



RESEARCH ARTICLE

The relationship between food addiction with psychiatric symptoms and personality traits in university students

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ABSTRACT

Objective: Food addiction is a behavioral addiction that presents with addictive behavioral changes toward high sugar, high fat, and highly palatable foods. This study aims to determine the relationship between food addiction with personality traits, personal habits, and psychiatric symptomatology.

Method: In a cross-sectional design study, the participation of 1500 students studying in Konya Selçuk University Central Campus was planned. A sociodemographic data form, Yale Food Addiction Scale (YFAS), Symptom Checklist-90 (SCL-90), and Eysenck's Personality Inventory (EPI) were used for assessment.

Results: A total of 1418 forms were included in the statistical analysis. Food addiction prevalence was 11.4% in the study group. The mean YFAS score for total sample was 3.2, whereas it was 3.0 for non-food addicts, and 4.7 for food addicts. According to the logistic regression analysis, there were positive correlations between food addiction and body mass index, social media consumption over 5 hours, psychoticism subscale of EPI, interpersonal relations subscale of SCL-90. Also, there was a positive correlation with irregular eating, skipping meals, the number of snacks, eating time (<10 min and >30 min) and eating alone. All sub-scores for SCL-90 strongly differed between food addicts and non-addicts. Psychoticism and neuroticism scores were positively correlated with food addiction.

Conclusion: Our study demonstrated that food addiction is associated with some personality traits, personal habits, and psychiatric symptoms in a large university sample.

Keywords: Eating attitude, food addiction, psychiatric symptoms, personality, social media

INTRODUCTION

Although the concept of behavioral addiction has been known to mental health physicians for over a century, the Food addiction (FA) theme developed and emerged nearly a decade ago. Most of the evidence for or against

FA in humans focuses on the similarities between food and substance cravings (1). FA is a compulsive eating behavior towards palatable foods containing sugar and fat with the presence of substance addiction-like symptoms. The first signs of this behavioral addiction were observed in animals, followed by human studies showing its

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association with neurochemistry (dopamine, endogenous opioids), neuroanatomy, and self-medication behaviors. FA has not yet been specified as a psychiatric disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM). However, an increase in highly processed foods that cause addiction in the 21st century, and its relation with obesity as an important public health problem, especially affecting the Western society, made FA the focus of scientists (2). Aiming to provide an assessment of FA, the Yale Food Addiction Scale (YFAS) was developed in 2009 by the behavioral addictions workgroup at Yale University. With the help of behavioral sciences, substance addiction criteria were modified to identify the addictive characteristics of food consumption (3). In the process of creating quantitative assessment material for FA, DSM-IV diagnostic criteria for substance addiction were used and modified as independent sub-scores of the YFAS scale (4). The scale shows the diagnostic significance of FA by confirming the clinical significance/functional impairment criteria if three or more clinical criteria are met. The seven criteria of YFAS; tolerance, withdrawal symptoms, consumption more than intended, persistent cravings or unsuccessful reduction attempts, too much time spent using or recovering the substance, continuous use despite the knowledge of the results, and the abandoned activities due to the FA (5). It should be noted that due to the nature of mental disorders, a self-report design cannot be used for diagnosis, but this scale offers only strong impressions, assessment powers, and significant irregular behavioral changes.

Early studies With the diagnostic and assessment power of YFAS aimed to investigate the relationship between eating disorders, addiction, and obesity. Also, after preliminary validation, many epidemiological studies have been completed for validation of the diagnostic criteria (6-8). Using a sample of obese adults (aged between 25-45 years), and a case-control methodology, it was found that those who met the diagnostic criteria for FA via YFAS had significantly greater comorbidity with binge eating disorder, depression, and attention-deficit/hyperactivity disorder compared to their age- and weight-equivalent counterparts. Those with FA were also more impulsive and displayed greater emotional reactivity than obese controls. They also displayed greater food cravings and the tendency to 'self-soothe' with food (7). Bariatric surgery is a popular surgical method in the treatment of morbid obesity. FA is a well-studied etiological factor for the failure to lose weight in obese patients. Preoperative candidate studies show increased mood

