



# Nutritional Attitudes and Behaviors of Physicians, Mersin Province Study

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## Abstract

**Objectives:** Nutrition is defined as providing and using in the body the nutrients needed to protect and improve health and improve the quality of life. Shift work and on-call duty are common among healthcare workers and are predicted to affect their eating habits. The purpose of our study is to investigate the nutrition attitudes and behaviors of physicians (medical doctors) in the sample of Mersin province.

**Methods:** This study, planned as a cross-sectional type, was carried out in Mersin province between November 2020 and October 2021. With an online survey, participants' sociodemographic characteristics and nutritional behaviors were evaluated using the Attitude Scale for Healthy Nutrition (ASHN).

**Results:** A total of 275 physicians (137 men and 138 women) participated in the study, and the average age was found to be 48.0±10.2 years. About 50.6% of physicians were overweight, and 10.9% were obese. However, it was determined that 151 (54.9%) of the participants had received nutrition education before. When physicians daily consumption rates of basic food groups were examined, it was determined that the rate of inadequate intake was highest in the vegetable group (90.2%), 79.9% in the grain group, 77.2% in milk and dairy products, and 70.9% in the fruit group. According to nutritional attitude evaluations; it was found to be statistically significant that physicians whose age was 50 and above and who exercised regularly had higher scores on ASHN ( $p<0.05$ ). In addition, the fast food consumption frequency of single physicians participating in our study was statistically higher than that of married physicians ( $p<0.001$ ).

**Conclusion:** Although physicians' ASHN scores regarding were a high, it was observed that there were inadequacies in their consumption according to food groups, and the number of physicians with high body mass index was high. The combination of malnutrition and intense workload can lead to a decrease in physicians' quality of life and work efficiency in the long term, as well as an increase in chronic diseases.

**Keywords:** Healthy nutrition, nutritional attitude, nutritional behavior, physician.

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Health is defined by the World Health Organization (WHO) as not only the absence of disease and disability but also complete physical, mental, and social well-being.

<sup>[1]</sup> Nutrition is defined as the provision and utilization in the body of the nutrients needed for the growth and

development of the individual, to sustain his life efficiently and healthily, to maintain his current health, and to improve his quality of life.<sup>[2]</sup> The nutrients and energy required by the body to grow, develop, and carry out its tasks must be consumed in adequate and balanced proportions.<sup>[3]</sup>

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Healthy nutrition is a basic behavior that should be maintained in every stage of life. These behaviors begin to be learned in the 1<sup>st</sup> years of life and develop to a large extent under the age of five.<sup>[3]</sup> The nutritional attitudes and behaviors of the people around the child are important in the development of nutritional behavior. Especially, the nutritional attitudes and behaviors of mothers, fathers, and siblings have a very important place in shaping children's nutritional behaviors.<sup>[4]</sup> In addition, it is known that geography, culture, climate, socioeconomic status, and other social and environmental conditions are related to nutrition.<sup>[5]</sup> It has been stated that socioeconomic inequalities change nutritional attitudes and behaviors among individuals and societies.<sup>[6]</sup> Education level is an important factor behind people's attitudes and behaviors. Individuals with a high level of education are more likely to learn healthy attitudes and behaviors, correct their mistakes, and internalize these behaviors.<sup>[7]</sup> It is also reported that the increase in tourism and trade within and between countries and the spread of written and visual communication have a significant impact on nutritional attitudes and behaviors.<sup>[8]</sup>

Health services is a multisectoral field with dimensions related to person, society, and environment, and people from many different health professions, especially physicians, work in this field.<sup>[9]</sup> Healthcare workers need to be physically, mentally, and socially healthy to continue their challenging professional practices. Since health-care services are continuous, shift work, on-call work, and field monitoring are common ways of working among healthcare professionals. Working in this way has an increasing effect on a person's physical and mental stress.<sup>[10]</sup> It has been noted that environmental influences have an impact on health professionals' dietary habits, even with their extensive training in the area of medicine.<sup>[11-13]</sup> Physicians are the leaders of the health-care team due to the education and responsibilities, they receive in the health-care professional group. In order to make the right decisions in their professional practices and to lead a productive life, they need to be healthy and exhibit healthy nutrition attitudes and behaviors. However, there are a limited number of studies in the literature on healthy nutrition among physicians. This study aimed to investigate the nutritional attitudes and behaviors of medical doctors in the sample of Mersin province.

