danışmanlığına başvuran yetişkinlerin yeme bağımlılığı sıklığını ve bu sıklığı etkileyen faktörleri belirlemektir.

Yöntem: Araştırma kesitsel türdedir. Çalışma kapsamına 181 erişkin alınmıştır. Çalışma verilerinin toplanmasında demografik özellikler formu ile Yale Yeme Bağımlılığı Ölçeği kullanılmıştır. p değeri 0.05'ten küçük olduğunda anlamlı kabul edilmiştir.

Bulgular: Araştırma katılımcılarının %79.6'sı kadın ve %69.1'i evliydi. Ortalama yaş 37.16 ± 11.7 yıl ve ortalama beden kitle indeksi 31.44 ± 6.09 kg/m² idi. Başvuranların %21.7'sinde yeme bağımlılığı belirlendi. Yeme bağımlılığı ile psikolog/psikiyatristle görüşme durumu, sigara kullanma, beden kitle indeksi ve katılımcı beyanına göre yeme hızı değişkenleri arasında anlamlı ilişki belirlendi (sırasıyla $p=0.001, 0.032, 0.005, 0.045$). Yeme bağımlılığı ile diğer değişkenler arasında anlamlı ilişki belirlenmedi.

Sonuç: Araştırma sonucunda yeme bağımlılığı sıklığı %21.7 olarak belirlenmiştir. Bu sıklık yüksek olup, literatürdeki yurt içi ve yurt dışı çalışmalarla uyumludur. Bu önemli halk sağlığı sorunu, sağlıklı beslenme danışmanlığı, beslenme klinikleri, aile sağlığı merkezleri ve okulları kapsayacak şekilde gerçekçi uygulamalar ve müdahaleler gerektirmektedir.

Anahtar Kelimeler: Gıda bağımlılığı, beslenme değerlendirmesi, beslenme anketleri

ABSTRACT

Aim: The aim of this research is to determine the frequency of food addiction and the factors affecting this frequency in adults who consulted to healthy nutrition consultancy in Trabzon/Ortahisar.

Methods: The study was cross-sectional. 181 adults were included in the study. Demographic characteristics form and Yale Food Addiction Scale were used to collect study data. When the p value was below 0.05, it was considered as significant.

Results: 79.6% of the applicants were women and 69.1% were married. The mean age was 37.16 ± 11.7 years and the mean body mass index was 31.44 ± 6.09 kg/m². Food addiction was determined in 21.7% of the applicants. A significant relationship was found between food addiction and interview with a psychologist/psychiatrist, smoking status, body mass index, and eating speed according to applicant's statement ($p=0.001, 0.032, 0.005, 0.045$ respectively). No significant relationship was found between food addiction and other variables.

Conclusion: As a result of the study, the frequency of food addiction was determined to be 21.7%. This frequency is high and is consistent with national and international studies in the literature. This important public health issue requires realistic practices and interventions, including healthy nutrition consultancy, nutrition clinics, family health centres and schools.

Key words: Food addiction, Nutrition assessment, Nutrition surveys

Atıf yapmak için/ Cite this article as: Sahin ZS, Sahin TK, Yildirim Ozturk EN. Determination Food Addiction Frequency and Its Affecting Factors in People Who Consulting to Trabzon Fatih Healthy Life Center Healthy Nutrition Consultancy. Mev Med Sci. 2024; 4(2): 54-61

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INTRODUCTION

Nutrition-related health problems have increased recently. One of the important risk factors for non-communicable diseases that cause 41 million deaths each year is unhealthy diet (1). Globally, 13% of adults were obese and 39% were overweight in 2016 (2). It is reported that eating disorders bulimia nervosa and anorexia nervosa, which are marked by concerns about body weight and abnormal eating, affected 14 millions people, 3 millions of whom are children and adolescents, in 2019 (3).