and anxiety symptoms related to FA, and the findings are correlated with body mass index (BMI) scores. Anxiety, mood symptoms, eating disorders, alcohol and substance use disorders, gambling addiction, shopping addiction, excessive exercising disorder and other behavioral addictions, attention, and motor impulsivity are the main themes studied in the obesity and bariatric surgery population, apart from FA diagnosis (9-13). FA and other behavioral addictions have also received attention in large-scale population-based studies. There are many systematic reviews including meta-analytic data. Twenty-five studies were discussed in 2014, including validation studies and student-based community research findings (14). Studies ranging from descriptive cross-sectional to double-blind control design were included in the review. The main population groups were college students, healthcare workers, patients seeking weight loss treatments, patients receiving psychiatric treatment, children and adolescent patients.. The review included a total of 196.211 participants. The studies collected data on age, gender, weight, BMI, FA diagnosis, YFAS sub-score and severity, comorbid alcohol and substance use, comorbid psychiatric and medical illnesses. The meta-analysis showed that, according to the YFAS assessment, being overweight or obese, female gender, and age over 35 are strongly associated with the importance of FA diagnosis. Also, participants with an eating problems/disorders showed higher symptoms of FA in terms of YFAS compared to non-clinical participants. It should be noted that the participants in different studies were mainly female, overweight, and predominantly over 35 years old, though the review does not reflect a healthy population. Further research is needed to explore the YFAS outcomes across a wider age range, particularly children, and adults over 65 years, in conjunction with other types of eating disorders and weight-loss interventions to validate the effectiveness of the tool for evaluating the presence of FA (5,14). We investigated some hypotheses related FA in our study. Firstly, could the food-addicted patient be more extroverted? Secondly, could FA be associated with depression, anxiety or some psychiatric symptoms? Thirdly, could personal habits such as eating habits and social media use positively correlate with FA? The current study aims to research FA diagnosis in a large sample of university students, and reveal any significant relationships with psychiatric symptoms, BMI, personal habits like eating attributes, social media consumption, sleeping habits, and basic personality traits. In this way, it should be easier to determine any risk factors or predictors for FA.

METHOD

Participants and Procedures

The data were collected from the Engineering, Dentistry, Medicine, Health Sciences, Science, Literature, and Law faculties, for which permission was obtained from their deans, and the number of participants was determined by weighted distribution according to the faculty populations. The inclusion criteria were as follows: being a university student, over 18 years old. Eighty-two participants who did not fill out the forms were excluded from the study, and the study was completed with 1418 students. Ethical approval was obtained from Konya Selçuk University Medical Faculty's Ethics Committee. In addition, the objectives and procedures of the study were explained to all participants, and written informed consent forms were obtained in accordance with the Declaration of Helsinki. Sociodemographic data form, YFAS, symptom checklist 90 (SCL-90) and Eysenck personality inventory (EPI) scale were applied.

Measures

Socio-Demographic Data Form: Designed by the researcher, the form contained 34 questions including age, sex, height, weight, years of education, marital status, occupation, monthly income, living conditions, medical and psychiatric history, tobacco, substance and alcohol (including CAGE questions and consuming habits) use, gaining and losing of weight, daily physical activity, sleep, social media consumption time, eating and meal (eating time, skipping a meal, social eating) behaviors. Numerical values were not determined for these questions in the sociodemographic data form. Since categorical answers were obtained, mean values and standard deviations could not be calculated. According to the CAGE questions, participants were classified as the A-alcohol use disorder risk and B-risk-free groups. Weight and height information was calculated as BMI according to the WHO 2010 obesity index and classified as a-very low, b-low, c-normal d-overweight, and e-obese.

