NUTRITION AND EXERCISE BEHAVIORS WİTH INTERNET ADDICTION: THE CASE OF CENTRAL ANATOLIA, TURKEY

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Abstract

This study was conducted to determine the relationship between internet addiction with nutrition and exercise behaviors of university students. This descriptive study was conducted between 20.11.2021 and 20.12.2021 in a Health Sciences Faculty in the Central Anatolian Region of Turkey. The study was completed with 597 university students, reaching 82% of the universe. The data of the study "Information Form", "Internet Addiction Test" and "Nutrition Exercise Behavior Scale" were used. Sperman correlation analysis was used to evaluate the data. The mean age of the students" was 20.08±1.06 years, the mean BMI was 21.82±3.10 kg/m2, and 84.8% of them were women. The students' total Nutrition Exercise Behavior Scale mean score was 131.13±18.76 and the Internet Addiction Test mean score was 30.04±10.57. There was a weak positive correlation between the nutrition exercise behavior scale and the internet addiction test mean score (p<0.001). As students' internet addiction increases, psychological eating behavior and unhealthy nutrition exercise behavior increase. It can be suggested that mobile applications or online courses that will support university students in healthy nutrition be given as elective courses.

Keywords: Internet Addiction, Nutrition, Exercise, Student, Nursing, Midwifery.

İNTERNET BAĞIMLILIĞI İLE BESLENME VE EGZERSİZ DAVRANIŞLARI: ORTA ANADOLU ÖRNEĞİ, TÜRKİYE

Öz

Bu çalışma, üniversite öğrencilerinin internet bağımlılığı ile beslenme ve egzersiz davranışları arasındaki ilişkinin belirlenmesi amacıyla yapıldı. Tanımlayıcı tipteki bu çalışma, 20.11.2021-20.12.2021 tarihleri arasında Türkiye'de Orta Anadolu Bölgesinde bulunan bir Sağlık Bilimleri Fakültesi'nde yapıldı. Çalışmada evrenin %82'sine ulaşılarak, 597 üniversite öğrencinin katılımı ile tamamlandı. Araştırmanın verileri "Bilgi Formu", "İnternet Bağımlılık Testi" ve "Beslenme Egzersiz Davranış Ölçeği" kullanıldı. Verilerin değerlendirilmesinde Sperman korelasyon analizi kullanıldı. Katılan öğrencilerin yaş ortalamasının 20.08±1.06 yıl, BKI ortalamasının 21.82±3.10 kg/m2, %84.8'inin kız olduğu saptandı. Öğrencilerin toplam Beslenme Egzersiz Davranış Ölçeği puan ortalaması 131.13±18.76 ve İnternet Bağımlılık Testi puan ortalaması 30.04±10.57'dir. Beslenme egzersiz davranış ölçeği ile internet bağımlılığı testi puan ortalamaları arasında pozitif yönde zayıf düzeyde bir ilişki vardır (p<0.001). Öğrencilerin internet bağımlılığı arttıkça psikolojik yeme davranışı ve sağlıksız beslenme egzersiz davranışı artmaktadır. Üniversite öğrencilerini sağlıklı beslenme konusunda destekleyecek mobil uygulama ya da online derslerin seçmeli ders olarak verilmesi önerilir.

Anahtar Kelimeler: İnternet Bağımlılığı, Beslenme, Egzersiz, Öğrenci, Hemşirelik, Ebelik.

1. INTRODUCTION

According to the World Health Organization, the youth period (10-24 years), which is accepted as the transition from childhood to adulthood, is a special developmental period in which physical, psychological and social changes are experienced rapidly (1). The processes experienced in this period are important in terms of being determinative on health behaviors and attitudes (2). Risky behaviors acquired under the influence of the social environment can lead to illness and death in both adolescence and adulthood (3).

Risky health behaviors that are common in youth are violence and the behaviors that cause it, unwanted pregnancies and sexually transmitted diseases, alcohol and drug use, smoking, unhealthy eating behaviors and insufficient physicial activity (4). In addition, as a result of the widespread use of the internet today, internet addiction causes health problems such as unbalanced diet, insufficient physical activity, sedentary life (5), sleep problems (6), anxiety and depression (7). In the literature, there are studies showing that the use of internet/social media increases irregular eating habits and eating concerns, and that unhealthy and low-nutrient foods are shared more on social media (8,9). On the other hand, it is reported that the use of social media helps to improve eating habits and increase exercise activities (10,11).