Nutrition and nutrition-related diseases, which can lead to conditions that are important sources of mortality and morbidity, have been intensely investigated over the last few decades. Food addiction, which is one of the behavioral addictions, is one of these researched problems. In food addiction, people may indicate signs of addiction to food, similar to the typical symptoms of substance abuse. It is also thought that obesity and eating disorders may be related to food addiction (4). Although there has consisted extensive literature on food addiction over the years, it is a controversial issue whether food addiction is a real addiction (5). Some researchers argue that food and sex are natural rewards and cannot be addictive (6, 7). However, there are researchers who argue that foods may also create addiction-like effects via dopamine, as in substance abuse (8, 9). While pica, anorexia nervosa, bulimia nervosa, and binge eating disorder are classified as abnormal eating behavior patterns in the Diagnostic and Statistical Manual of Mental Disorders (DSM) V, food addiction is not included in these patterns. Food addiction can be evaluated under the title of 'Other unspecified nutrition and eating disorders' in DSM V (10).

In a meta-analysis, the prevalence of food addiction was calculated as 12% in population-based samples and 19% in overweight/obese samples for children and adolescents (11). In another meta-analysis, it was found 17% under the age of 35 and 22.2% over the age of 35 (12).

In this study, it was aimed to evaluate the frequency of food addiction in adults who consulted to Fatih Healthy Life Center-Healthy Nutrition Consultancy (HLC-HNC) in Ortahisar district of Trabzon and the factors affecting this frequency.

MATERIALS AND METHODS

The research was of cross-sectional type. The population of the research comprises people who consulted to Fatih HLC-HNC in Ortahisar district of Trabzon province. Due to the emergence of the Covid-19 pandemic and the closure of Fatih HLC-HNC, the number of applicants to the centre remained limited, with approximately 300 applications in 2020. The sample size was calculated as a minimum of 160 people with G Power program version 3.1.9.4, with an effect

size of 0.3 at maximum 7 degrees of freedom, 5% type 1 error and 80% power for the Chi-square test (13). The research was conducted on men and women aged 18-65 who consulted to Fatih HLC-HNC, who gave verbal consent to include in the study. Except for these three conditions (applying to the relevant centre, being between 18-65 years of age and volunteering to participate in the study), no other inclusion/exclusion criteria were used.

A 34-question questionnaire and Yale Food Addiction Scale (YFAS) were used to collect data, in which the sociodemographic characteristics of the individual, nutritional habits, some life events and anthropometric measurements were recorded. YFAS is a 27-item scale. In 2009 Gearhardt et al. developed the YFAS and in 2012 Bayraktar et al. adapted the scale to the Turkish language (14, 15). YFAS was prepared by evaluating the substance addiction criteria in DSM IV-TR. The scale consists of eight subscales. The subscales are: Substance taken in larger amount and for longer period than intended (Subscale 1: Questions 1, 2, 3), persistent desire or repeated unsuccessful attempt to quit (Subscale 2: Question 4, 22, 24, 25), much time/activity to obtain, use, recover (Subscale 3: Question 5, 6, 7), important social, occupational, or recreational activities given up or reduced (Subscale 4: Question 8, 9, 10, 11), use continues despite knowledge of adverse consequences (Subscale 5: Question 19), tolerance (Subscale 6: Question 20, 21), withdrawal symptoms (Subscale 7: Question 12, 13, 14), and use causes clinically significant impairment or distress (Subscale 8: Question 15, 16) (14). When calculating the scale score, the scores of the subscales are calculated first. A score of 0 in a subscale means that the criterion is not met, while scores of 1 and above mean that the criterion is met. A score of at least 3 in the other 7 subscales is considered as food addiction, provided that at least 1 point is obtained from the 'use causes clinically significant impairment or distress' subscale (14, 15). Since the response types of the items that constitute the scale are different from each other (items 1-16 are in Likert type from 0 to 4 and items 17-27 are in yes-no type), Kuder Richardson alpha value was calculated to determine the reliability and 0.78 was found.

Research data were collected between 01.01.2020-31.10.2020. The data collection forms were given to the people and participants completed the form under observation.

With in the research, permission was obtained from Feyza Bayraktar, who adapted YFAS into Turkish. To conduct the study, institutional and ethical approval was obtained.