Yale Food Addiction Scale (YFAS): The YFAS is a mixed-scale designed by Gearhardt et al. (3) in 2009 to detect the diagnostic values for behavioral FA and determine its sub-criteria by considering the diagnostic criteria of DSM-IV-TR substance dependence. The first 25 questions have a Likert-type sequential design, and the 26th item is a multiple-choice dietary question. It calculates 7 sub-criteria evaluated in the diagnosis of substance addiction and has an 8th clinical significance score. To find the diagnostic value for FA, at least 3 of

the 7 diagnostic criteria should be met and should have clinical significance. The adaptation study of the scale to Turkish was conducted by Bayraktar et al. (15) in 2012 with 300 university students (2). The validity and reliability study of the scale was performed by Sevincer et al. (16) among bariatric surgery patients.

Symptom Checklist 90 (SCL-90): The SCL-90 was developed by Derogatis et al. (17) consisting of 90 items. Responses to each item are scored between 0 and 4. Test-retest reliability was $r=0.9$, Cronbach's alpha internal consistency coefficient was 0.97, and the test-retest reliability of the subscales was between 0.65 and 0.87. The correlation with Beck Depression Inventory (BDI) was found to be 0.78. The correlations between the general symptom index (GSI) of SCL-90 and the Minnesota Multifaceted Personality Inventory (MMPI) subscales ranged between 0.1 and 0.77. Somatization, obsessive-compulsive characteristics, sensitivity in interpersonal relationships, depression, anxiety, anger and hostility, phobic anxiety, paranoid thoughts, psychoticism, and additional items are structured to evaluate 10 different symptom dimensions. The GSI, in general, indicates the level of goodness and functionality. This is obtained by dividing the sum of all subscales by 90 (17). Its Turkish validity and reliability study was conducted by Dag (18).

Eysenck Personality Inventory (EPI): The EPI is 24 yes-no questions in the short form of the 57-question version of EPI. EPI consists of three sub-scores reflecting the personality theory of Hans Eysenck, a clinical psychologist with a behavioral perspective. Each of the sub-scores is scored between 0-6, reflecting the severity of relevant clinical findings. The theory explains personality on axis a -introversion – extroversion, axis b-neuroticism – stability, and axis c- psychoticism. The neuroticism (N) coefficient is related to a person's ability to balance and show consistency towards stressful events. Psychoticism (P) gives a brief idea about a person's distorted themes of thought, emotions, and perceptions about life. Extraversion (E) reflects the power of a person's cognitive, emotional and behavioral entrepreneurial abilities (19). The Turkish validity and reliability study for the scale was conducted by Karanci et al. (20)

Statistical Analysis

All data were evaluated using the SPSS-21 statistical package program. Descriptive statistics were used to determine the socio-demographic data analysis. Categorical data were tested between groups by using the Chi-square test. Student-t-test was used to compare

the measurements of the two groups for a given variable. Pearson correlation analysis was performed to determine the relationship between numerical variables. The correlation coefficient (r) was considered to indicate a weak correlation between 0.000-0.249; moderate from 0.250 to 0.499; strong from 0.500-0.749; and very strong between 0.750-1.000. The level of significance was $p < 0.05$. Pearson's R test was administered to determine the relationship between scale severity and diagnosis. Finally, logistic regression analysis was performed to determine whether possible factors significantly contributed to the unique variance of FA. Hosmer-Lemeshow goodness of fit statistics was used to assess model fit. The threshold for significance was set at $p < 0.05$.

