DEDICATED TO LECTURER ANIL YILDIZ, WHO LOST HIS LIFE IN THE DISASTER OF THE CENTURY IN TURKEY ON FEBRUARY 6, 2023. WE COMMEMORATE LECTURER ANIL YILDIZ WITH MERCY.

A Study on the Evaluation of Nutritional Status of University Students in Şırnak Province

Şırnak İlindeki Üniversite Öğrencilerinin Beslenme Durumlarının Değerlendirilmesi Üzerine Bir Araştırma

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ABSTRACT

In this study, it was aimed to determine the daily nutrient consumption amounts and nutritional diversity in the diets of Şırnak University students using the Healthy Eating Index (HEI-05). It was conducted by applying a face-to-face questionnaire on 148 students selected by random sampling method from among the students studying at Şırnak University Silopi Vocational School and accepting to participate in the study. 24 hours food consumption records of the students were taken and nutrients were analyzed using the BEBIS program. The majority of the students participating in the survey were male students (58.8%). The Healthy Eating Index score average of female students was higher than that of male students and it was determined as 65.74 ±11.45 for females and 63.56 ± 11.53 for males. A significant difference was found between the genders of the students and energy, cholesterol and sodium score averages that they consumpted daily by diet. According to the results of this research, Healthy Eating Index scale scores show that students' nutritional habits should be improved. Determining the food consumption and nutritional habits of higher education students can be beneficial for the prevention of nutrition related diseases.

Keywords: Nutrition, The healthy eating index, University students

ÖZ

Bu çalışmada, Şırnak Üniversitesi öğrencilerinin günlük besin öğesi tüketim miktarları ve diyetlerindeki besin çeşitliliği durumlarının Sağlıklı Yeme Indeksi (HEI-05) kullanılarak saptanması amaçlanmıştır. Şırnak Üniversitesi Silopi Meslek Yüksekokulu'nda öğrenim gören ve çalışmaya katılmayı kabul eden öğrenciler arasından tesadüfi örneklem yöntemiyle seçilen 148 öğrenci üzerinde yüz yüze anket uygulanarak gerçekleştirilmiştir. Çalışmada öğrencilerin bir günlük besin tüketim kayıtları alınmış ve BEBIS programı kullanılarak besin öğeleri analiz edilmiştir. Ankete katılan öğrencilerin çoğunluğu erkek öğrencilerden oluşmaktadır (%58,8). Kadın öğrencilerin Sağlıklı Yeme İndeksi puan ortalaması erkek öğrencilerden daha yüksek olup kadınlarda 65,74 ±11,45, erkeklerde 63,56 ± 11,53 puan olarak saptanmıştır. Öğrencilerin cinsiyetleri ve diyetle günlük tükettikleri enerji, kolesterol ve sodyum puan ortalamaları arasında anlamlı farklılık bulunmuştur. Bu araştırmanın sonuçlarına göre Sağlıklı Yeme İndeksi ölçek puanları, öğrencilerin beslenme alışkanlıklarının geliştirilmesi gerektiğini göstermektedir. Üniversite öğrencilerinin besin tüketimlerinin ve beslenme alışkanlıklarının belirlenmesi, beslenmeye bağlı hastalıkların önlenmesinde faydalı olabilir.

Anahtar Kelimeler: Beslenme,Sağlıklı yeme indeksi, Üniversite öğrencileri

Istanbul Okan University ethics committee approved the protocol of the study with a decision number of 69 on 11.05.2015

[*] He died on February 6, 2023 in the disaster of the century in Turkey, Lecturer, We commemorate Lecturer Anıl YILDIZ with mercy.

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INTRODUCTION

Nutrition is essential in maintaining and protecting a healthy life as well as in the treatment of diseases. Human health is under the influence of many factors such as nutrition,heredity, climate and environmental conditions.[1] The state of being healthy which aims at the development of health and is based on its protection and maintenance is one of the fundamental rights of every individual. Individuals should be taking their own responsibilities in developing healthy habits and to be able to improve the health, they required to adopt a healthy daily habits which will finally end up with a healthy lifestyle.[2] It is important to know the risk factors that prevent the development of health and to protect individuals from these risk factors from childhood. On the other hand, university life can be assumed as a process in which significant changes are encountered in the lives of individuals.[3]