The research data were analyzed using SPSS (SPSS for Windows, Version 16.0. Chicago, SPSSInc.). Arithmetic mean, standard deviation (SD), median, min and max values were used in summarizing numerical data, numbers and percentages were used in summarizing categorical data. Chi-square test and t test for independent groups were used

to determine the relationships between variables. It was considered significant when the p value was less than 0.05.

RESULTS

Sociodemographic Characteristics of the Applicants

181 people took part in the study. 79.6% (n=144) of the applicants were women. The age range of the applicants was

Table 1. Study Applicants' Sociodemographic Characteristics (Trabzon, 2020)

Characteristics		n	%
Sex	Female	144	79.6
	Male	37	20.4
Marital status	Single	54	29.8
	Married	125	69.1
	Widow/Divorced	2	1.1
Educational status	Primary school graduate	23	12.7
	Secondary school graduate	12	6.6
	High school graduate	67	37.0
	University	76	42.0
Employment status	Postgraduate	3	1.7
	Working	77	42.5
Chronic disease	Not working	104	57.5
	Existing	40	22.1
Interview with a psychologist/psychiatrist	Absent	141	77.9
	Yes	55	30.4
Smoking status	No	126	69.6
	Yes	35	19.3
Alcohol status	No	146	80.7
	Yes	11	6.1
Physical activity for sport	No	170	93.9
	Yes	61	33.9
	No	119	66.1

Descriptive statistics (n and %)

Table 2. Nutrition-related Characteristics of Applicants (Trabzon, 2020)

Characteristics		n	%
Main meal	1	4	2.2
	2	62	34.3
	3	113	62.4
	4 and over	2	1.1
Snack	1	45	24.9
	2	88	48.6
	3	38	21.0
	4 and over	10	5.5
Eating speed according to applicant's statement	Fast	71	39.2
	Normal	99	54.7
	Slow	11	6.1
Eating by emotion change	Yes	127	70.2
	No	54	29.8
Discomfort from eating in crowded environments	Yes	82	45.3
	No	99	54.7
Preferring to be alone while eating	Yes	60	33.5
	No	119	66.5
Applicant's perception of her/his own body	Underweight	4	2.2
	Normal	29	16.0
	Overweight	100	55.2
	Obese	48	26.5
Fear of gaining weight	Yes	158	87.3
	No	23	12.7
Previous weight loss attempt and its result	No	66	36.5
	Yes, positive	78	43.1
	Yes, negative	37	20.4

Descriptive statistics (n and %)

18-63 years and the mean age was 37.16±11.07 years. The The sociodemographic characteristics of the applicants are shown in Table 1.

The mean body weight of the research applicants was 85.22±17.05 kg and the mean height was 164.67±8.15 cm. The mean body mass index (BMI) was 31.44±6.09 kg/m2. The daily time spent in physical activity for sport ranges from 10-90 minutes; the mean was 36.33±18.62 minutes.

Nutrition-related Characteristics of Applicants

It was determined that 63% (n=114) individuals ate in front of the TV and/or computer. 62.4% (n=113) applicants were consumed as 3 main meals. Some of the nutrition-related characteristics of the research applicants are shown in Table 2.

In order of frequency, the most frequently consumed foods in snacks were nuts such as walnuts and hazelnuts (34.3%), cakes and biscuits (31.5%), fruit (30.4%), pastries

such as bagels and buns (17.1%), chips, chocolate and candies (15.5%), and milk, ayran and yogurt (14.4%).

Applicants' Scale Scores and Related Factors

The median score of the subscale of substance taken in larger amount and for longer period than intended was 0 (0-3), and the median score of Persistent desire or repeated unsuccessful attempt to quit was 2 (0-8). The subscale scores of the applicants are shown in Table 3.

Food addiction was determined in 39 (21.7%) of the individuals participating in the study. It was found that there were statistically significant differences between Subscale 1, Subscale 3, Subscale 4, Subscale 7 and Subscale 8 in terms of the levels of meeting the subscales of the scale in participants with and without food addiction (Table 4).