RESULTS

Descriptive Statistics

The mean age of the participants is 21.57 years (SD: 2.361). The mean BMI is 22.0009 kg/m² (SD: 2.996). 62.1% of the sample is female ($n=880$), 97.7% of the participants are single and 6.3% are employed. In terms of residence, 20.8% live with their family, 41.5% live in dormitories and 37.7% live in their own home. Of participants, 41.6% stated that they ate regularly, 12.8% had a medical condition, 28.3% ($n=402$) reported that they had dieted at least once, 19.5% ($n=277$) had been examined by a psychiatrist at least once, and 12.6% ($n=178$) stated that drug treatment was recommended. Regarding smoking, 78.8% of the participants ($n=1117$) reported that they did not smoke. The ratio of alcohol users and positive answers to all four of the CAGE questions was 0.49% ($n=7$). Participants were asked whether they had gained or lost more than 10% weight in the last 6 months, and 36.9% ($n=523$) reported that they had gained weight gain, whereas 36.7% ($n=521$) stated that they had lost weight. When analyzed at the daily living activities and BMI of the study group; most of the group (65%) was doing sports activities for less than 1 hour a day, sleep time of most of them (86.2%) varied between 6-8 hours/day, (44%) social media usage was between 2-5 hours/day, half of the group (50.3%) ate extra meal snacks twice a day. Nearly half of them (49.6%) skipped breakfast, while the most majority (94.1%) didn't skip dinner. While the BMI of the majority of the group (75.7%) was within the normal range, 11.9% were slightly obese and 1.3% were obese.

162 (11.4%) participants in the study group met the YFAS criteria and the diagnostic value for FA. The scale is inherently instrumental for diagnostic tools and is not

a marker for the severity of the addiction, but the responses were grouped into 7 subgroups, and these subgroups give an idea of the severity of addictive behavior. Excluding the 8th clinical significance criterion, 33 (20.37%) of FA positive participants met 3 criteria, 34 (20.98%) met 4, 50 (30.86%) met 5, 32 (19.75%) met 6 and 13 (8.02%) participants met 7 criteria. The mean value of YFAS criteria positivity is 3.265 (SD: 1.298). The 26th question of YFAS investigates the most commonly consumed foods for the participants over 12 months. According to the statistical analysis of the FA group and of each food with the chi-square test, the following items show significantly higher consumption in addictive behavior ($p < 0.005$); apple, donut, cookie, cake, candy, bread, pastry, pasta, rice, bagel, potato, bacon, toast, pizza, and cola.

Food Addiction and Sociodemographic Data

FA diagnostic values according to YFAS were met by 13.2% of males ($n=71$) and 10.3% ($n=91$) of females. There was no significant difference between the two groups ($p=0.101$). There was no significant difference between age groups ($p=0.428$). There was no significant relationship between the education time of the participants and their FA ($p=0.514$). There was no significant relationship between the groups with respect to employment status ($p=0.330$), budget ($p=0.58$), marital status ($p=0.820$), and place of residence ($p=0.341$). Having a health problem ($p=0.741$) and health problems subgroups ($p = 0.684$) did not differ in FA. There was no significant difference in terms of FA between visiting a psychiatrist at least once ($p=357$) and the treatment recommended at the time of admission ($p=867$). There was no statistically significant difference between cigarette consumption ($p=0.179$) and frequency ($p=0.643$), alcohol consumption ($p=0.771$) and frequency ($p=0.861$) with FA. Weekly sports activities ($p=0.494$) and weekly average sleep habits ($p=0.630$) did not differ significantly in terms of FA. FA was 25.4% ($n=29$) among the participants using social media for five hours or more. This is a statistically significant difference with FA compared to the group with less than five hours of social media consumption ($p < 0.001$).

There was a significant difference in terms of FA between the groups that eat regularly (41.6%, $n=590$) and those who do not eat regularly (58.4%) ($p < 0.001$; odds ratio 0.519). When the number of non-meal snacks of the participants was numerically grouped between 0 and 3, the FA ratio increased significantly as the number of snacks increased ($p < 0.001$). A significant