Young people who leave their families in the first years of their university education can acquire unhealthy eating habits during the adaptation process to this new environment.[4] In a literature review on the nutritional status of university students, it has been revealed that students have unhealthy eating habits and their consumption of vegetables and fruits is low, while their consumption of fast food, soft drinks and snacks is high.[5]

HEI-2005 which was developed by associating with the National Dietary Guidelines is a method in which the quality of the diet is evaluated by calculating the quality of the consumed foods.[6] Finally, HEI-2015 has been developed by reviewing the new diet guide of the USA.[7] This research was carried out by face-to-face questionnaire method on 148 respondents aged between 18-30 who voluntarily accepted to participate in the study as students at Silopi Vocational School of Şırnak University in Silopi district of Şırnak province.

MATERIAL AND METHOD

Study Type and Aim

As a descriptive study, the research was carried out to detect the HEI-05 scores of the students and to determine the factors affecting it.

The Universe and Sample of The Research

The universe of the research consists of 200 students who are enrolled in Silopi Vocational School of Şırnak University and actively continue their education during 2015-2016 Spring semester. Except for the students who refused to participate in the study and did not complete the questionnaire, 148 students constituted the sample of the study. The sample size was not calculated and the entire universe was included in the study.

Procedures

We utilized Questionnaire form and anthropometric measurement techniques as data collection tools in the research. A questionnaire comprising of two sections was applied to the students participating in the research, which was prepared by the researcher and included the demographic information, disease status, antropometric measurements and daily basis food consumption status of the participants. The body weight and height measurements of the students were measured by researcher. We measured the body weight of the participants wearing light clothes and no shoes with a portable scale sensitive to 0,5 kg and their height with a non-flexible tape measure with the feet together and the head in the Frankfort plane.[21]All participants included in the study signed the Informed Consent Form. Determination of food consumption is based on the method of determining the types and amounts of foods consumed by students throughout the day and determining their

energy and nutrient values. We calculated average nutrient and energy values of the foods by utilizing the "BEBIS" program and the HEI-05 score which was calculated out of 100 points and the highest score was determined as 100 was evaluated by dividing into three categories. 0-50 points were the first, 51-80 points were the second and 81-100 points were the third group. The first category refered to poor diet quality, the second category refered to the diet quality to be improved and the third category refered to good diet quality.

Statistical Analysis

We evaluated data from the questionnaire form with the SPSS 20.0 program. Normality distribution of data examined by Kolmogrov-Smirnov test. Unpaired t test and One way ANOVA test was utilized for parametric data in comparison of groups and the Mann-Whitney U test was utilized for the analysis of nonparametric data. Chi square test utilized for the comparison of two categorical variables. Values below $p<0.05$ were considered statistically significant.

Ethical Considerations

Approval for the study was given by the Ethics Committee of Okan University (Date: 11.01.2015. Decision No: 69). In addition, written approval was obtained from the institution where the study was conducted. All stages of the study were carried out by adhering to ethical rules and the principles of the Declaration of Helsinki.

RESULTS AND DISCUSSION

58,8% of the students were male and 41,2% are female. According to the departments, 33,8% of the students are studying Foreign Trade, 23,6% of them are studying Logistics and 42,6% of them are studying in Banking and Insurance Considering the distribution of BMIs of the students, 12,2% were underweight, 73,6% were normal, 12,8% were overweight and 1,4% were obese. When smoking and alcohol consumption were examined, 70,9% of the students smoked and 6,1% of them consumed alcohol. 64,2% of the students stayed with their families and 35,2% stay with their friends at the student house (Table 1).

Table 1.Descriptive Statistics of Students

		N	%
Gender	Male	87	58,8
	Female	61	41,2
Department	Foreign Trade	50	33,8
	Logistic	35	23,6
	Banking and Insurance	63	42,6
Body Mass Index (BMI)	Underweight	18	12,2
	Normal weight	109	73,6
	Overweight	19	12,8
	Obese	2	1,4

Table 1. (Continued)

Smoking	Yes	105	70,9
	No	43	29,1
Alcohol Comsumption	Yes	9	6,0
	No	139	94,0
Accommodation	Student House	53	35,8
	With Family	95	64,2
Chronic Disease	Yes	13	8,8
	No	135	91,2

N : Sample Size %: Percantage

The average daily energy intake of male students was higher than females. There was a statistically significant difference between the average daily energy consumption of female and male students ($p<0,05$). There was also a statistically significant difference between the dietary cholesterol intakes of female and male students ($p< 0,05$) (Table 2).