While no relationship was found between age and eating addiction (t=1.141, p=0.255), a significant difference was found between BMI and food addiction groups (absent of food

Table 3. Scores of the Research Applicants from the Subscales and Scales of the YALE Food Addiction Scale (Trabzon, 2020)

Subscales	Median	Min	Max
Substance taken in larger amount and for longer period than intended (Subscale 1)	0.00	0.00	3.00
Persistent desire or repeated unsuccessful attempt to quit (Subscale 2)	2.00	0.00	8.00
Much time/activity to obtain, use, recover (Subscale 3)	0.00	0.00	3.00
Important social, occupational, or recreational activities given up or reduced (Subscale 4)	0.00	0.00	11.00
Use continues despite knowledge of adverse consequences (Subscale 5)	1.00	0.00	1.00
Tolerance (Subscale 6)	1.00	0.00	2.00
Withdrawal symptoms (Subscale 7)	0.00	0.00	3.00
Use causes clinically significant impairment or distress (Subscale 8)	0.00	0.00	2.00
Total score	3.00	0.00	6.00
Total score of applicants with food addiction	5.00	3.00	6.00
Total score of applicants without food addiction	3.00	0.00	5.00

Descriptive statistics (Median, Minimum and Maximum)

Table 4. Levels of meeting of the subscales of the scale in applicants with and without food addiction (Trabzon, 2020)

Food addiction	Test statistics	Test statistics				p value
		Absent n	Existing %	Existing n	%	
Subscale 1	Not meeting the criterion	12	30.8	104	73.8	24.640
	Meeting the criterion	27	69.2	37	26.2	<0.001
Subscale 2	Not meeting the criterion	1	2.6	17	12.1	3.059
	Meeting the criterion	38	97.4	124	87.9	0.080
Subscale 3	Not meeting the criterion	9	23.1	120	85.1	57.889
	Meeting the criterion	30	76.9	21	14.9	<0.001
Subscale 4	Not meeting the criterion	13	33.3	97	68.8	16.165
	Meeting the criterion	26	66.7	44	31.2	<0.001
Subscale 5	Not meeting the criterion	24	61.5	62	44.0	3.778
	Meeting the criterion	15	38.5	79	56.0	0.052
Subscale 6	Not meeting the criterion	13	33.3	41	29.1	0.263
	Meeting the criterion	26	66.7	100	70.9	0.608
Subscale 7	Not meeting the criterion	16	41.0	126	89.4	42.857
	Meeting the criterion	23	59.0	15	10.6	<0.001
Subscale 8	Not meeting the criterion	0	0.0	139	98.6	168.791
	Meeting the criterion	39	100.0	2	1.4	<0.001

Chi-square test

addiction=30.80±6.06, existing of food addiction=33.89±5.63, $t=2.859$, $p=0.005$). Additionally, interview with a psychologist/psychiatrist, smoking status, and eating speed according to applicant's statement showed significant differences between people with and without food addiction. The significance for eating speed according to applicant's statement was due to fast and normal groups. However, no statistical results were determined for alcohol status, main meal, and fear of gaining weight because the chi-square test assumptions were not met. Other factors associated with food addiction are shown in

Table 5.

DISCUSSION

In our research, the frequency of food addiction in people who consulted to healthy nutrition consultancy was 21.7%. In the study by Bayraktar et al. (2012), the norm score of food addiction was found 11.6% (15). In the study by Mutlu and Sargin (2021) with obese people, the frequency of food addiction was 35.1%, in the study by Atabay et al. (2019) in the diet outpatient clinic, the frequency of food addiction

Table 5. Factors Associated with Food Addiction (Trabzon, 2020)

