Examination of the Relationships Between Nutritional Knowledge Levels and Nutritional and Exercise Behaviors of University Students

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Abstract

The aim of this study is to examine the relationship between university students' nutritional knowledge levels and their nutritional and exercise behaviours, and to evaluate the results. The sample of the study consists of a total of 502 male and female students enrolled at Osmaniye Korkut Ata University in the 2024-2025 academic year. The Nutrition-Exercise Behaviour Scale was developed by Yurt and Yıldız (2016). This scale is a 5-point Likert scale with a total of 45 items. In the original study of the scale, the Cronbach's alpha coefficient was found to be 0.85. In the sub-dimensions of the scale, Cronbach's alpha values were found to be 0.61 for Psychological (Dependent) Eating Behaviour, 0.62 for Healthy Eating-Exercise Behaviour, 0.68 for Unhealthy Eating-Exercise Behaviour, and 0.73 for Meal Regularity (Yurt & Yıldız, 2016). Kolmogorov-Smirnov and Shapiro-Wilk normality tests were performed to test the normality of the total scores of BEDÖ and its subscales. For both tests, the p-values for both BEDÖ and its subscales were less than 0.05. As a result, no significant relationship was found between the total scores of the Psychological (Addictive) Eating Behaviour subscale and the Healthy Eating-Exercise Behaviour and Meal Schedule subscales. However, there was a strong positive relationship between the total scores of the Psychological (Addictive) Eating Behaviour subscale and the Unhealthy Eating-Exercise Behaviour subscale. An individual's Psychological (Addictive) Eating Behaviour and Unhealthy Nutrition-Exercise Behaviour tend to increase or decrease simultaneously.

Keywords: Health, Nutrition, Physical Activity

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Üniversite Öğrencilerinin Beslenme Bilgi Düzeyleri, Beslenme ve Egzersiz Davranışları Arasındaki İlişkinin İncelenmesi

Öz

Bu araştırmanın amacı üniversite öğrencilerinin beslenme bilgi düzeyleri, beslenme ve egzersiz davranışları arasındaki ilişkilerin incelenmesi ve çıkan sonuçların değerlendirilmesidir. Araştırmanın örneklemini 2024-2025 eğitim öğretim yılında Osmaniye Korkut Ata Üniversitesinde öğrenim gören Erkek-Kadın toplam 502 öğrenci oluşturmaktadır. Beslenme-Egzersiz Davranış Ölçeği, Yurt ve Yıldız (2016) tarafından geliştirilmiştir. Bu ölçek 5'li likert tipi olup bu ölçekte toplamda 45 madde vardır. Ölçeğin orijinal çalışmasında Cronbach Alpha katsayısının. 85 olduğu saptanmıştır. Ölçek alt boyutlarında ise Cronbach Alfa değerleri sırayla Psikolojik (Bağımlı) Yeme Davranışı; 61, Sağlıklı Beslenme-Egzersiz Davranışı; .62, Sağlıksız Beslenme-Egzersiz Davranışı; .68 ve Öğün Düzeni; .73 olarak bulunmuştur (Yurt & Yıldız, 2016). BEDÖ ve alt boyutları toplam puanlarının normallik sınaması için Kolmogorov-Smirnov ve Shapiro-Wilk normallik testleri gerçekleştirilmiştir. İki test için de hem BEDÖ hem de alt boyutlarına ilişkin test p-değerleri 0.05'ten küçüktür. Sonuç olarak Psikolojik (Bağımlı) Yeme Davranışı ile Sağlıklı Beslenme-Egzersiz Davranışı ve Öğün Düzeni alt boyut toplam puanları arasında anlamlı bir ilişki elde edilememiştir. Psikolojik (Bağımlı) Yeme Davranışı ile Sağlıksız Beslenme-Egzersiz Davranışı alt boyut toplam puanları arasında ise pozitif yönlü güçlü bir ilişki vardır. Bireyin Psikolojik (Bağımlı) Yeme Davranışı ve Sağlıksız Beslenme-Egzersiz Davranışı aynı anda artma veya azalma eğilimindedir.

