

Evaluation of Psychological Well-Being Among Adolescents: A Cross-Sectional Study of Correlation Between Food Addiction and Cognitive Behavioral Physical Activity

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ABSTRACT

Background: This study was conducted to examine the relationship between psychological well-being, food addiction, and cognitive behavioral physical activity among adolescents.

Methods: This descriptive study was conducted in a province in the east of Turkey with 936 adolescents using the “Psychological Well-Being Scale,” the “Yale Food Addiction Scale,” and the “Cognitive Behavioral Physical Activity Scale.”

Results: In this study, the total score of adolescents from Psychological Well-Being Scale shows that their psychological well-being is below the average score. It was found that 29.4% of adolescents have a food addiction, and their attitudes and behaviors related to food addiction and participation in physical activity were moderate. It has been determined adolescents are aware of the benefits they can obtain as a result of their participation in physical activities. Also, it was found that there was a negatively significant relationship between psychological well-being and food addiction among adolescents.

Conclusion: Psychological well-being is a protective factor for food addiction. It was determined that food addiction increased as psychological well-being decreased among adolescents. It is believed that with an increase in the psychological well-being levels, the incidence of problems related to food addiction will decrease.

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INTRODUCTION

Psychological well-being considered within the scope of positive psychology is a multidimensional concept and is defined as a positive psychological functionality. It is the desire of individuals to understand, learn, develop, and change against the challenges they experience.¹ Eating, which is one of the most essential needs of people, is also extremely important from a psychological point of view. There is an independent relationship between psychological condition, food selection, amount of eating, and frequency of eating, regardless of physiological needs. Eating behavior can vary according to different emotions like anxiety, joy, sadness, and anger. It has been stated negative emotions such as anger, fear, and sadness increase impulsive eating, eating to improve the emotional state, and junk food consumption, while positive emotions such as joy and happiness increase healthy food consumption.^{2,3} Food addiction is defined as an insatiable desire for the consumption of specific high-fat, high-sugar foods beyond the required energy needs for sustenance.⁴ Food addiction

is examined within the scope of behavioral addictions. It is stated that psychiatric disorders related to behavioral addiction occur according to needs that are not met in childhood.^{5,6} In studies conducted on adolescents, it was determined that psychological symptoms directly affect food addiction. Therefore, adolescents are in the high-risk group for food addiction.^{7,8} Systematic reviews indicate the prevalence of food addiction is between 15% and 38%.⁹⁻¹³

In recent years, disorders in the eating behavior of adolescents have drawn attention, and this situation may lead to physical and mental health problems at later ages if the necessary precautions are not taken.³ However, the obsessive eating behaviors of the individual begin affecting their mental and physical health, hindering their ability to lead a normal and healthy life.¹⁴ Food addiction represents a serious problem in which people are unable to deter themselves from certain foods. Even if they decide to eat healthily, people not only find themselves over and over

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again eating foods that are unhealthy but also continue to eat knowing that these foods harm themselves.¹⁵

Exercise is a set of regular, planned, and routine physical activities aimed at maintaining or improving physical, biological, psychological, and social fitness.¹⁶ Cognitive behavioral physical activity, on the other hand, is to create awareness by learning about the positive impact of conscious and regular exercise on health to increase the physical activity behavior of individuals.¹⁷ Also, it is stated that regular exercises are important in terms of protecting and improving mental health.¹⁸ In recent years, studies have shown participation in regular physical activities among young people has decreased.¹⁹ The negative effects of sedentary lifestyle on health have become a major social problem. It is necessary to develop effective approaches aimed at increasing participation in physical activity, especially among adolescents, and to understand the motivation, attitudes, and behaviors associated with this situation.^{17,19,20}

Creating lifelong health awareness focuses more on the child and adolescent age groups.¹⁷ In terms of psychological well-being, it is believed that research will contribute to the literature in terms of positive functions, conscious eating attitude, awareness of food addiction, awareness of physical activity attitude, understanding its importance, and change in behavior. The aim of this study was to identify and examine the relationship between psychological well-being, food addiction, and cognitive behavioral physical activity levels among adolescents.

METHODS

Study Design

The universe of the research consists of students studying in 10 high schools located in the city center of a province in the east of Turkey. The sample constituted of students, who met the research selection criteria and agreed to participate in the study, from 3 high schools selected by simple random sampling method. A minimum sample calculation ($n = (Nt^2pq) / (d^2(N - 1) + (t^2pq))$) found that at least 369 students should be enrolled in the study. In total, 1256 students participated out of the approximately 10 000 students enrolled in the spring semester of 2019. However, since 320 students filled in the forms incompletely, the research was completed with 936 students who agreed to participate in the research and filled out the distributed forms completely.