		Food addiction		Test statistics		p value
		Absent	Existing	n	%	
Sex	Female	111	78.7	33	84.6	0.663
	Male	30	21.3	6	15.4	0.416
Marital status*	Single/Widow/Divorced	40	28.4	13	33.3	0.362
	Married	101	71.6	26	66.7	0.547
Educational status*	High school and below	84	59.6	17	43.6	3.170
	University and above	57	40.4	22	56.4	0.075
Employment status	Working	62	44.0	14	35.9	0.816
	Not working	79	56.0	25	64.1	0.366
Chronic disease	Existing	32	22.7	8	20.5	0.084
	Absent	109	77.3	31	79.5	0.772
Interview with a psychologist/psychiatrist	Yes	34	24.1	20	51.3	10.738
	No	107	75.9	19	48.7	0.001
Smoking status	Yes	22	15.6	12	30.8	4.587
	No	119	84.4	27	69.2	0.032
Alcohol status**	Yes	7	5.0	4	10.3	
	No	134	95.0	35	89.7	
Physical activity for sport	Yes	49	34.8	11	28.9	0.453
	No	92	65.2	27	71.1	0.501
Main meal**	1 and 2	47	33.3	19	48.7	
	3 and over	94	66.7	20	51.3	
Snack*	1	34	24.1	11	28.2	
	2	71	50.4	16	41.0	1.069
	3 and over	36	25.5	12	30.8	0.586
Eating speed according to applicant's statement	Fast †	49	69.0	22	31.0	
	Normal †	83	83.8	16	16.2	6.203
	Slow	9	90.0	1	10.0	0.045
Eating by emotion change	Yes	95	67.4	31	79.5	2.134
	No	46	32.6	8	20.5	0.144
Discomfort from eating in crowded environments	Yes	64	45.4	17	43.6	0.040
	No	77	54.6	22	56.4	0.841
Preferring to be alone while eating	Yes	97	69.8	22	56.4	2.458
	No	42	30.2	17	43.6	0.117
Applicant's perception of her/his own body*	Underweight/Normal	29	20.6	3	7.7	3.465
	Overweight/Obese	112	79.4	36	92.3	0.063
Fear of gaining weight**	Yes	122	86.5	36	92.3	
	No	19	13.5	3	7.7	
Previous weight loss attempt and its result	No	56	39.7	9	23.1	
	Yes, positive	58	41.1	20	51.3	3.695
	Yes, negative	27	19.1	10	25.6	0.158

Chi-square test

* Categories were merged to meet the test assumptions.

** The test assumptions were not met.

† indicates the groups where the difference is due.

was 60.4%, in the study by Ozkan et al. (2017) with slightly overweight/obese women, the frequency of food addiction was determined as 38%, in the study by Mengi Celik and Karacil Ermumcu (2022) with people from the community, the frequency of food addiction was 23%, in the study by Tinkir Saatcioglu and Eryilmaz (2021) with obese people, the frequency of food addiction was 34%, in the study by Guler et al. (2022) with patients with Obstructive Sleep Apnoea Syndrome, the frequency of food addiction was 71.4% (16-21), and in the study of Guerrero Perez et al. (2018) with obese patients the frequency of food addiction was determined as 26.8% (22). In a systematic review conducted by Pursey et al. (2014) in which they included 25 studies and 196.211 mostly overweight/obese and female participants, the prevalence of food addiction was found 19.9% (12). In a meta-analysis conducted by Praxedes et al. (2022) the prevalence of food addiction was found to be 20%. In this study, the prevalence of food addiction was higher in clinical samples compared to non-clinical samples (23). In another meta-analysis conducted by de Melo Barros et al. (2023) to evaluate Latin American countries, 38% in clinical samples and 15% in non-clinical samples were calculated, and it was stated that this situation was quite similar to other regions of the worldwide (24). In studies conducted with high school and university students, it was observed that the frequency of food addiction ranged from 9% to 75.7% (25-28). In studies conducted with samples representing the society, the frequency of food addiction was found 7.9% in Germany, 9% in Denmark, and 15.2% in the USA (29-31). The frequencies found both in our study and in the literature are high. Especially in overweight/obese individuals, the frequency of food addiction is significantly higher. In our research, the applicants were mostly people with weight problems who consulted to healthy nutrition consultancy. This explains the high frequency we obtained. However, in studies conducted with students and the general population, high frequencies are also observed. It is thought that changing nutrition and living habits may be the reason for this situation.