Anahtar kelimeler: Sağlık, Beslenme, Fiziksel Aktivite

Introduction

Nutrition, which is included in healthy lifestyle behaviors; It is defined as a behavior that ensures that the nutrients needed by the body are taken at appropriate times, sufficiently and in a balanced manner and is appropriate to be done consciously in order to protect and improve the health of the individual and to increase the quality of life. It is explained as "adequate and balanced nutrition" that the nutrients needed for the body to grow, tissues to renew themselves and function regularly according to the age, female or male status and the physiological environmental factors in which people live, and that the body uses these nutrients in appropriate places (Tayar et al., 2017). Nutrition: It is defined as the use of the nutrients needed by the living being in order to ensure growth and adequate development, to maintain a healthy and productive life for a long time and to improve the quality of life (Yaşar et al., 2008). In order to realize healthy nutrition, there is a need for adequate nutrition knowledge and for adequate nutrition knowledge, there is a need for proper nutrition education. Nutrition education aims to improve nutrition by teaching individuals which foods should be consumed and how much of them, how to prevent unhealthy eating habits and practices, and how to use food resources more effectively and economically (Yardımcı and Özçelik, 2015). The fact that individuals do not have sufficient nutritional knowledge or have incomplete and incorrect information about nutrition may cause them to adopt an inadequate and unbalanced diet. For this reason, it is important for individuals to have a good level of nutritional knowledge in order to create an adequate and balanced diet by choosing the right foods in their diets and to maintain a quality life (Şanlıer et al., 2009).

Another healthy lifestyle behavior is regular physical activity and exercise. Physical activity is defined as all the movements that an individual performs in daily life using skeletal muscles and needs energy to perform. Exercise, on the other hand, is physical activities that are performed regularly and in a planned and repetitive manner. The goal of exercise is to maintain or improve one or more of the components of physical fitness. There is a relationship between regular physical activity and exercise in an individual's life and physical health and psychological well-being. Including physical activity and exercise as much as possible in daily life is the basis of maintaining a healthy life. In order to maintain and improve physical and mental well-being, exercise should be done regularly and this should be turned into a lifestyle (Ministry of Health, 2014).

While nutrition is one part of healthy lifestyle behaviors, another part is exercise and physical activity. The aim of exercise, which is also expressed as regular and planned physical activity, is to ensure that metabolic events and oxygen distribution in the body take place properly,

increase strength and endurance, reduce body fat, increase muscle mobility and joint patency (Menteş et al., 2011; Ministry of Health, 2014). The relationship between exercise and nutrition has been one of the most important research topics in recent years. A healthy lifestyle should be supported not only by proper nutrition but also by regular exercise. In order to maintain, improve and protect health, it is very important to combine a balanced diet with physical activity appropriate for the individual (Yahia et al. 2016; İnbaşı, Yıldız and Çelik, 2023). For this reason, it is thought that many health problems will be prevented when the level of nutritional knowledge is increased and exercise habits are acquired (Aslan, 2019). Individuals can protect both their physical fitness and mental health with physical activity and regular nutrition. It is a well-known fact that they have the potential to look at life more positively. Mental and physical health are in constant interaction with each other. As a result of the researches conducted in recent years, it has been determined that regular and planned physical activities in addition to healthy nutrition are important in preventing many diseases. When we look at the developed countries, it is seen that they constantly keep healthy nutrition and planned physical activity on the agenda and direct people through campaigns, especially in recent years (Strath et al., 2013). Physical activity is also important for our future health. It helps to create active and independent individuals in old age with healthy aging. It prevents sudden falls by strengthening the musculoskeletal system. It reduces cancer formation and protects against cancer. It makes the body more resistant to infections and increases body resistance. It provides enjoyment of life in old age and gives strength to cope with depression (Bek, 2008). Consumption of unhealthy and energy-dense foods is increasing and intake of healthy foods with high nutritional value is decreasing (Beaudry et al. 2019). Increasing the physical activity levels of children, young adults, adult women and men and the elderly is the most effective way to improve health, quality of life and life functioning. Governments and international organizations need to create a favorable environment for participation in physical activity in order to increase the level of physical activity in the entire population at an acceptable rate (Ersoy, 2012). The desire to be healthy and stay healthy constitutes one of the most fundamental goals and objectives of human beings (Zorba, 2006).