Selection Criteria

- Residing in the city center,
- Having no auditory, sensory, physical, mental, and spiritual disabilities,
- Having no chronic disease, and
- Agreeing to participate voluntarily in research.

Data Collection Tools

Sociodemographic Data Sheet: It consists of 15 questions prepared by the researchers including the descriptive characteristics of adolescents (age, gender, class, height, weight, family income status, nutritional status, etc.).

Psychological Well-Being Scale: The scale developed by Ryff²¹ is based on his own model of psychological well-being. In order to increase the usefulness of the scale, the short form was created by Ryff and Keyes and introduced into Turkish by İmamoğlu.²² The scale has a 5-point Likert-type structure and consists of 18 items and 6 sub-dimensions. These are self-acceptance, positive relationships with people, life purpose, environmental mastery, autonomy, and personal growth. The average of all items is used as a measurement of general psychological well-being; the lowest being 18 points and the highest being 90 points are obtained from the scale. High scores indicate a better psychological state. It is stated that the Cronbach's alpha value of the scale is between 0.78 and 0.97.²² In this study, the Cronbach's alpha value is 0.72.

Yale Food Addiction Scale: It is a mixed scale that Gearhardt et al²³ designed in 2009 to diagnose behavioral food addiction and determine its sub-criteria, taking into account The Diagnostic and Statistical Manual of Mental Disorders, fourth edition, text revision (DSM-IV-TR) substance abuse diagnosis criteria. Adaptation of the scale to Turkish was carried out by Bayraktar et al²⁴ in 2012. In the scale, 25 of the items question 7 symptoms based on DSM-IV, and 2 items evaluate clinically significant deterioration and problems caused by addiction behavior. For the diagnosis of food addiction, it is necessary to have clinical significance in addition to meeting at least 3 of the 7 diagnostic criteria. It is stated that Cronbach's alpha value of the scale is 0.97.²⁴ In this study, the Cronbach's alpha value is 0.83.

Cognitive Behavioral Physical Activity Scale: The adaptation of the scale developed by Schembre et al in 2015 to Turkish was made by Eskiler et al¹⁹ in 2016. The scale has a 5-point Likert-type structure and consists of 3 sub-dimensions such as result expectation, self-regulation, and personal obstacles and a total of 15 statements. Cognitive Behavioral Physical Activity Scale is used to determine attitudes and behaviors related to participation in physical activity of adolescents aged between 13 and 17 years. The Cronbach's alpha value of the scale is stated to be 0.84.¹⁹ In this study, the Cronbach's alpha value is 0.75.

Data Collection

During the data collection stage, the researchers first met with the directorate of each high school and entered the classrooms in the last 15 minutes or first 15 minutes of the course hours, firstly introducing themselves and the research, explaining how to fill out the information forms, and obtaining oral approval from the students. Forms were

distributed to students who were in the classroom and agreed to participate in the research, and they were given a day's time to fill out the forms, and the filled forms were collected together with the parental consent form the next day.

Data Evaluation

The data obtained from the research were evaluated at the 95% CI and $P < .05$ significance level in the Statistical Package for the Social Sciences (SPSS) version 20.0 (IBM SPSS Corp.; Armonk, NY, USA). In the analysis of the data obtained, it was determined that it showed normal distribution, and parametric tests such as averages, percentage distributions, and correlation were used.

Ethical Principles of Research

Before starting the research, official written permission was obtained from the Scientific Research Ethics Committee Agri Ibrahim Cecen University (Date: June 6, 2018, number: 41) and Provincial Directorate of National Education (number 34550427/20/8275569). Before the data collection process, the students who were included in the research were informed about the research, and written consent was obtained from the students and their parents of who agreed to participate voluntarily in the study.

RESULTS

It was found that 55.3% of adolescents participating in the study were girls, 58.7% of the participants were in the 16-17 age group, and 41.4% of them had middle income status. Of the participants, 32.8% were studying in the 10th grade level, and 38.7% had a grade point average of 85-100. The average body weight of adolescents was 58.43 ± 10.38 (kg), and the average height was 168 ± 9.77 (cm). It was found that the majority of adolescents had their parents alive (96.4%) and married (96.2%). In total, 81.7% of adolescents ate fast food and 93.2% ate snacks such as chips; the frequency of eating them at least once a week was found to be 42.8% and 61%, respectively (Table 1).

The average score of the adolescents participating in the study on the Psychological Well-Being Scale was 48.29 ± 7.87 . The average score of adolescents on the Yale Food Addiction Scale (YFAS) was 4.35 ± 1.72 . It was detected that from YFAS 29.4% of adolescents have a food addiction (Table 2).