## Materials and Methods

This cross-sectional research was planned to be conducted in Mersin between November 01, 2020, and April 30, 2021, and the data were collected between January 15 and 31, 2021. The population of the study consisted of physicians

who are members of the Mersin Medical Chamber. Permission was given to conduct the research with the letter of the Mersin Medical Chamber dated November 24, 2020, and numbered 705/2020. Ethics Committee permission for the research was received at the meeting of the Bahçeşehir Scientific Research and Publication Ethics Committee dated January 13, 2021, and numbered 2021/01.

Physicians who participated in our study completed a questionnaire containing sociodemographic and professional characteristics, nutritional attitudes and behaviors, a food consumption record, and the Attitude Scale on Healthy Nutrition (ASHN). The validity and reliability of ASHN in adults were conducted by Demir and Cicioğlu (2019).<sup>[14]</sup> This scale has a structure consisting of 21 items and 4 factors. These factors are named Knowledge About Nutrition, Feelings Toward Nutrition, Positive Nutrition, and Malnutrition. Ratings for positive items on the scale are "Strongly Disagree," "Disagree," "Undecided," "Agree," and "Strongly Agree." Positive attitude items and negative attitude items 1, 2, 3, 4, and 5 are scored as 5, 4, 3, 2, and 1.

Food consumption records of the physicians in our study were taken. The food consumption of the participants was compared by calculating the daily portion amounts consumed with the data obtained from the Turkey Nutrition Guide (TUBER) 2015<sup>[15]</sup> (following the study's conclusion, the TUBER 2022 guidance was released, and its assessments align with those of the 2015 guide). Accordingly, physicians' consumption of food groups according to their age and gender was grouped as adequate, inadequate, and excessive. In addition, to calculate the body mass index (BMI), physicians were questioned about their weight in kilograms and height in centimeters. According to the WHO, physicians with a BMI <18.5 kg/m<sup>2</sup> are considered "underweight"; between 18.5 and 24.9 kg/m<sup>2</sup> are defined as "normal"; in between 25.0 and 29.9 kg/m<sup>2</sup> are classified as "slightly obese", and physicians with a weight of ≥30 kg/m<sup>2</sup> are classified as "obese".<sup>[16]</sup>

## Statistical Analysis

Data were collected through online survey platforms. The survey form was prepared and worked with the Google Survey program. The online link to the form was delivered to member physicians through the Medical Chamber, and physicians who agreed to participate in the study voluntarily were included in the study group. After data quality control was performed, the sociodemographic and professional characteristics of the participants and the research variables were summarized with descriptive statistics such as percentage, ratio, proportion, mean, and standard deviation. Suitability tests of continuous

**Table 1.** Distribution of study participants according to demographic characteristics

Variables	n	%
Gender		
Male	137	49.8
Woman	138	50.2
Marital status		
Married	229	83.3
Single	46	16.7
Time in the profession		
<10 years	33	12.0
10–19 years	43	15.6
20–29 years	115	41.9
>30 years	84	30.5
Medical Specialities		
Internal	111	40.3
Surgical	50	18.2
Basis	17	6.2
General practitioner	97	35.3
Institution		
Medical School	76	27.6
Public hospital	75	27.3
Private hospital, clinic	35	12.7
Family Health Center	57	20.7
Provincial, district Right Directorate	14	5.1
Other	14	5.1
Retired	4	1.5

variables for a normal distribution were made with the Kolmogorow–Smirnow test. The Pearson Chi-square test was used to meet categorical variables; the Fisher–Freeman–Halton exact test was used when Chi-square test assumptions were not met; the Student’s t-test and ANOVA in independent groups were used to compare continuous variables; the Mann–Whitney U test and Kruskal–Wallis test were used when parametric test assumptions were not met. The statistical significance level was taken as  $p < 0.05$ . IBM SPSS 22.0 software (Armonk, NY: IBM Corp.) was used for conducting the analyses.

## Results

The demographic characteristics of the participants in the study are shown in Table 1. The research involved 275 physicians in total, 137 males and 138 females. The average age of physicians was found to be  $48.0 \pm 10.2$  years. Analyzing anthropometric measures, it was shown that the average BMI was  $26.0 \pm 3.6 \text{ kg/m}^2$  ( $27.1 \pm 3 \text{ kg/m}^2$  in males and  $25.0 \pm 3.8 \text{ kg/m}^2$  in females). Based on their BMI, it was found that 10.9% of the doctors were obese and 50.6% were overweight (Table 2).