There's a correlation between regular physical activity and exercise in one's daily life and physical health and psychological well-being. Including physical activity and exercise as much as possible in daily life is fundamental to living a healthy life. To maintain and enhance physical and mental well-being, regular exercise should be incorporated into a lifestyle. Regular nutrition and physical activity will help prevent health problems that may arise later in life.

Methods

Study Group

The research model is the correlational survey model, one of the quantitative research methods. Correlational studies are research studies that examine the relationships between two or more variables without intervening in these variables in any way. The research group consisted of a total of 502 male and female students enrolled at Osmaniye Korkut Ata University in the 2024-2025 academic year. The research group consisted of students from Osmaniye Korkut Ata University.

Data Collection Tools

Firstly, the existing information on the purpose of the research is given systematically by reviewing the literature. Thus, a theoretical framework was created about the subject. In order to achieve the purpose of the study, students were informed by the researcher. Nutrition-Exercise Behavior Scale (BEDS) The Nutrition-Exercise Behavior Scale was developed by Yurt and Yıldız, 2016). This scale is a 5-point Likert-type scale with 45 items in total and these items are grouped under four sub-factors. The scale consists of four sub-dimensions as Psychological (Dependent) Eating Behavior, Healthy Nutrition-Exercise Behavior, Unhealthy Nutrition-Exercise Behavior and Meal Pattern, and the evaluation of the scores obtained from the sub-dimensions of the scale is based on the characteristics of the sub-dimensions. In the original study of the Nutrition-Exercise Behavior Scale, Cronbach 51 Alpha coefficient was found to be. 85 in the original study. In the sub-dimensions of the scale, Cronbach Alpha values were found as Psychological (Dependent) Eating Behavior; .61, Healthy Nutrition-Exercise Behavior; .62, Unhealthy Nutrition-Exercise Behavior; .68 and Meal Pattern; .73 respectively (Yurt and Yıldız, 2016).

Data analysis

Kolmogorov-Smirnov and Shapiro-Wilk normality tests were performed to test the normality of the total scores of the BEDS and its sub-dimensions. For both tests, the test p-values for both BEDS and its sub-dimensions were less than 0.05. Therefore, it can be concluded that the total scores of the BEDS and its sub-dimensions do not meet the assumption of normal distribution and do not come from a normally distributed population. The answers given by the sample group of 502 people to the scale have a direct impact on the reliability of the scale. Cursory or inconsistent responses reduce the reliability of the questionnaire. Cronbach's Alpha (α) internal consistency coefficient value is used to measure scale reliability. The higher the Cronbach's Alpha (α) value, the higher the reliability of the questionnaire. If the reliability coefficient of a scale is close to 1, it

may indicate that the scale is a highly reliable measurement tool (Tavşancıl, 2002). The reliability of measurement tools prepared to be used in comparisons between groups can be between 0.60-0.80. Reliabilities of measurement tools for making decisions about individuals are expected to be above 0.80, and above 0.90 if the decision may lead to very serious consequences (Özçelik, 1989).

Ethics of Research

The ethical approval for the study, which was stated in the application dated 26.03.2025 and numbered E.226241, titled "Investigation of the Relationship Between Nutrition Knowledge Levels, Nutrition and Exercise Behaviors of University Students", was found to be appropriate according to the principles of the Health Sciences Research Ethics Committee of the relevant University. 26.03.2025-E.227.