The average score on the Cognitive Behavioral Physical Activity Scale (CBPAS) of adolescents participating in the study was 3.34 ± 1.91 . Looking at the CBPAS sub-dimension score averages, it was discovered that their score on the "result expectation" sub-dimension was 3.54 ± 1.16 , the score on the "self-regulation" sub-dimension was 2.82 ± 0.96 , and the score on the "personal obstacles" sub-dimension was 3.03 ± 0.91 (Table 2).

It was determined that there was a negatively significant relationship between psychological well-being and

food addiction among adolescents participating in the study ($r = -0.101$, $P < .05$). It has been found that the relationship between cognitive behavioral physical activity, psychological well-being, and food addiction is not significant ($P > .05$, Table 3). It was detected that there was no significant relationship between YFAS and CBPAS ($P > .05$, Table 3).

DISCUSSION

Adolescence is a stressful period that comes with adaptation problems characterized by depression, outbursts of anger, substance use, academic anxiety, domestic conflicts, and psychological and behavioral problems.²⁵ Adaptation problems experienced by adolescents negatively affect their psychological and physical health.²⁶ In the study, the total score of adolescents from the PWB scale shows that their psychological well-being is below the average score. It was concluded that as psychological well-being decreased among adolescents, food addiction levels have increased ($P < .05$). Demir and Kumcağiz²⁷ noted that behavioral health problems such as inadequacy, worthlessness, self-harm, and eating disorders are likely to be observed in adolescents with low levels of psychological well-being.

Çelik and Kaya²⁸ revealed that interpersonal relationships played a role in unhealthy eating attitudes. In studies, it was noted that eating behavior disorder negatively affects well-being, and also, it has been reported that adolescents with high levels of symptoms of food addiction experience significantly more psychological symptoms.²⁹⁻³¹ The result of our research is also supported by other researches in the literature. It can be stated that psychological well-being is a protective factor for food addiction. It is believed that with an increase in the level of psychological well-being, the incidence of problems related to food addiction will decrease.

The total average score on the YFAS among adolescents participating in the study was 4.35 ± 1.72 . It was detected that 29.4% of adolescents have a food addiction. The prevalence reported in other studies on food addiction among adolescents ranges from 15% to 38%.^{9,10,12,13} A study by Zhao et al³¹ also reported that 6.9% ($n = 593$) of adolescents aged 13-17 years were addicted to food. Food addiction is a grave problem in which people cannot stop themselves from eating certain foods, even though they do not see it as important. They continue eating despite knowing that unhealthy foods are harmful.¹⁵

The lack of physical activity in children and adolescents in our country is serious. In the report published by Turkish Nutrition and Health Research, the rate of adolescents who did not engage in any physical activity was found to be 56.2% in the 12-14 age group and 57.8% in the 15-18 age group.³² The average score of adolescents participating in the study on the CBPA scale was 3.34 ± 1.91 . In the study by Eskiler et al¹⁹ with adolescents aged between

Table 1. The Sociodemographic Characteristics of the Adolescents (N=936)

	N	%
Gender		
Girl	518	55.3
Boy	418	44.7
Reading class		
9	207	22.1
10	307	32.8
11	287	30.7
12	135	14.4
Parental survival status		
Both are alive	902	96.4
Mother alive	26	2.8
Father alive	8	0.9
Economic status		
Bad	243	26
Middle	387	41.4
Good	306	32.7
Fast food consumption frequency		
1-2 times a month	216	23.1
2-4 times a month	148	15.8
At least once a week	401	42.8
Weight* (kg)	58.43±10.38	Min-max: 38-120
Height* (cm)	1.68±9.77	Min-max: 158-215
Age		
14-15	219	23.4
16-17	548	58.7
18 and above	168	17.9
Class average		
0-44	16	1.7
45-54	60	6.4
55-69	180	19.2
70-84	319	34
85-100	362	38.7
Parental cohabitation		
Married	900	96.2
Divorced/widow	34	3.6
Lives apart	2	0.2
Eating foods such as chips		
Yes	872	93.2
No	64	6.8
Eating fast food		
Yes	765	81.7
No	171	18.3
Frequency of consuming foods such as chips		
1-2 times a month	128	13.7
2-4 times a month	173	18.5
At least once a week	571	61

*Mean±standard deviation.