relationship was found between the group who stated that they dieted at least once in their life (28.4%, n=302) and the group who stated that they did not diet (71.7%, n=1016) in terms of FA ($p=0.009$, $OR=1.572$). The group (36.9%, n=523) who stated that they gained weight fast in the last six months was found to be statistically significant in terms of FA ($p<0.001$, $OR: 2.062$). Similarly, in the group who stated that they lost weight fast in the last six months (36.7%, n=521), there was a statistically significant increase in FA risk ($p=0.031$, $OR: 1.438$). There was a significant relationship between BMI and FA, especially with the overweight and obese group, and the very underweight group also showed a statistically significant relationship with FA diagnosis ($p<0.001$, $p<0.001$, and $p=0.0016$, respectively). When social eating behavior was evaluated in terms of FA, a significant difference was determined ($p=0.005$). Participants who choose to eat alone were shown to have a higher risk for FA than those who eat with friends and family groups. When the time allocated to eating was evaluated, there was a significant difference in terms of FA between the groups ($p=0.004$). Also, 13.0% of those who eat less than 10 or more than 30 minutes were associated with FA.

Food Addiction, Psychiatric Symptoms and Personality Traits

A statistically significant correlation was found between the increase in all subscales of SCL-90 and the diagnostic value of FA according to YFAS. The accepted criteria for FA in sub-score groups were; somatization 17% ($p<0.001$, $OR:2.412$), OCD 13.7% ($p<0.001$, $OR:2.145$), interpersonal relationships 17.2% ($p<0.001$, $OR: 3.228$), depression 17.7% ($p<0.001$, $OR:3.121$), anxiety 19.3% ($p<0.001$, $OR: 2.802$), anger and hostility 18.4% ($p<0.001$, $OR: 2.761$), phobia and avoidance 22.4% ($p<0.001$, $OR:2.858$), paranoid thoughts 17.2% ($p<0.001$, $OR: 2.558$), psychosis 20.7% ($p<0.001$, $OR: 2.841$), and additional items 17.2% ($p<0.001$, $OR: 2.765$), respectively. Participants meeting 3 criteria as the peak score in the YFAS subscales comprised 39.2% of all participants in all SCL subscales. All of the subscales had a weak positive correlation (Pearson R values ranged from 0.101 to 0.190) in the correlation analysis with the YFAS criteria for FA. This finding shows that SCL subscores do not strongly predict or exclude the diagnosis of FA.

For the 3 subscales of the EPI and their relationship with criteria for FA, psychoticism, neuroticism ($p<0.001$, $p=0.002$), there was no significant correlation with the extraversion subscale ($p=0.063$). When the

correlation between the severity of the subscale and FA was examined, a weak positive correlation was detected with psychoticism (Pearson's $R=0.084$, $p=0.002$) and neuroticism (Pearson's $R=0.099$ $p<0.001$) scores. No significant correlation was found between the extraversion subscale and FA ($p=0.405$).

The logistic regression analysis conducted to determine the predictors of FA according to the YFAS showed that the increased BMI ($OR=1.04$; $p=0.04$), and social media consumption more than 5 hours a day ($OR=2.40$, $p=0.02$), the psychoticism subscale of EPI ($OR=1.20$, $p=0.02$) and interpersonal sensitivity subscale of SCL-90 ($OR=1.78$; $p<0.01$) scores were found to significantly contribute to FA (Table 1).

DISCUSSION

The FA is a member of the emerging diagnostic category of behavioral addictions, which also includes extreme physical exercise disorder, gambling addiction, shopping addiction, internet use addiction, online gaming addiction, and sex addiction. The behavioral addiction concept explains the pathological engagement with certain behaviors presenting classical addictive traits such as tolerance, withdrawal, use of time and resources, and dysfunction in social and daily life. It is known that certain personality traits and psychiatric symptoms are also related to alcohol and substance use disorders. Our study aims to investigate and discover new findings on FA and eating and meal habits, medical and personal data, alcohol, tobacco use, psychiatric complaints and basic personality features. Also, the study aims to improve the concept of behavioral addiction by assessing a non-clinical university population.

