RESEARCH ARTICLE

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Evaluation of Academicians' Levels of Nutritional Knowledge and Adherence to the Mediterranean Diet

ABSTRACT

Objective: In this study, it was aimed to evaluate the nutritional knowledge levels of academicians and their adherence to the Mediterranean diet.

Methods: The research data were collected face to face with the help of a questionnaire created by the researchers. Demographic characteristics, anthropometric measurements, nutritional habits, nutritional knowledge levels and adherence to the Mediterranean diet were questioned with the questionnaire form. Nutritional knowledge levels of individuals were evaluated with the 'Nutrition Knowledge Level Scale for Adults (NKLSA)'. Mediterranean diet pattern characteristics were identified with the 'Mediterranean diet adherence score (MEDAS)'.

Results: The mean age of the individuals was 40.2±9.20 years, 42.2% of individuals were overweight and 7.8% are obese. 8.4% of the individuals had bad, 24.7% moderate, 44.8% good, 22.1% very good basic nutrition knowledge levels. 7.1% of the individuals had bad, 26.6% moderate, 27.9% good, 38.3% very good knowledge levels about food preference. 68.2% of individuals were in compliance with the Mediterranean diet. A statistically significant difference was found between individuals who did and did not comply with the Mediterranean diet in terms of the total score of NKLSA, basic nutrition knowledge score and food preference knowledge score ($p<0.05$).

Conclusions: It was determined that the majority of academicians were in compliance with the Mediterranean diet and their nutritional knowledge level was good. However, half of the academicians were determined to be overweight or obese, which is a risk factor for noncommunicable chronic diseases.

Keywords: Mediterranean Diet, Nutritional Knowledge, Academicians.

Akademisyenlerin Beslenme Bilgi Düzeylerinin ve Akdeniz Diyetine Uyumlarının Değerlendirilmesi

ÖZET

Amaç: Bu çalışmada, akademisyenlerin beslenme bilgi düzeylerinin ve Akdeniz diyetine uyumlarının değerlendirilmesi amaçlanmıştır.

Gereç ve Yöntem: Araştırma verileri, araştırmacılar tarafından oluşturulan anket formu yardımıyla yüz yüze toplanmıştır. Anket formu ile demografik özellikler, antropometrik ölçümler, beslenme alışkanlıkları, beslenme bilgi düzeyleri ve Akdeniz diyetine uyum sorgulanmıştır. Bireylerin beslenme bilgi düzeyleri 'Yetişkinler İçin Beslenme Bilgi Düzeyi Ölçeği (YETBİD)' aracılığı ile değerlendirilmiştir. Akdeniz diyet örüntüsü özellikleri 'Akdeniz Diyeti Bağlılık Ölçeği (MEDAS)' ile belirlenmiştir.

Bulgular: Bireylerin yaş ortalaması 40,2±9,20 yıldır, bireylerin %42,2'si fazla kilolu ve %7,8'i obezdir. Bireylerin %8,4'ü kötü, %24,7'si orta, %44,8'i iyi, %22,1'i çok iyi temel beslenme bilgi düzeyine sahiptir. Bireylerin besin tercihi konusunda %7,1'i kötü, %26,6'sı orta, %27,9'u iyi, %38,3'ü çok iyi bilgi düzeyine sahiptir. Bireylerin %68,2'si Akdeniz diyetine uyum sağlamaktadır. Akdeniz diyetine uyum sağlayan ve sağlamayan bireyler arasında YETBİD toplam puanı, temel beslenme bilgi puanı ve besin tercihi bilgi puanı açısından istatiksel olarak anlamlı fark saptanmıştır ($p<0.05$).

Sonuç: Akademisyenlerin büyük çoğunluğunun Akdeniz diyetine uyum gösterdiği ve beslenme bilgi düzeyinin iyi derecede olduğu saptanmıştır. Ancak akademisyenlerin yarısının fazla kilolu veya obez olduğu belirlenmiştir, bu durum bulaşıcı olmayan kronik hastalıklar için bir risk faktörüdür.

Anahtar Kelimeler: Akdeniz Diyeti, Beslenme Bilgisi, Akademisyenler.

INTRODUCTION

Nutritional chronic diseases are a global epidemic. Nutrition is an important intervention method in both the prevention and treatment of chronic diseases (1). Overweight or obesity is defined as excessive accumulation of fat in the body. According to the latest report of the World Health Organization, the prevalence of obesity in our country is 32.1% and Turkey is the country with the highest obesity prevalence in Europe (2). Nutritional knowledge has an important place in exhibiting positive eating behaviors and plays a role in acquiring and maintaining healthier eating habits (3). In various studies in the literature, it has been determined that the level of education has a positive effect on nutritional knowledge and eating habits (4, 5).