Table 2. Mean Scores of Psychological Well-Being Scale, Yale Food Addiction Scale, and Cognitive Behavioral Physical Activity Scale and Ratio of Food Addiction (N=936)

	Mean	Standard Deviation	Minimum-Maximum
Psychological Well-Being Scale	48.29	7.87	18-90
Yale Food Addiction Scale	4.35	1.72	0-7
Cognitive Behavioral Physical Activity Scale	3.34	1.91	3-9
Result Expectation	3.54	1.16	1-5
Self-Regulation	2.82	0.96	1-5
Personal Obstacles	3.03	0.91	1-5
Food Addiction from YFAS	N	%	
Yes	275	29.4	
No	661	70.6	

YFAS, Yale Food Addiction Scale.

13 and 17 years, the total score of students on the CBPA scale was 4.3 ± 1.93 ; in the study by Atasoy and Altun³³ with adolescents aged 7-18 years, it was found to be 3.96 ± 2.26 .^{19,33} In compliance with our research, the highest score among the sub-dimensions of the scale was taken from the "result expectation" sub-dimension in both studies. It seems that the most substantial factor in adolescents' participation in physical activities is the expectation of benefits that will be obtained as a result of participation. In addition, the fact that the average score of the self-regulation sub-dimension of the scale is at medium levels (2.82 ± 0.96) indicates the necessary regulations should be developed in this regard and that people should be guided about how to include physical activities in their lifestyles. Zelenović et al³⁴ state that there are obstacles to physical activity such as security, environment, and lack of organization that affect all adolescents and that they avoid participating in physical activities.

The habit of physical activity, especially at a young age, provides gain throughout life. But in addition to obstacles like environmental restrictions and lack of time and social support, there are individual obstacles such as lack of motivation and self-confidence.^{19,20} It is believed that it is substantial to identify these obstacles and try to eliminate them as much as possible and to take initiatives that will increase psychological well-being.

In the study, it was detected that there was no significant relationship between CBPAS, PWBS, and YFAS. In a study by

Bailey et al³⁵ with college students aged between 18 and 24 years, there was no statistically significant difference between the physical activities of those who have food addiction and those who have not. In Şengüzel's³⁶ study, there was no statistically significant relationship between food addictions and whether students exercised regularly or not. A study by Konttinen et al³⁷ reported a positive relationship between depressive symptoms and emotional eating and a negative relationship with physical activity. Imperatori et al³⁸ emphasized that exercise is a critical factor in preventing food addiction, but exercise addiction causes the opposite effect.

In this study, it was found that the psychological well-being of adolescents was below the average value, and their attitudes and behaviors regarding food addiction and participation in physical activity were at a moderate level. It has been determined adolescents are aware of the benefits they can obtain as a result of their participation in physical activities. In addition, it was concluded that as the psychological well-being of adolescents increased, their food addiction levels decreased.

Today, there are some adolescents who eat unhealthily, live with their smartphones, and are resistant to healthy changes. To create a healthy lifestyle, many sectors and disciplines should be set out together. It is suggested to raise awareness of adolescents and society, to increase their psychological well-being and awareness, to make healthy eating appealing and accessible by increasing healthy eating opportunities, to support physical activity, to urge media and especially social media use in this regard, and to include healthy foods and make them appealing, especially in school canteens and mess halls, especially in places for children and young people. In this way, it is expected that it can be dealt with much more effectively with increasing food addiction and its negative consequences.

Considering the protective effect of psychological well-being on food addiction, studies should be conducted to increase the psychological well-being levels of adolescents and enhance their awareness. Developing and maintaining healthy eating

Table 3. Pearson Correlation Coefficient Between Psychological Well-Being Scale, Yale Food Addiction Scale, and Cognitive Behavioral Physical Activity Scale (N=936)

	Yale Food Addiction Scale		Psychological Well-Being Scale	
	r	P	r	P
Yale Food Addiction Scale	-	-	-.101	<.05
Cognitive Behavioral Physical Activity Scale	-.033	>.05	-.044	>.05

Bold significance is $P < .05$.

and physical activity in adolescents is among the most significant responsibilities of the nurse. In particular, school health and community mental health nurses should conduct screening studies for the risk of eating disorders in schools and conduct education and awareness programs to prevent and treat food addiction and to increase physical activity in cooperation with other health professionals (physicians, psychologists, dieticians, etc.). In addition, adolescents should be guided to promote a healthy lifestyle.

The fact that the study is a questionnaire based on self-reports of adolescents is regarded as the limitation of the study. The results can be generalized to the research group.

Ethics Committee Approval: Ethics committee approval was received from the Ağrı İbrahim Çeçen University Scientific Research Ethics Committee (Date: June 6, 2018, number: 41) and Provincial Directorate of National Education (number 34550427/20/8275569).

Informed Consent: Written informed consent was obtained from the parents of all participants.

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