FA prevalence was found to be 11.4%. The first demographic data regarding FA was found to be 11.4% for college students (n=350) in the preliminary YFAS study (2) Between 2009 and 2019, the FA prevalence was examined in different populations, including healthcare workers, students, bariatric surgery candidates, patients with eating disorder, and psychiatric inpatients. Many studies in the literature have been applied to university-college students. The most comprehensive studies in this field were conducted by the US health research unit in 2013 with 57.321 people and in 2014, Pursey et al. (14) reviewed 14 of 25 studies in a non-clinical population. Regarding the clinical populations, obese and overweight, adults, adolescents, and pediatric outpatients, patients admitted to weight-loss centers, candidates for bariatric surgery, patients

Table 1: Logistic risk analyses for predictors of Food Addiction according to the Yale Food Addiction Scale

	Odds ratio	95% CI	p
Body Mass Index	1.04	1.01-1.07	0.04
Social media consumption (more than 5 hours/day)	2.40	1.16-4.95	0.02
Eysenck's Personality Inventory			
Neuroticism	1.03	0.91-1.17	0.63
Psychoticism	1.20	1.03-1.39	0.02
Lie	0.94	0.84-1.05	0.27
Symptom Checklist-90			
Somatization	1.04	0.69-1.55	0.87
Obsessive-compulsive	1.14	0.77-1.69	0.51
Interpersonal sensitivity	1.78	1.20-2.65	<0.01
Depression	0.81	0.52-1.27	0.37
Anxiety	1.01	0.60-1.68	0.98
Hostility	0.95	0.69-1.33	0.77
Phobic anxiety	1.04	0.69-1.56	0.85
Paranoid ideation	0.97	0.67-1.42	0.88
Psychoticism	1.05	0.65-1.71	0.85
Additional items	1.29	0.88-1.87	0.19

diagnosed with binge eating disorder, and other eating disorders have been frequently evaluated (14).

In a study conducted in dia with n=617 participants in German universities the prevalence of FA was shown to be 7.8%, and Murphy et al. (21) in 2014 examined participants in the University of Georgia (n=233) and found the FA prevalence to be 24% (22). In another study conducted with a large sample of universities in Turkey, the prevalence of FA was found to be 18.2% (23). These studies found the prevalence of FA in a wide range from 7.8% to 24%. These different results may be related to the self-reporting nature of the YFAS. More studies using clinical interviews are needed for consistent findings of FA prevalence. Studies investigating FA among university-college students, show results for young and relatively healthy people, although they do not significantly represent the general population It is easier to access high-calorie, increased taste and processed food during the years of education. A recent study shows that a higher prevalence of FA diagnosis might be associated with eating and meal habits. Separating from the family and trying to survive in an academic environment leads young people to change their habits, such as skipping meals, eating snacks to suppress hunger, choosing certain foods to cope with emotional stress, eating alone, eating fast, or having long meals.

These factors correlated with FA diagnosis, proving the concept of behavioral addiction was solidified as a phenomenon based on stress and coping mechanisms.

Recent studies show a significant relationship between anxiety, depressive symptoms, and self-esteem. Especially, the time spent in social media is positively correlated with situational and social anxiety (24-27). It was also proven that social media has an addictive role in modern life. Young adults may be interested in social platforms more than regular users, but excessive users might show behavioral addiction symptoms for food too. User groups of five hours and longer provide evidence that different behaviors express similar addictive traits.

Assessing the BMI groups, the overweight and obese participants showed a significantly higher prevalence and increased risk towards FA. The overweight group showed a higher odds ratio than all other groups. It can be interpreted that people who are considered to be overweight may be in a prodrome metabolic state that progresses to obesity, and thus FA may be an early clinical feature of obesity. In their study on the relationship between FA and substance addiction, Blanchet et al. (3) found a high prevalence of FA in non-obese subjects with increased fat mass and waist circumference. Gaining weight may alter the basal metabolic rate, blood glucose level, and insulin resistance, lipid metabolism, and leptin levels affecting central appetite and nutrition centers. This may trigger an increase in foraging impulses, frequency and quantity of feeding, activate the reward dependence circuits, and consequently initiate FA by reducing impulse control.