Findings

Table 1

Summary Statistics for Total Scores of BEDS and Its Sub-Dimensions

Scale	Minimum	Highest	Average	Standard Deviation
Nutrition-Exercise Behavior Scale (BEDS)	73	198	130,61	18,58
Sub Dimensions				
Psychological (Dependent) Eating Behavior	11	53	29,96	8,61
Healthy Eating-Exercise Behavior	23	64	43,62	9,11
Unhealthy Nutrition - Exercise Behavior	21	62	37,81	6,96
Meal Pattern	6	30	19,21	4,57

According to responses from a sample of 502 people;

For the 45-item BEDS, the mean total score is 130.61 and the standard deviation is 18.58. The lowest total score in the sample was 73 and the highest total score was 198. For the 11-item Psychological (Dependent) eating behavior subscale, the mean total score is 29.96 and the standard deviation is 8.61. The lowest total score in the sample was 11 and the highest total score was 53. For the 14-item Healthy eating-exercise behavior subscale, the mean total score is 43.62 and the standard deviation is 9.11. The lowest total score in the sample was 23 and the highest total score was 64. For the 14-item Unhealthy diet-exercise behavior subscale, the mean total score is 37.81 and the standard deviation is 6.96. The lowest total score in the sample was 21 and the highest total score was 62. For the 6-item Meal pattern subscale, the mean total score is 19.21 and the

standard deviation is 4.57. The lowest total score in the sample is 6 and the highest total score is 30.

Table 2

Normality Tests for Total Scores of BEDS and its Sub-Dimensions

	Kolmogorov-Smirnov		Shapiro-Wilk	
	Statistics	p-value	Statistics	p-value
Scale				
Nutrition-Exercise Behavior Scale (BEDS)	0,052	0,003	0,987	<0,001
Sub Dimensions				
Psychological (Dependent) Eating Behavior	0,064	<0,001	0,988	<0,001
Healthy Eating-Exercise Behavior	0,041	0,040	0,992	0,006
Unhealthy Nutrition - Exercise Behavior	0,068	<0,001	0,982	<0,001
Meal Pattern	0,088	<0,001	0,986	<0,001

Kolmogorov-Smirnov and Shapiro-Wilk normality tests were performed to test the normality of the total scores of the BEDS and its sub-dimensions. For both tests, the test p-values for both BEDS and its sub-dimensions were less than 0.05. Therefore, it can be concluded that the BEDS and sub-dimension total scores do not meet the assumption of normal distribution and do not come from a normally distributed population. The answers given by the sample group of 502 people to the scale have a direct impact on the reliability of the scale. Cursory or inconsistent responses reduce the reliability of the questionnaire. Cronbach's Alpha (α) internal consistency coefficient value is used to measure scale reliability. The higher the Cronbach's Alpha (α) value, the higher the reliability of the questionnaire. If the reliability coefficient of a scale is close to 1, it may indicate that the scale is a highly reliable measurement tool (Tavşancıl, 2002). The reliability of measurement tools prepared to be used in comparisons between groups can be between 0.60-0.80. Reliabilities of measurement tools for making decisions about individuals are expected to be above 0.80, and above 0.90 if the decision may lead to very serious consequences (Özçelik, 1989).

Internal consistency coefficients in a scale to be developed:

$0.00 \leq \alpha < 0.40$, the scale is not reliable.

If $0{,}40 \leq \alpha < 0{,}60$, the scale has low reliability.

$0{,}60 \leq \alpha < 0{,}80$ indicates acceptable reliability.

If $0.80 \leq \alpha < 1.00$, the scale is highly reliable (Tekez, 2004).

The Cronbach's Alpha value of the ACS applied to the sample group was $\alpha=0.933$ and the overall scale was quite reliable.