It has been reported that in 2020 in our country, the rate of internet usage among young people aged 16-24 increased to 91%, the frequency of fruit consumption once or more a day decreased to 40% and the frequency of vegetable consumption to 49% (12). In a national study involving 27,497 adolescents in Malaysia, it was determined that 29% of the youth were internet addicted and had a positive relationship with insufficient consumption of vegetables and fruits, consumption of glucose drinks, fast food consumption at least three days a week, sedentary lifestyle and smoking behaviors (5). It is stated that when internet/social media use is directed positively, it will contribute to the purchasing behavior of young people, attitudes towards fast food, healthy eating, and increasing physical activity (10,11,13). Identifying and trying to correct the negative ones is important in terms of laying the foundations of a healthier life in the adult years of the individual (14,15).

Although there are few studies in the literature evaluating the relationship between internet addiction/social media use and nutrition and exercise behaviors, the sample group of these studies consisted of high school adolescents (2,8). Determining the relationship between exercise and exercise behaviors will contribute to the development of students' awareness and to prevent health problems that may develop in the coming years. It is important to evaluate internet addiction, adequate and balanced nutrition, and regular exercise habits of nursing and midwifery students, who have the responsibility of being a role model for the society with their healthy lifestyle behaviors as a professional health personnel after graduation.

For this reason, this study was conducted to determine the relationship between internet addiction and nutrition and exercise behaviors of university students.

Research Questions

1. What are the nutrition and exercise behaviors of the students participating in the research?

2. What is the internet addiction level of the students participating in the research?

3. Is there a relationship between the internet addiction level of the students participating in the research and their nutrition and exercise behaviors?

2. MATERIALS AND METHODS

2.1. Study Design and Sample

This descriptive study was carried out at the Faculty of Health Sciences of a University located in the Central Anatolia region of Turkey between 20.11.2021 and 20.12.2021.

The population of the research consisted of 726 students between the ages of 15-24 who were educated at the first, second, third and fourth grade levels in the Department of Nursing and Midwifery of the Faculty of Health Sciences. There are a total of 473 nursing students and a total of 253 midwifery students attending the courses in the Faculty of Health Sciences. In the study, without choosing a sample, after explaining the purpose and method of the study to a total of 473 nursing students and a total of 253 midwifery students who go on the courses in the Faculty of Health Sciences, it was aimed to include all students who agreed to participate in the study verbally and in writing.

The criteria for inclusion in the study were to be between the ages of 15-24, and to be a student of nursing or midwifery department. Exclusion criteria from the study were being under the age of 15 and over the age of 24, not studying in the departments of nursing and midwifery and not volunteering to participate in the research. The study was completed with the participation of 597 midwifery and nursing students (82% of the population) who met the inclusion criteria.

2.2. Data Collection Tools

"Information Form", "Internet Addiction Test" and "Nutrition Exercise Behavior Scale" were used to collect the research data.

2.2.1. Information Form

In the 'Information form' prepared by the researchers in line with the relevant literatüre (2,3,5,8,14) students' sociodemographic characteristics (9 questions), nutritional characteristics (13 questions), exercise behaviors (5 questions), internet use (5 questions) There are 32 questions in total.

2.2.2. Nutrition-Exercise Behavior Scale (BEDS)

"Nutrition Exercise Behavior Scale" The language and content validity of the scale developed by Yurt in 2008 was carried out (16). It is a 5-point Likert-type scale consisting of 45 items with 4 sub-dimensions. The sub-dimensions of the scale consist of 11 items of psychological eating behavior, 14 items of healthy eating-exercise behavior, 14 items of unhealthy diet-exercise behavior, and 6 items in meal order. Scale scores are evaluated in line with the scores obtained from the scale sub-dimensions. The score distribution of "Psychological/addictive eating behavior sub-factor" is between 11-55. A high score indicates psychological/addictive eating behavior. The score distribution of "Healthy nutrition-exercise behavior sub-factor" is between 14 and 70. A high score indicates healthy eating-exercise behavior. The score distribution of "unhealthy nutrition exercise behavior sub-factor" is between 14-70. A high score indicates unhealthy diet-exercise behavior. The "meal order sub-factor" score distribution is between 6-30. A high score indicates a good meal order.16 Item correlation was made and the croanbach alpha reliability was found to be .85 (16). In this study, the Cronbach's alpha value of the scale was calculated as 0.818.