Table 2. Nutrient Consumption Status of Students by Gender

	Male	Female	p value
Energy (kcal)	2091,64±381,23	1805,90±377,78	**0,00***
Carbonhydrate (%)	47,54±6,25	45,49±6,34	0,053
Protein(%)	18,63±3,75	19,74±4,35	0,130
Fat (%)	33,79±6,29	35,15±6,32	0,201
Cholesterol (mg)	338,95±119,49	301,85±145,14	**0,007***
Dietary fiber (g)	27,0±9,68	24,52±9,18	0,124

*Unpaired t test and Mann-Whitney test were used to compare the data * p<0.05 is statistically significant*

The mean HEI score for male was 63,56 ± 11,53 and for female was 65,74 ± 11,46 point. Even there was no statistically significant difference between the HEI-05 scores of the students according to their gender, female students had higher HEI-05 scores than male students. On the other hand, there was no

statistically significant difference between the department they study and the HEI-05 scores of the students (p>0,05) (Table 3).

Table 3. Comparison of HEI-05 scores of students by gender and department

		HEI -05 Scores	p value
Gender	Male	63,56±11,53	
	Female	65,74±11,46	0,321
Department	Foreign Trade	63,80±12,27	0,104
	Logistic	61,57±11,55	
	Banking and Insurance	66,59±10,61	

HEI-05 : Healthy Eating Index, Mann-Whitney test and OneWay Anova test were used to compare the data. p<0.05 is statistically significant

Although female students had lower total fat and higher saturated fat scores, this difference was not statistically significant. There was a statistically significant difference between the gender of the students and their blood cholesterol scores (p<0,05). While male students had higher fruit, whole grain, milk and meat scores than female students, sodium and nutritional diversity scores were lower. There was a statistically significant difference between mean sodium scores of students by gender (p>0,05) (Table 4).

Table 4. Comparison of participants' HEI-05 sub-groups' mean scores by gender

	Male	Female	p value
Total fat	5,23±3,56	5,00±3,4	0,680
Saturated fat	4,77±4,17	5,16±4,18	0,578
Cholesterol	4,71±3,68	6,15±3,34	**0,012***
Fruit	7,64±3,31	6,64±3,73	0,090
Vegetable	6,49±4,04	7,21±3,35	0,383
Grain products	9,02±2,26	8,61±2,43	0,206
Milk	8,45±2,98	7.95±2,64	0,091
Meat	9,66±1,27	9,26±1,78	0,122
Sodium	2,82±3,63	4,51±3,84	**0,000***
Food variety	5,0±0	5,08±0,64	0,231

*Mann-Whitney test was used to compare the data. * p<0,05 is statistically significant*

The comparison of the HEI-05 score categories according to the gender of the students was shown in Table 5. It was determined that 19,54% of male students had a poor diet quality, 75,86% had a diet that needed improvement and 4,6% had a good diet quality. It was observed that 14,80% of female students had a poor diet quality and 77,0% consumed a diet that needed improvement. There was no statistically significant difference between HEI-05 score categories of the students by gender (p > 0,05).

Table 5. Distribution of HEI-05 Score Categories by Gender of Students

Diet Quality	Male	Female	p value
Poor Diet Ouality	17 (%19,5)	9 (%15,0)	
Needs Improvement	66 (%76,0)	47 (%77,0)	
Good Diet Quality	4 (%5,0)	5 (%8,0)	0,530
Total	87 (%100)	61 (%100)	

*Chi square test was used to compare the data. * p<0,05 is statistically significant*