In the Mediterranean diet, a high intake of fruits, vegetables, whole grains, legumes, nuts, and olive oil is combined with a moderate intake of meat and dairy products. This diet pattern is associated with a reduced incidence of obesity, hypertension, metabolic syndrome, cardiovascular diseases, neurodegenerative diseases, cancer, depression and respiratory diseases (6-8). The Mediterranean diet is adopted as a health-protective and ecologically sustainable diet model. Sustainability has become a major concern in recent years due to climate changes. The diets applied contribute to greenhouse gas emissions, water and land use, energy consumption and environmental pollution. The Mediterranean diet is a cultural model that includes the way food is produced, processed and distributed. The Mediterranean diet model is seen as a healthy and environmentally friendly approach (9, 10).

Academicians are individuals with the highest education level in society. For this reason, it is expected that their knowledge level will be high in parallel with their education level. In this study, it was aimed to evaluate the nutritional knowledge levels and adherence to the Mediterranean diet of the academicians, who are the group with the highest education level in the society.

MATERIAL AND METHODS

The population of this cross-sectional and descriptive study consisted of 321 academicians working at Trakya University Faculty of Medicine and Faculty of Health Sciences. It was aimed to reach the entire population without making a sample selection, but since there were those who could not be reached and did not want to participate in the study, the data of 154 (47.9%) volunteer academicians were obtained and the study was completed. Before starting the study, 'Ethics Committee Approval' with the decision number 18/22 was obtained from the Trakya University Faculty of Medicine Non-Invasive Scientific Research Ethics Committee. The Declaration of Helsinki was followed in every step of the study's protocols. Informed consent was obtained from all participants included in the study.

Data Collection Tools: The research data were collected face to face with the help of a questionnaire created by the researchers. Demographic characteristics, anthropometric measurements, nutritional habits, nutritional knowledge levels and adherence to the Mediterranean diet were questioned with the questionnaire form.

Nutritional knowledge levels of individuals were evaluated with the 'Nutrition Knowledge Level Scale for Adults (NKLSA)'. The scale was developed by Batmaz and Güneş (11), and its reliability and validity were made. The scale consists of 2 sub-factors: 'basic nutrition' and 'food preference'. The maximum score that can be obtained from the basic nutrition section is 80, and the maximum score that can be obtained from the food preference section is 48. Nutritional knowledge levels of individuals are evaluated as bad, moderate, good and very good according to the scores obtained from the scale.

The Mediterranean diet adherence score (MEDAS) was used to determine the participants' features related to the Mediterranean diet pattern. The scale consists of 14 questions, and a total score of 7 or higher shows that the subject adheres to the Mediterranean diet to an appropriate degree (12-14).

According to their methods, body weight was recorded using a calibrated scale, and height was taken using a stadiometer. In order to determine the body mass index (BMI) value, the body weight was divided by the square of the height. Underweight was defined as a body mass index below 18.50 kg/m^2, normal as between 18.50 and 24.99 kg/m^2, overweight as between 25.0 and 29.99 kg/m^2, and obese as above 30.0 kg/m^2 (15).

Statistical Analysis: The Statistics Package for Social Sciences (SPSS) 22.0 statistical package tool was used to analyze the research's data. Distribution analysis of the data was performed using the histogram, coefficient of variation ratio, Skewness, Kurtosis and Kolmogorov-Smirnov tests. In the comparison of paired groups, Mann Whitney U test was used for methods that were not suitable for normal distribution in independent groups. Relationships between numerical variables are given by Spearman correlation coefficient. The results were evaluated at the 95% confidence interval, statistically at $p<0.05$ significance level.

Post-hoc power analysis was performed using the G*Power (version 3.1.9.7, Universitat Düsseldorf, Düsseldorf, Germany), and the effect size was computed for the mean difference NKLSA score between the groups complying and not complying with the Mediterranean diet. The analysis determined that for the statistical

significance of 2-sided alpha of 5%, the study power (1- β) was 86%.

RESULTS

The general characteristics of the individuals were given in Table 1. A total of 154 individuals (95 female, 59 male) were included in the study. The mean age of the individuals was 40.2±9.20 years, and the mean BMI was 25.1±3.62 kg/m2. 42.2% (n=65) of individuals were overweight and 7.8% (n=12) are obese.