2.2.3. Internet Addiction Test (IBT)

The validity and reliability of the scale in Turkish was conducted by Balta Çakır and Horzum in 2006 with 19 items and three sub-factors (17). There are 8 items in the factor of 'Preferring to be online to daily life', there are 7 items in total in the factor of 'wanting to increase the time to be online' and 4 items in the factor of 'problems arising from being online'. On a five-point Likert scale, participants are asked to tick one of the options 'rarely', 'sometimes', 'often', 'often', and 'always'. These options are given 1,2,3,4,5 points respectively. The scores to be taken from the scale are between 19-95. The croanbach alpha reliability of the scale was found to be .895 (17). In this study, the Cronbach's alpha value of the scale was calculated as 0.887.

2.3. Data Collection

After obtaining the necessary permissions for the research, before the data collection tools were applied, the students of the nursing and midwifery departments were informed by the researcher about the study, and written and verbal consent was obtained from them. Before starting the study, in order to evaluate the clarity and reliability of the data collection tools, a preliminary application was made with 10 students who were studying at the Vocational School of Health Services at the same university and were not included in the sample. After the pre-application, necessary arrangements were made in the data collection forms. Data collection tools were applied to the students face-to-face with the researcher in the classrooms of the school where the study was conducted, during the absence of the lesson.

2.4. Evaluation of Data

All data were analyzed using IBM SPSS (v.23). In the study, descriptive statistical methods such as number, percentage, mean, standard deviation, minimum and maximum values were used in the evaluation of sociodemographic data. The suitability of the data to the normal distribution was examined with the Kolmogorov Smirnov test. The relationship between the scores obtained from the scales was determined by "Sperman correlation analysis". The results were evaluated at the 95% confidence interval, at the $p<0.05$ significance level.

2.5. Ethics Statement

Ethical approval of the research was obtained from the Ethics Committee of Niğde Ömer Halisdemir University (Date: 26.10.2021 and Decision no: 2021/116-10) and institutional permission from the Faculty of Health Sciences of Niğde Ömer Halisdemir University. This study was conducted in accordance with the principles of the Declaration of Helsinki. Written and verbal consents were obtained from all students participating in the study.

3. RESULTS

It was determined that 64.5% of the students participating in the study were in the 18-20 age range, with an average of 20.08±1.06 years, an average of 21.82±3.10 kg/m2, and 84.8% of them girls. It was determined that 78.6% of the students stayed in the dormitory, 26.0% of them studied in the 3rd grade, the monthly income of the family of 56.4% was the minimum wage, and 94.6% of them did not have a chronic disease (Table 1).

Table 1. Distribution of students' introductory features (n=597)

Information about features	n	%
The average age	20.08±1.06	
BMI average	21.82±3.10	
Age		
18-20	387	64.8
21-23	210	35.2
Department		
Nursing	385	64.5
Midwifery	212	35.5
Gender		
Woman	506	84.8
Man	91	15.2
Class		
1st Class	152	25.5
2. Class	148	24.8
3rd Class	155	26.0
4th grade	142	23.8

Income status		
Less than minimum wage	97	16.2
Minimum wage	337	56.4
More than minimum wage	163	27.3
Where You Currently Live		
With family	88	14.7
Dormitory	469	78.6
Home with friends	40	6.7
Chronic disease status*		
Yes	32	5.4
No	565	94.6
Total	**597**	**100**

* Multiple answers were given.4 of the students have diabetes, 5 have thyroid, 7 have cardiovascular disease, 11 have lung, 1 liver, 8 have neurological disease.