Among the research participants, the mean BMI of those with food addiction was found higher than those without food addiction. Additionally, this difference was significant between the two groups. There are similar findings in the studies by Mengi Celik and Karacil Ermumcu (2022), Kayhan and Unveren (2017), Hauck et al. (2017), Horsager et al. (2020), and Schulte and Gearhardt (2018) (19, 28-30, 32). In the study by Ozkan et al. (2017) and Ozgur and Ucar (2018), no relationship was found between food addiction and BMI (18, 25). Generally, it can be interpreted that food addiction is associated with being overweight/obese and that BMI increases can be found in the etiology of food addiction. Different results in the literature may be due to the differences

in the place where the research was conducted and the participant groups' characteristics such as distribution of age, sex, BMI.

In our research, relationships were found between food addiction and smoking and interviewing a psychologist/psychiatrist. In the study of Ozgur and Ucar (2018), there was a relationship between food addiction and smoking (25). In the studies of Mutlu and Sargin (2021), and Romero-Blanco et al. (2021), unlike our study, no relationship was found between food addiction and smoking (16, 33). Studies have indicated that people with food addiction have symptoms of anxiety and depression (16, 18, 34). It is known that behavioral addictions and substance addictions have common features (35). For this reason, it can be thought that various addictions and mental problems can coexist.

In our research, a significant relationship was found between eating speed according to the applicant's statement and food addiction. In the group with food addiction, the number of applicants who think they eat fast is high. In the studies by Aktaş et al. (2015) and Ulaş et al. (2013), a relationship was found between BMI and eating speed (36, 37). In the study by Koruk and Sahin (2005) in which they investigated the frequency of obesity in women aged 15-49, eating speed was associated with obesity (38). It was thought that participants with a high-eating speed would have more food consumption compared to individuals with a low-eating speed. This may lead to food addiction and obesity with an increase in BMI.

In our research, no relationship was determined between food addiction and other variables such as age, gender, employment status, and physical activity. In the studies of Mutlu and Sargin (2021), and Guerrero Perez et al. (2018) no relationship was found between age, gender and food addiction (16, 22). In the study of Mengi Celik and Karacil Ermumcu (2022), there was no relationship between food addiction, gender and physical activity (19). In the study of Hauck et al. (2017), no relationship was found between gender and food addiction, but also found a relationship between age and food addiction (29). In the literature, there are also studies that found a relationship between food addiction and variables such as gender, age, marital status, and dieting (21, 25, 37, 39). These different results in the literature may be because of the place of the research and differences in the individuals included in the research.

Limitations and Advantages of The Research

The research was limited to people who consulted to Fatih HLC-HNC in Ortahisar district of Trabzon province. Another limitation is that the research data were collected based on the self-reports of individuals. The superior aspect of the study is that it investigates the frequency and factors associated with food addiction in an important issue.

CONCLUSION

As a conclusion of our research, the frequency of food addiction was found 21.7% in people who consulted to healthy nutrition consultancy. Significant relationships were found between food addiction and interview with a psychologist/psychiatrist, smoking status, BMI, and eating speed according to applicant's statement, but no relationship was determined between food addiction and other variables.

Information and awareness studies on food addiction can be considered as a public health priority. To detect food addiction, food addiction screening can be done with the help of scales in healthy nutrition consultancy, diet polyclinics, family health centers and schools. People who are found to have food addiction because of screening should be directed to centers where they will be managed multidisciplinary. Additionally, regular anthropometric measurements in family health centers and directing overweight/obese people to dietitians may be effective in struggling with food addiction.

Etik Kurul: Ethics committee approval was obtained from Necmettin Erbakan University Meram Faculty of Medicine Non-Pharmaceutical and Non-Medical Device Research Ethics Committee (Date: 04.10.2019, Number: 2019/2098).

Çıkar Çatışması: Çalışmada herhangi bir çıkar çatışması yoktur.