Table 3

Cronbach's Alpha Statistics for BEDS and Its Subscales

Scale	Cronbach's Alpha Value
Nutrition-Exercise Behavior Scale (BEDS)	0,831
Sub Dimensions	
Psychological (Dependent) Eating Behavior	0,845
Healthy Eating-Exercise Behavior	0,815
Unhealthy Nutrition - Exercise Behavior	0,665
Meal Pattern	0,692

According to the table, the BEDS is highly reliable. There is no sub-dimension with low reliability. Unhealthy eating-exercise behavior and meal pattern sub-dimensions are acceptable, while psychological (dependent) eating behavior and healthy eating-exercise behavior sub-dimensions are highly reliable. Since the total sub-dimension scores of the BEDS did not come from a normally distributed population, the relationship between the total sub-dimension scores was measured using the Spearman correlation coefficient. The correlation coefficient takes values ranging between -1 and +1. A positive value indicates a same-directional relationship between two variables, while a negative value indicates an inverse relationship between two variables. As the correlation value approaches -1 and +1, the severity of the relationship between them increases. A correlation coefficient of 0 indicates that there is no relationship between the two variables. As it approaches 0, the severity of the relationship decreases. The table below shows the Spearman correlation coefficient values for the relationship between the total scores of the BEDÖ sub-dimensions. The value in the cell shows the correlation coefficient, and the value in parentheses shows the p-value for whether the relationship is significant. If the p-value is less than 0.05, there is a statistically significant relationship at the 95% confidence level, and if it is less than 0.01, there is a statistically significant relationship at the 99% confidence level. The fact that the correlation coefficient between two variables is not statistically significant indicates that the two variables are independent of each other.

Table 4

Psychological (Dependent) Eating Behavior and Healthy Nutrition-Exercise Behavior and Meal Routine Sub-Dimension Total Scores.

	Psychological (Dependent) Eating Behavior	Healthy Behavior Nutrition-Exercise	Unhealthy Behavior Nutrition-Exercise	Meal Plan
Psychological (Dependent) Eating Behavior	1,000	-0,007 (0,877)	0,545** (<0,001)	**0,091*** **(0,042)**
Healthy Nutrition-Exercise Behavior		1,000	-0,031 (0,485)	**0,438**** **(<0,001)**
Unhealthy Nutrition-Exercise Behavior			1,000	**-0,074** **(0,096)**
Meal Plan				**1,000**

**Correlation is significant at 0.01 level.

*Correlation is significant at 0.05 level.

According to the table, no significant relationship was found between Psychological (Dependent) Eating Behavior and Healthy Eating-Exercise Behavior and Meal Pattern sub-dimension total scores. There is a strong positive relationship between Psychological (Dependent) Eating Behavior and Unhealthy Eating-Exercise Behavior sub-dimension total scores. Psychological (Dependent) Eating Behavior and Unhealthy Eating-Exercise Behavior tend to increase or decrease at the same time. There was no significant relationship between the total scores of Healthy Eating-Exercise Behavior and Unhealthy Eating-Exercise Behavior sub-dimensions. However, there is a strong relationship in the same direction between Healthy Eating-Exercise Behavior and Meal Pattern sub-dimension total scores. The individual's Healthy Eating-Exercise Behavior and meal pattern tend to increase or decrease at the same time. No significant relationship was found between Unhealthy Eating-Exercise Behavior and meal pattern sub-dimension total scores.

Discussion and Conclusion

The aim of this study was to examine the relationships between nutrition knowledge levels, nutrition and exercise behaviors of university students and to evaluate the results. When the results of the study were evaluated, no significant relationship was found between Psychological (Dependent) Eating Behavior and Healthy Eating-Exercise Behavior and Meal Pattern sub-dimension total scores. There is a strong positive relationship between Psychological (Dependent) Eating Behavior and Unhealthy Eating-Exercise Behavior sub-dimension total scores. Psychological (Dependent) Eating Behavior and Unhealthy Eating-Exercise Behavior tend to increase or decrease at the same time. An individual needs to eat and live healthy, in order to be able to do the sports. And in order to eat healthy and live healthy, the individual should have the necessary knowledge about it (Dalbudak and Yiğit, 2019).