The distribution of the characteristics of some nutrition and exercise behaviors of the students is given in Table 2. It was determined that the average number of snacks eaten in a day was 1.14±0.72, the number of main meals eaten in one meal was 2.23±0.49, 65.3% did not receive nutrition education, 54.6% skipped lunch, 55.4% skipped meals because they did not want to. It was determined that 69.2% of the students thought that they had a healthy diet at a partially sufficient level, 79.1% of them had breakfast regularly, and 69.7% of them mostly consumed fast food outside. The mean number of days/hours of exercise per week was determined as 3.29±1.52/44.89±33.58. It was determined that 46.6% of the students did not exercise regularly, 55.6% thought that they exercised at an insufficient level, and 49.6% had low level of daily living activities.

Table 2. The distribution of the characteristics of some nutrition and exercise behaviors of the students (n=597).

Characteristics of nutrition and exercise behaviors	n	%
Features of feeding behavior		
Average number of snacks eaten in a day	1.14±0.72	
Number of main meals eaten in a day	2.23±0.49	
Nutrition education status		
Yes	207	34.7
No	390	65.3
The state of thinking that you are eating healthy		
Sufficient	44	7.4
Partly enough	413	69.2
Insufficient	140	23.5
Eating out of the house		
Yes sometimes	566	94.8
No	31	5.2
The most common type of food consumed outside		
Fast food	416	69.7
Kebab type foods	161	27.0
Vegetable food	8	1.3
Dessert or others	10	1.7
Features of exercise behavior		
Average number of exercise days per week	3.29±1.52	
Average number of minutes exercised per week	44.89±33.58	

Regular physical exercise		
Yes	65	10.9
Partially	254	42.5
No	278	46.6
Assessment of exercise status		
Sufficient	27	4.5
Partly enough	238	39.9
Insufficient	332	55.6
Daily life activity assessment		
High	19	3.2
Middle	282	42.2
Low	296	49.6
Total	**597**	**100**

* Multiple answers were given. Percentages (based on n=597)

The distribution of the characteristics of some internet usage behaviors of the students is given in Table 3. The average daily computer/internet usage time was calculated as 4.47±1.75. It was reported that 85.4% of the participants used the internet for social communication, 78.9% of them consumed food in front of a computer/TV, and 64.8% thought that eating in front of a computer/TV did not affect their eating habits. In addition, 58.1% stated that eating in front of a computer/TV did not affect their exercise activities (Table 3).

Table 3. Distribution of students' features regarding some internet usage behaviors (n=597)

Features of Internet usage behaviors	n	%
Average hours of daily computer/internet use	4.47±1.75	
Situation of consuming food in front of computer/television/phone		
Yes	471	78.9
No	126	21.1
The effect of computer/television/phone use on eating habits		
It affects positively	34	5.7
adversely affect	176	29.5
does not affect	387	64.8
The effect of computer/television/phone use on exercise activities		
It affects positively	39	6.5
Adversely affect	211	35.3
Does not affect	347	58.1
Total	**597**	**100**

* Multiple answers were given. Percentages are taken over n=597.

The students' total Nutrition Exercise Behavior Scale (BEDS) mean score was 131.13±18.76 and Internet Addiction Test (IBT) mean score was 30.04±10.57. The mean scores of BES sub-dimensions were found to be 31.13±5.52 for psychological eating behavior, 42.82±8.49 for healthy eating exercise behavior, 38.16±7.19 for unhealthy eating exercise behavior and 19.01±4.19 for meal order (Table 4).

Table 4. Distribution of students' total and sub-dimensions mean scores of nutrition exercise behavior scale and internet addiction test (n=597)

Scale	n	$\overline{X} \pm SS$	Min.	Max.
Nutrition Exercise Behavior Scale	597	131.13±18.76	49.00	215.00
Nutrition Exercise Behavior Scale Sub-Dimensions				
Psychological Eating Behavior	597	31.13±8.52	11.00	54.00
Healthy Eating Exercise Behavior	597	42.82 ±8.49	18.00	65.00
Unhealthy Eating Exercise Behavior	597	38.16±7.19	14.00	67.00
Meal Layout	597	19.01±4.19	6.00	30.00
Internet Addiction Test	597	30.04±10.57	18.00	84.00
Internet Addiction Test Sub-Dimensions				
The factor of preferring to be online in daily life	597	16.21±5.47	8.00	40.00
The factor of wanting to increase time online	597	10.72±3.81	6.00	30.00
Factor of problems due to being online	597	7.10±2.63	4.00	20.00