In this study, it was aimed to determine the nutrient consumption status and food diversity of the students according to the daily suggested nutrient consumption amounts by utilizing the HEI-05. Food choices and consumption habits of individuals are shaped according to traditions, educational status, habits, psychological and social satisfaction. Nutrition, besides being indispensable for living things to survive, the relationship of the individual with food cannot be explained only by the concepts of hunger and physiological needs.[8] Therefore, nutrition is such a complex process that it cannot be reduced to a single cause. In the study, the mean age of male students were 22,80±3,13 years and 21,20±1,64 years for female students. Similar to the study, in a study conducted with university students, the mean age of male students were 22,1±2,8 years and female students were 21,7±3,0 years.[9] Similarly, in this study, male students have a higher BMI values than female students. In the study of Arslan et al. with university students, it was found that the average BMI values of the male students were higher than the females .[10] While 73,6% of the students had normal BMI, 12,8% were overweight and 12,2% were underweight and most of the female and male had normal BMI in this study. In the study of Özenoğlu et al., BMI of male was found to be higher, similar to this study. It has been stated that female's giving more importance to their body image and nutrition may give rise to average BMI of female to come out lower compared to male.[11] The smoking rate of male students was 39,1%, while the smoking rate of female students was 14,8%. In the study conducted by Akbulut on 19 Mayıs University Faculty of Health Sciences students, the frequency of

smoking among male students was higher than female, as in this study.[12] In another study, 54,2% of male students and 35,5% of females smoke.[13] The daily dietary energy and cholesterol amounts of the students showed statistically significant differences according to their genders. While in a study,[14] the cholesterol intake of students was lower than this study, in a study conducted during the pandemic period, the pre-pandemic cholesterol intake of students was found to be similar to this study.[15] It has been observed that the consumption of foods of animal origin is high. Especially in the region, people tent to consume much meat products as cultural and traditional lifestyle. Thus it is thought that, increased amount of consumption might be based on this lifestyle. HEI-2005, which is one of the most used indexes among diet quality indices is a diet quality measurement tool developed by the United States Department of Agriculture.[16] In this study, the mean HEI score of the students was found to be 64,46±11,52 point. According to gender, it is 63,56±11,53 point in male and 65,74± 11,46 point in female. When evaluated according to genders, it was found that although the HEI scores were slightly higher in female, this difference was not statistically significant. In a study conducted in England, mean HEI score of female is founded higher than the mean score of male.[17] In Özkan's study, female's HEI scores were found higher than men, and there was no significant difference between gender and HEI score, similar to this study.[18] Looking at the HEI score categories, it was determined that 75,86% of male students and 77,0% of female students consumed a diet that needed improvement. In a study, when the classification of students according to the healthy eating index score (average 57,9±12,8 point) was examined; It was determined that 71,3% of male students is required to improve their diet quality.[19] In another study conducted in Spain, only 17,4% of the students were found to have a healthy diet.[20] In the literature, there are studies on diet quality in many different populations and with different results. Due to the differences in the nutritional habits of the societies, the importance of creating country-specific nutritional guides emerges. The research is limited to the students studying at Şırnak University Silopi Vocational School in Silopi district of Şırnak province. Although the Healthy Eating Index is organized in a broad perspective, the scale has shortcomings. Not including dietary fiber in any group, not knowing how to distinguish whole grain and refined grain products, absence of n-6 and n-3 fatty acids, which have a protective role against cardiovascular diseases and some types of cancer, and not examining fish consumption under a separate category can be given as an example of the shortcomings of the scale. One of the limitations of study is that the food consumption record is based on the participant's statement and the majority of the study group consisted of individuals with normal BMI.

CONCLUSION AND RECOMMENDATIONS

In some of the studies, it was observed that the HEI-05 scores of the female and some of the male were high. Therefore, it can be said that the distribution of scores between the sexes differs. In the studies examined, it was observed that the HEI-05 scores of the individuals were mostly in the category of diet quality that should be improved. Studies on improving diet quality should be increased. In the light of these data, it can be said that the HEI-05 scores of the students participating in this study were slightly higher than the other studies. The reason for this; It is thought that the majority of the students who participated in the study live with their families, due to the fact that the local cultural diet is common instead of the western style diet in Silopi and the number of places offering fast-food style food service is very low. In our country, the nutritional status of the people shows many differences, especially according to the regions they live in. It is thought that regional differences are closely related to socioeconomic level and

especially culture. Giving nutrition education to university students will help young people to gain proper nutrition habits, adopt a healthy lifestyle and lead a quality life. Awareness of healthy nutrition should be increased by increasing written and visual materials, campaigns and activities related to healthy nutrition.

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