Examining the relationship between FA and psychiatric symptom subscales, it may be considered that participants used behavioral addiction as a method to cope with their complaints about interpersonal relations, depression, and anxiety. On the other hand, as evidenced in previous studies, it may be thought that the components of behavioral addiction such as impulsivity, risk prediction, unpredictable decision-making, and reward-seeking, may lead to more interpersonal problems and cause depressive, anxious and irritable complaints (28). There is a study in which the YFAS and SCL-90 scales have been applied together (28). Among the applicants who applied to a weight loss center in Rome in 2014, n=112 participants were first diagnosed with FA using YFAS, and SCL-90 was applied to evaluate their psychopathology. In all of the subscales, a significant difference was found between the participants with FA, those with high BMI, and those with comorbid binge eating disorder (29).

The present study with the predictive potential of logistic regression analysis revealed the statistically strong correlation between FA and increased BMI, social media consumption for more than 5 hours, psychoticism subscale of EPI, and interpersonal sensitivity subscale of SCL-90. These findings are useful in interpreting the pathophysiology of behavioral addiction, especially FA. The personality traits which are interpreted as psychoticism that weakens the individual's stress management confidence and social skills, increase FA with positive correlation with findings indicating the inability to resolve communication difficulties with other people. In addition, social media consumption habits that last more than five hours a day indicate the direct relationship between internet addiction and eating addiction as another behavioral addiction. As an inevitable consequence of uncontrolled eating behavior, increased BMI and weight gain may increase the effects of anxiety, low social adjustment, and self-esteem, which may also accelerate the FA process.

Our study most strongly reveals demographically valuable data for FA and behavioral addictions. The relationship between FA and social eating habits, social media consumption and weight changes are the novel findings in this field. The YFAS 26th question about multi-choice food preference is another new finding showing that plant-based carbohydrates are the most consumed type for the FA group. SCL-90 findings and basic personality traits were found to be statistically related to FA, proving the validity of disordered

behavior, which should be taken as a novelty in our study. A large number of young adult participants provided the strong statistical value of our study, and extensive socio-demographic questionnaires also resulted in interesting findings.

The cross-sectional and self-report design may be the biggest limitation of our study. A clinical interview with more face-to-face meetings would be useful for diagnosing psychiatric disorders. Another assessment period would provide valuable information for future studies. The behavioral addiction concept needs more population-based studies to determine the pathophysiology and neurobiology of the disorder.

FA has been studied in a large university population (n=1418), and the diagnostic value of FA according to the prevalence of YFAS is 11.4%. There is a statistically significant relationship between FA and BMI distribution groups, especially between overweight and obese, body weight changes, eating alone, fast or slow eating, meal skipping, extra-meal snacks, and social media consumption over 5 hr. FA diagnosis and SCL-90 sub-scores showed significant correlation and increased odd's ratios. Interpersonal relationships, anxiety, depression, phobia, and avoidance sub-scores showed the highest OR. EPI sub-scores of neuroticism and psychoticism showed a positive correlation with FA. The FA prevalence was found to coincide with the literature statistics, and some foods, especially the types of high calorie, palatable, high sugar and fat-containing ones showed significance in the FA group. Eating and meal habits, psychiatric symptoms and basic personality traits could reflect FA.

Although some of these findings were explored in previous studies, our study shows that, as we know, the overweight group has the highest risk for FA, and correlates with social media consumption, SCL sub-score's odds and the impact of EPI personality traits.

Contribution Categories		Author Initials
Category 1	Concept/Design	G.D.K., O.F.U.
	Data acquisition	G.D.K., O.F.U.
	Data analysis/Interpretation	G.D.K.
Category 2	Drafting manuscript	O.F.U.
	Critical revision of manuscript	A.K., O.F.U.
Category 3	Final approval and accountability	O.F.U.
Other	Technical or material support	A.K.
	Supervision	O.G.

Ethics Committee Approval: Ethical approval was obtained from Selcuk University Medical Faculty's Ethics Committee in Konya, Turkey. (Date: 04.11.2014, Number: 2014/290)

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