The relationship between nutrition exercise behavior scale and internet addiction test mean scores is given in Table 5. There is a weak positive correlation between the nutrition exercise behavior scale and the internet addiction test score averages (p<0.001). A weak positive correlation was found between the total mean score of the nutrition and exercise behaviors scale and the sub-dimensions of the Internet addiction test (p<0.001). There is a moderate positive correlation between the Internet addiction test total score averages and the sub-dimensions of psychological eating behavior, unhealthy diet and exercise behavior (p<0.001). No correlation was found between the mean total score of the Internet addiction test and the sub-dimensions of healthy eating, exercise behavior, and meal order (p>0.05). There is a weak positive correlation between the psychological eating behavior sub-dimension and the Internet addiction test sub-dimensions (p<0.001). There was no relationship between the healthy eating behavior sub-dimension and the internet addiction test sub-dimensions (p>0.05). There was a weak positive relationship with the factor of unhealthy diet and exercise behavior and the factor of wanting to increase the time to be online, and the factor of problems arising from being online, and a moderate relationship in the positive direction with the factor of preferring to be online in daily life (p<0.001). There was no relationship between meal order sub-dimension and internet addiction test sub-dimensions (p>0.05).

Table 5. The relationship between nutrition exercise behavior scale and internet addiction test mean scores.

	Internet Addiction Test			
Nutrition Exercise Behavior Scale	The factor of preferring to be online in daily life	Factor of wanting to increase time online	Factor of problems due to being online	Total Internet Addiction Test
Psychological Eating Behavior	r=0.309 p=0.000	r=0.267 p=0.000	r=0.287 p=0.000	r=0.327 p=0.000
Healthy Eating Exercise Behavior	r=-0.033 p=0.423	r=0.0.45 p=0.268	r=0.034 p=0.402	r=-0.042 p=0.307
Unhealthy Eating Exercise Behavior	r=0.334 p=0.000	r=0.266 p=0.000	r=0.242 p=0.000	r=0.329 p=0.000
Meal Layout	r=-0.047 p=0.250	r=-0.037 p=0.369	r=-0.077 p=0.053	r=-0.059 p=0.148
Total	r=0.243 p=0.000	r=0.194 p=0.000	r=0.189 p=0.000	r=0.243 p=0.000

r= Spearman Correlation Coefficient

4. DISCUSSION

In this study, the relationship between internet addiction and nutrition and exercise behaviors of university students was evaluated. According to our results, it was found that internet addiction negatively affects psychological eating behavior, unhealthy diet and exercise behaviors in individuals.

The average BMI of the students participating in our study is 21.82 ± 3.10 kg/m^2. In a similar study conducted in our country, the mean BMI of normal internet users is 22.2 ± 2.9 kg/m^2, while the mean BMI of potential internet addicts is 23.7 ± 5.1 kg/m^2 (18). Results Although within normal limits according to the World Health Organization BMI classification, several studies have revealed that internet addiction is associated with eating disorders (19,20). In addition, Alpaslan et al. (2015) reported that individuals with potential internet addiction have a significantly higher BMI than those without potential internet addiction, and high BMI is a potential risk factor for internet addiction.

Individuals with problematic internet use are not aware of how much of which food they consume, as they spend their mealtimes in front of the screen. They may skip meals or consume unhealthy snacks in order not to waste time or because they do not feel hungry (20). When we look at the average number of main meals and snacks consumed daily in our study, individuals stated that they frequently skip meals and the majority of them eat in front of the computer. In a similar study conducted in our country, it was observed that most of the participants both skipped meals and preferred to be in front of the computer/television/phone during their meals (18). Internet and smartphone addiction have been shown to have negative effects on daily energy intake, body weight, eating and exercise habits, and academic performance (21). However, in our study, no direct relationship was found between internet addiction and meal planning.