Table 1. General characteristics of individuals

Variables	**n (%)**
Gender	
Female	95 (61.7)
Male	59(38.3)
Marital status	
Married	101 (65.6)
Single	53 (34.4)
Chronic disease status	
Yes	65 (42.2)
No	89 (57.8)
Affiliated faculty	
Faculty of Medicine	98 (63.6)
Faculty of Health Sciences	56 (36.4)
	X̄±SD
Age (years)	40.2±9.20
BMI (kg/m^2)	25.1±3.62
BMI classification	
Underweight (<18.50 kg/m^2)	3 (1.9)
Normal (18.50-24.99 kg/m^2)	74 (48.1)
Overweight (25.00-29.99 kg/m^2)	65 (42.2)
Obese (≥30.0 kg/m^2)	12 (7.8)

Nutritional habits of individuals were given in Table 2. The average number of main meals was 2.7±0.49, and the number of snacks was 1.7±1.04. 53.9% (n=83) of the individuals were skipping meals. The most skipped main meal was breakfast (56.6%). 51.3% (n=79) of the individuals stated that they received education/information about healthy nutrition. 32.9% (n=26) of the individuals who received education /information about healthy nutrition stated that they received this education /information from a dietitian and 15.2% (n=12) of the individuals stated that they received it from other health personnel.

Table 2. Nutritional habits of individuals

	X̄±SD
Number of main meals	2.7±0.49
Number of snacks	1.7±1.04
	n (%)
Skipping the main meal	
Yes	83 (53.9)
No	71 (46.1)
Skipped meal	
Breakfast	47 (56.6)
Lunch	29 (34.9)
Dinner	7 (8.5)
Receiving education/information about healthy eating	
Yes	79(51.3)
No	75 (48.7)
Person/tool for education/ information	
Dietitian	26 (32.9)
Other health personnel	12 (15.2)
Undergraduate course	19 (24.1)
Social media tools	22 (27.8)

Nutritional knowledge levels of individuals were given in Table 3. 8.4% (n=13) of the individuals had bad, 24.7% (n=38) moderate, 44.8% (n=69) good, 22.1% (n=34) very good basic nutrition knowledge levels. 7.1% (n=11) of the individuals had bad, 26.6% (n=41) moderate, 27.9% (n=43) good, 38.3% (n=59) very good knowledge levels about food preference. There was a significant difference in NKLSA total score and food preference knowledge score according to the status of receiving education/information about healthy eating (p=0.036; p=0.023, respectively).

Table 3. Nutritional knowledge levels of individuals

	Total X̄±SD	**Receiving education/information about healthy eating**		**p-value**
		Yes	**No**	
NKLSA total score	97.7±14.47	100.2±14.88	95.2±13.64	**0.036***
Scale subfactors				
Basic nutrition knowledge score	58.1±10.80	59.5±11.48	56.6±9.89	0.091
Bad (<45 points)	13 (8.4)	6 (7.6)	7 (9.3)	
Moderate (45-55 points)	38 (24.7)	18 (22.8)	20 (26.7)	
Good (55-65 points)	69 (44.8)	34 (43.0)	35 (46.7)	
Very good (>65 points)	34 (22.1)	21 (26.6)	13 (17.3)	
Food preference knowledge score	39.6±5.77	40.6±5.59	38.5±5.78	**0.023***
Bad (<30 points)	11 (7.1)	2 (2.5)	9 (12.0)	
Moderate (30-36 points)	41 (26.6)	19 (24.1)	22 (29.3)	
Good (37-42 points)	43 (27.9)	22 (27.8)	21 (28.0)	
Very good (>42 points)	59 (38.3)	36 (45.6)	23 (30.7)	

Mann-Whitney U test, *p<0.05

The evaluation of nutritional knowledge levels of individuals according to their adherence to the Mediterranean diet was given in Table 4. 68.2% (n=105) of individuals were in compliance with the Mediterranean diet. A statistically significant difference was found between individuals who did and did not comply with the Mediterranean diet in terms of the total score of NKLSA, basic nutrition knowledge score and food preference knowledge score (p=0.003, p=0.004, p=0.038, respectively). The BMI values of the individuals did not differ according to their compliance with the Mediterranean diet (p>0.05).