The increase in the quality of life with the development of technology in modern life has led societies towards a sedentary lifestyle and sedentary life has become a habit. This habit emerges as an important social health problem. These 3 social health problems manifest themselves as some hypokinetic diseases. Such a lifestyle characterized by physical inactivity plays an important role in terms of disability and mortality. It has been realized that regular physical activity can prevent or delay the chronic diseases mentioned above (ACSM, 1998). It has been shown that physical activity and regular exercise are associated with higher self-esteem and lower stress and anxiety in children and young people (Ekeland et al., 2004). When the data obtained from the evaluation conducted by the American College Health Associations National College on 21261 undergraduate college students aged 18-24 studying in 44 US colleges and universities in 2008 were evaluated, it was shown that healthy lifestyle behaviors had a positive effect on the academic achievement of the participants (Wald, 2010). Chen and Jackson (2008), They stated that in the past, the idea that eating disorders could only be seen in high socioeconomic level, success-oriented families was dominant, but recently, the view that it can be seen in all segments of society has gained weight. In some evaluations conducted to compare students' eating behavior disorders and skipping meals, it was stated that no significant relationship was found (Devran, 2014). In addition to the formation of adequate and balanced nutrition habits, it is also very important to gain regular physical activity habits in this period. It is noted that physical activity decreases during the transition periods from childhood to adolescence or from adolescence to adulthood (Telama, 2009). Considering the benefits of physical activity and nutrition, people should be directed to physical activity and healthy nutrition in order to achieve healthier individuals and a healthy society. These elements are essential for prolonging life expectancy, healthy lifestyles and quality of life. Increasing physical activity and regulating nutrition are

necessary not only for children but also for adolescents, adults and the elderly (Şanlı and Güzel, 2009). While it was seen that the time attitude and time planning of the students who engaged in physical activity were good, it was determined that physical activity was not very effective in terms of the subscale of time spenders (Kıran et al., 2019).

The effects of physical activity on the health of individuals were demonstrated by Italian physicians in the 1500s by developing exercise programs both for the growth and development of children and for the protection of the health of the elderly (MacAuley, 1994). In different studies conducted both in our country and in other countries, it has been found that men have higher physical activity levels than women. In this study, similar to the literature, it was found that the physical activity levels of male individuals were more adequate than female individuals (Genç, 2002: Şanlı, 2008: Fişne, 2009). In a study conducted on adults in Colombia, Blacklock et al. examined the relationship between physical activity and quality of life and found a positive relationship between walking physical activity and quality of life (Blacklock et al., 2007). It has been reported that meal skipping behaviors increase in childhood and adolescence, especially with advancing age, and there is a decrease in physical activity level with age (Aksoydan and Çakır, 2011). According to 2015 data (TurkStat), the average time that people in our country spend on sports in a day is 11 minutes. While men spend an average of 16 minutes a day on sports, this time is determined as 6 minutes for women. In a study in which the sports habits of university students were questioned, it was found that 43.7% of them practiced sports (Republic of Turkey Ministry of Health 2015). In order to scientifically prove the effects of physical activity on health, it is very important to accurately evaluate complex and multifaceted physical activities (Bulut, 2013). Health promotion can be achieved by improving and controlling people's own health and reaching a full health potential. In order to achieve this goal, some bad habits such as violent behaviors, smoking, communication problems with family, substance use, unhealthy weight control, alcohol, etc. should be avoided (Çimen, 2003). Extending life span and quality life are indispensable. Increasing physical activity, gaining healthy lifestyle behaviors and regulating eating habits are necessary not only for children but also for adults and the elderly (Özkan, 2018). A low-level negative correlation has been found between social opinion anxiety and nutrition (Suna et al., 2024).

In line with these results, activities that will increase physical activity for the benefit of society and teach how to eat healthily should be planned, and these plans should not be delayed for the sake of public health. It has been observed that as physical activity increases, so does healthy eating. Today, healthy eating and exercise are extremely important in the fight against obesity.

Ethical Approval Information

Ethics Committee: Osmaniye Korkut Ata University Health Sciences Research Ethics Committee

Date of Approval: 26 March 2025

Approval Number: E-58565088-100-227615

Availability of Data and Materials

Data supporting the findings of this study are available upon re-request from the corresponding author. Data are not publicly available due to confidentiality or ethical constraints.

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