It has been determined that the rate of computer and internet usage in Turkey is 95.5% in the 16-24 age group (22). In our study, university students stated that they use the internet for about 4 hours or more per day. While 75% of university students in Saudi Arabia report that they use the internet for at least four hours a day (21), 60% of university students in Turkey stated that they use a smart phone between two and six hours a day (23). Individuals in the young age group constitute a risky segment in terms of smartphone and internet addiction (23). Factors such as the duration and purpose of internet use play an important role in being internet addicted (2). In a study conducted with nursing students, it was seen that as the daily internet usage time increased, the addiction to the smart phone increased significantly (24). In our study, the desire of individuals to prefer to be online in daily life and to increase the time to be online also increased unhealthy eating and exercise behaviors. Similarly, there are findings showing that internet addiction and nutritional exercise behaviors of adolescents are related to the duration of internet use (2).

In the literature, it has been stated that individuals who think they are healthy exhibit more health-promoting behaviors, eat healthy and exercise (2,25). In a study conducted with adolescents, the unhealthy nutrition exercise behavior sub-dimension and BES scores of individuals who evaluate themselves as healthy are significantly higher (2). In our findings, most of the participants stated that they were partially adequate or undernourished and also did insufficient exercise. In addition, in our findings, it was determined that unhealthy nutrition, exercise behavior and psychological eating behaviors were positively related to internet addiction. In other words, it can be said that internet addiction negatively affects habits related to nutrition and exercise. In a similar study conducted in our country, it was reported that there is a positive and significant relationship between the internet addiction score of university students and the EAT Eating Attitude Test score (18). In many studies examining social media use and unhealthy eating behaviors, it has been stated that unhealthy diet and physical inactivity increase as the internet use of adolescents and university students increases (26,27).

In a similar study conducted with adolescents, a negative relationship was found between internet addiction and psychological eating behavior and unhealthy eating and exercise behavior. In

addition, a negative relationship was found between meal planning and internet addiction (2). While it is expected that people will control the internet usage time with their individual awareness with the developing technology, it is important that especially the shares on social media are supportive of healthy living and that they are reinforced with new applications developed in this regard. There are many social, cultural and psychological factors associated with eating attitudes and behaviors.

The majority of the students who make up the sample group of our study live in dormitories and most of them have a family income below the minimum wage and minimum wage (19). It has been reported that disordered eating attitudes and behaviors are significantly higher in internet addicts than in the non-internet addicted group. (28). In addition, in a study with young adults, reported that time spent online among participants was associated with disordered eating (29). Unhealthy eating attitudes caused by internet addiction indirectly cause obesity. Because internet addiction and excessive screen time lead to less physical activity (19). According to this, unhealthy use of the internet and excessive screen time distract individuals and prevent them from raising awareness about how much food they eat. It also increases body fat by reducing the energy spent on physical activity and changing body composition, which ultimately leads to an increase in body weight (30). In addition, internet addiction; It is important to evaluate health as a possible risk factor for many chronic conditions such as obesity, diabetes and cardiovascular diseases within the scope of preventive and improving care.

4.1.The Limitations of the Study

The present study has some limitations. In principle, only the relationships were evaluated, not the causal link between the variables. Secondly, this study cannot be representative of the total population as it was conducted only on university students. In addition; Psychological conditions such as depression, anxiety, impulse control disorders, body dissatisfaction, which may affect the relationship between internet addiction and nutrition and exercise behaviors, were not evaluated in this study.

5. CONCLUSIONS AND RECOMMENDATIONS

As a result, it is important to determine the internet addiction levels of university students by focusing on individuals at risk for problematic internet use, to determine the risk factors in the early period and to take the necessary precautions. It can be suggested that mobile applications or online courses that will support university students in healthy nutrition be given as elective courses. Especially in today's conditions, supporting software and applications that will give the right messages to these young people who access information via the internet can help eliminate the possible risks brought by technology and turn the current situation into an advantage. In addition, multicenter studies in larger populations are needed to investigate the relationship between internet addiction and nutrition and exercise.

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