Finansal Çıkar Çatışması: Çalışmada herhangi bir finansal çıkar çatışması yoktur.

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KAYNAKLAR

1. WHO. Non-communicable disease fact sheet. Available at <https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases> Access date: 20.07.2022.
2. WHO. Obesity and overweight fact sheet. Available at <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight> Access date: 20.07.2022
3. WHO. Mental disorders fact sheet. Available at <https://www.who.int/news-room/fact-sheets/detail/mental-disorders> Access date: 20.07.2022
4. Hauck C, Cook B, Ellrott T. Food addiction, eating addiction and eating disorders. *Proc Nutr Soc* 2020;79(1):103-12.
5. Fletcher PC, Kenny PJ. Food addiction: A valid concept? *Neuropsychopharmacology* 2018; 43(13): 2506-13.
6. Avena NM, Rada P, Hoebel BG. Sugar and fat bingeing have notable differences in addictive-like behavior. *Journal of Nutrition* 2009; 139(3): 623-8.
7. Avena NM, Gold MS. Food and addiction-sugars, fats and hedonic overeating. *Addiction* 2011;106:1214-5.
8. Novelle MG, Diéguez C. Food addiction and binge eating: Lessons learned from animal models. *Nutrients* 2018;10(1):71.
9. Volkow ND, Wise RA, Baler R. The dopamine motive system: Implications for drug and food addiction. *Nat Rev Neurosci* 2017;18(12): 741-52.
10. American Psychiatric Association. Diagnostic and statistical manual of mental disorders, 5th edition. 2013. USA.
11. Yekaninejad MS, Badrooj N, Vosoughi F, et al. Prevalence of food addiction in children and adolescents: A systematic review and meta-analysis. *Obes Rev* 2021; 22(6): e13183.
12. Pursey KM, Stanwell P, Gearhardt AN, et al. The prevalence of food addiction as assessed by the Yale Food Addiction Scale: A systematic review. *Nutrients* 2014; 6(10): 4552-90.
13. Faul F, Erdfelder E, Buchner A, et al. Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods* 2009;41:1149-60.
14. Gearhardt AN, Corbin WR, Brownell KD. Preliminary validation of the Yale Food Addiction Scale. *Appetite* 2009; 52(2): 430-6.
15. Bayraktar F, Erkman F, Kurtulus E. Adaptation study of Yale Food Addiction Scale. *Bulletin of Clinical Psychopharmacology (Klinik Psikofarmakol Bülteni)* 2012;22:38.
16. Mutlu HH, Sargin M. Food addiction prevalence and related factors among people with obesity: A hospital-based study. *Ankara Med J* 2021;1:22-34.
17. Atabay FE, Altin D, Altin B. Epidemiological research of food addiction within patients referred to diet polyclinic. *Cyprus Turkish Journal of Psychiatry and Psychology (Kıbrıs Türk Psikiyatri ve Psikoloji Dergisi)* 2019; 1(Special issue 1): 27-9.
18. Ozkan I, Devrim A, Bilgic P. Evaluation of the relationship between food addiction, nutritional status and depression in overweight and obese women. *Journal of Nutrition and Dietetics (Bes Diy Derg)* 2017;45(3): 242-9.
19. Mengi Celik O, Karacil Ermumcu MS. The evaluation of the changes in the anthropometric measurements and physical activity levels of individuals according to food addiction during the pandemic period. *Bes Diy Derg* 2022; 50(1):35-44.
20. Tinkir Saatcioglu N, Eryilmaz G. Examination of the relationship between obesity, eating addiction and emotional violence. *Current Addiction Research* 2021;5(1):5-15.
21. Guler AY, Tinkir Saatcioglu N, Eryilmaz G. Investigation of the relationship between depression, anxiety and eating addiction in patients with obstructive sleep apnea syndrome. *Current Addiction Research* 2022; 6(1): 5-12.
22. Guerrero Perez F, Sanchez-Gonzalez J, Sanchez I, et al. Food addiction and preoperative weight loss achievement in patients seeking bariatric surgery. *Eur Eat Disord Rev* 2018;26(6): 645-56.
23. Praxedes DRS, Silva-Júnior AE, Macena ML, et al. Prevalence of food addiction determined by the Yale Food Addiction Scale and associated factors: a systematic review with meta-analysis. *Eur Eat Disord Rev* 2022;30(2):85-95.
24. de Melo Barros L, da Silva Júnior AE, Praxedes DRS, et al. Prevalence of food addiction determined by the Yale Food Addiction Scale in Latin America: A systematic review with meta-analysis. *Int J Eat Disord* 2023;56(4): 677-90.
25. Ozgur M, Ucar A. Assessment of food addiction and night eating syndrome in university students living in Ankara. *Ankara Journal of Health Sciences (Ankara Sağlık Bilimleri Dergisi)* 2018; 7(1): 10-21.
26. Cakir E, Kizilkaya M. Factors affecting eating addiction and anxiety level of high school final students. *Medical Sciences* 2021;16(3):159-70.
27. Alan H, Gungor S, Gumustag G, et al. Food addiction and affecting factors in nursing undergraduate students. *Journal of Turkish Nurses Association (Türk Hemşireler Derneği Dergisi)* 2021; 2(1):27-41.
28. Kayhan M, Unveren A. Comparison of physical activity level and food addiction of physical education and sports science college students. *Sports Perspective: Journal of Sports and Educational Sciences (Sportif*