Table 4. Evaluation of the nutritional knowledge level of individuals according to their adherence to the Mediterranean diet

	$\bar{X}$±SD		
	NKLSA total score	**Basic nutrition knowledge score**	**Food preference knowledge score**
Compliance with the Mediterranean diet (≥7 points) (n=105/68.2%)	100.1±14.02	59.9±10.51	40.2±5.70
No compliance with the Mediterranean diet (<7 points) (n=49/31.8%)	92.6±14.20	54.3±10.54	38.2±5.73
p-value	**p=0.003***	**p=0.004***	**p=0.038***

Mann-Whitney U test, *p<0.05

The relationship between nutritional knowledge level and some variables was given in Table 5. A statistically significant weak positive correlation was found between the number of snacks and the total score of NKLSA and basic nutrition knowledge score (p<0.05).

Table 5. Evaluation of the relationship between nutritional knowledge level and some variables

	NKLSA total score	**Basic nutrition knowledge score**	**Food preference knowledge score**
Age	r=0.101 p=0.212	r=0.084 p=0.300	r=0.132 p=0.102
BMI (kg/m^2)	r=-0.064 p=0.434	r=-0.103 p=0.202	r=0.025 p=0.760
MEDAS	r=0.100 p=0.218	r=0.083 p=0.308	r=0.111 p=0.169
Number of main meals	r=0.029 p=0.722	r=0.073 p=0.368	r=-0.033 p=0.683
Number of snacks	r=0.169 **p=0.036***	r=0.204 **p=0.011***	r=0.113 p=0.161

Spearman correlation, *p<0.05

DISCUSSION

In this study, the nutritional knowledge levels of Trakya University academicians and their adherence to the Mediterranean diet were evaluated. Almost half of the academicians (53.9%) skipped meals, and half of the academicians (50.0%) were overweight or obese. The number of studies evaluating the nutritional habits of academicians in our country is quite limited. In the study conducted by Bayramoğlu et al.(16), it was determined that 71.4% of the academicians skipped meals, and 45.7% were overweight or obese. In another study, it was found that 72.0% of the academicians skipped meals and 41.4% were overweight or obese (17). Similar to the studies conducted in this study, it was determined that the rate of skipping meals and overweight or obese individuals was high in academicians.

Nutrition education is effective on individuals' nutritional knowledge and nutrition-related behaviors. Nutrition education is the most common theory used to maintain sustainable and healthy eating behaviors (18-20). In this study, it was determined that individuals who received education/information about healthy eating had higher nutritional knowledge. Obtaining nutritional education/information from an accurate and reliable source is as important as obtaining nutritional education/information (18, 21). In this study, the majority of individuals (72.2%) stated that they received this information from any health personnel or as a course. According to the result of the study, it was determined that the academicians were aware of the reliable source of nutrition.

In this study, it was determined that the majority of the academicians had a good level of knowledge about basic nutrition and food preference (66.9% and 66.2%, respectively). In a study conducted with doctors in our country, it was determined that 53.3% of individuals had good nutritional knowledge (22). In another study conducted with adults, it was determined that 42.8% of the individuals had a good level of basic nutrition knowledge and 46.2% of them had a good

level of food preference (23). The fact that the level of nutritional knowledge was higher in this study than in other studies may be due to the higher education level of the individuals.

The Mediterranean diet is a healthy and sustainable diet model. Adherence to the Mediterranean diet is associated with a reduced risk of chronic disease (24-26). In this study, it was determined that the majority of the academicians (68.2%) compliance with the Mediterranean diet in parallel with their nutritional knowledge level. In addition, it was determined in the study that individuals who comply with the Mediterranean diet have higher nutritional knowledge than individuals who do not comply with the diet. Nutritional knowledge is effective on the nutritional behaviors of individuals (27). It is an expected situation that individuals with a high level of nutritional knowledge will tend to healthy and positive eating behaviors.

CONCLUSION

As a result, it was determined that the majority of Trakya University academicians were in compliance with the Mediterranean diet and their nutritional knowledge level was good. However, it was determined that half of the academicians were overweight or obese. Being overweight/obesity is a risk factor for the development of chronic diseases. Although the level of nutritional knowledge and compliance with the Mediterranean diet were high in our study, the high number of overweight/obese individuals may be due to the fact that the individuals are physically inactive. Academicians, like other individuals in the society, should be followed by family physicians in units providing primary care preventive health services in terms of obesity-related chronic diseases. It is very important for the academicians, who have the highest education level in the society, to have high nutritional knowledge and to display positive nutritional behaviors in terms of being social role models.

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