- Bakış: Spor ve Eğitim Bilimleri Dergisi) 2017; SI(1): 98-108.
29. Hauck C, Weiss A, Schulte EM, et al. Prevalence of “food addiction” as measured with the Yale Food Addiction Scale 2.0 in a representative German sample and its association with sex, age and weight categories. *Obes Facts* 2017;10(1):12-24.
 30. Horsager C, Færk E, Lauritsen MB, et al. Validation of the Yale Food Addiction Scale 2.0 and estimation of the population prevalence of food addiction. *Clin Nutr* 2020;39:2917-28.
 31. Carr MM, Schulte EM, Saules KK, et al. Measurement invariance of the modified Yale Food Addiction Scale 2.0 across gender and racial groups. *Assessment* 2020;27(2):356-64.
 32. Schulte EM, Gearhardt AN. Associations of food addiction in a sample recruited to be nationally representative of the United States. *Eur Eat Disord Rev* 2018;26(2):112-9.
 33. Romero-Blanco C, Hernández-Martínez A, Parra-Fernández ML, et al. Food addiction and lifestyle habits among university students. *Nutrients* 2021;13:1352.
 34. Imperatori C, Innamorati M, Lamis DA, et al. Body uneasiness is associated with food addiction symptoms: A cross-sectional study. *Eur Eat Disord Rev* 2018; 26(6): 638-44.
 35. Zubaroglu Yanardag M, Bilge M, Yanardag U. An examination on behavioral addiction and social work practices. *Manisa Celal Bayar University Journal of Health Sciences Institute (Manisa Celal Bayar Üniversitesi Sağlık Bilimleri Enstitüsü Dergisi)* 2020;7:551-60.
 36. Aktas D, Ozturk FN, Kapan Y. Determination of the obesity prevalence and affecting risk factors, of eating habits among adolescents. *TAF Preventive Medicine Bulletin* 2015;14:406-12.
 37. Ulas B, Uncu F, Uner S. Prevalence and affecting factors of potential eating disorders among students of health higher education. *İnönü University Journal of Health Sciences (İnönü Üniversitesi Sağlık Bilimleri Dergisi)* 2013; 2: 15-22.
 38. Koruk I, Sahin TK. Prevalence and risk factors of obesity among 15-49 years-old house-wives in Fazilet Uluşık Health District in Konya. *General Medical Journal (Genel Tıp Dergisi)* 2005;15:147-55.
 39. Pipová H, Kascáková N, Fůrstová J, et al. Development of the Modified Yale Food Addiction Scale Version 2.0 summary version in a representative sample of Czech population. *J Eat Disord* 2020; 8: 16.