**Table 2.** Distribution of age and anthropometric measurements of participating

Variables	n	%
Age		
<40 years old	59	21.5
40–49 years old	66	24.0
50 and +	150	54.5
BMI group ( $\text{kg/m}^2$ )		
18.0–24.9	106	38.5
25.0–29.9	139	50.6
30 and +	30	10.9
Male BMI group ( $\text{kg/m}^2$ )		
18.0–24.9	31	22.6
25.0–29.9	87	63.5
30 and +	19	13.9
Female BMI group ( $\text{kg/m}^2$ )		
18.0–24.9	75	54.3
25.0–29.9	52	37.7
30 and +	11	8.0

BMI: Body mass index.

Among the physicians who participated in the study, 85 people were determined to have chronic diseases, while cardiovascular diseases and diabetes mellitus were the most detected. It was found that 71 of the physicians exercised regularly. It was found that 151 (54.9%) of the study’s participants had previously taken nutrition education courses, and 225 physicians (81.8%) need nutrition training, with the highest need (55.8%), weight reduction (31.6%), and senior nutrition (14.9%) areas of need. The majority of doctors ( $n = 202$ ) who were examined for meal-skipping circumstances skipped meals. It was found that breakfast (40.6%) and lunch (41.1%) were the most often missed meals.

The average score of the physicians participating in the study on the ASHN scale was  $75.3 \pm 12.7$ . It was observed that physicians generally received high (64.7%) and very high (21.1%) scores from this scale, and the number of those with medium and low scores (14.2%) was less (Table 3). When grouped according to 2015 recommendations, it was determined that vegetables (90.2%), grains (79.9%), and dairy products (77.2%) were the leading sources of inadequate consumption by physicians (Table 4).

When the healthy eating attitudes of the participants were compared with their demographic and other characteristics, it was found statistically significant that physicians aged 50 and over and who exercised regularly had higher scores on the ASHN ( $p < 0.05$ ). Physicians who drink enough milk and

**Table 3.** Distribution of study participants according to ASHN score

Variable	n	%
Scale score group		
23–42 points (low)	3	1.1
43–63 points (medium)	36	13.1
64–84 points (high)	178	64.7
85 and above (very high)	58	21.1

**Table 4.** Distribution of participants according to daily consumption of food groups

Variables <sup>1</sup>	n	%
Cereal group (n=184)		
Adequate	147	79.9
Inadequate	12	6.5
Excess	25	13.6
Milk, dairy product and cheese consumption (n=219)		
Adequate	169	77.2
Inadequate	27	12.3
Excess	23	10.5
Meat, chicken, fish, egg group (n=205)		
Adequate	105	51.2
Inadequate	4	2.0
Excess	96	46.8
Legume group (n=198)		
Adequate	97	49.0
Inadequate	47	23.7
Excess	54	27.3
Vegetable group (n=194)		
Adequate	175	90.2
Inadequate	5	2.6
Excess	14	7.2
Fruit group (n=189)		
Adequate	134	70.9
Inadequate	38	20.1
Excess	17	9.0

<sup>1</sup>An evaluation was made based on those who answered these questions, and the recommended consumption according to age and gender in TUBER 2015 was accepted as "Adequate."

dairy products had a much better ASHN score than those who consume inadequate or excessive quantities ( $p<0.05$ ); similarly, the ASHN score of those who consume enough milk and cheese group foods is  $82.7\pm 11.1$ ; it was higher than those who consume inadequately and excessively ( $p<0.01$ ) based on food consumption data. In addition, the rate of consumption of inadequate fruit was found to be lower than that of those who consumed adequate and excessive fruit ( $p<0.001$ ). No statistically significant difference was

**Table 5.** Physicians' daily consumption of food groups and ASHN score distribution

Variables	Information attitude scale healthy nutrition	
	n	Mean±SD
Grain Group		
Adequate	147	76.6±12.4
Inadequate	12	72.0±11.6
Excess	25	77.7±11.0
Meat, Egg Group		
Adequate	105	74.8±13.3
Inadequate	4	75.8±11.5
Excess	96	77.3±10.3
Dried Legume Group		
Adequate	97	75.8±12.3
Inadequate	47	75.4±12.5
Excess	54	76.5±11.9
Milk and Cheese Group		
Adequate	169	74.4±12.1
Inadequate	27	<b>82.7±11.1<sup>1</sup></b>
Excess	23	77.3±11.4
Vegetable Group		
Adequate	175	75.6±12.3
Inadequate	5	75.6±13.5
Excess	14	77.4±10.8
Fruit Group		
Adequate	134	<b>73.5±11.7<sup>2</sup></b>
Inadequate	38	79.5±12.4
Excess	17	82.5±8.7

ANOVA <sup>1</sup> $p<0.01$ , <sup>2</sup> $p<0.001$ .

detected between adequate or excessive consumption of other food groups and ASHN (Table 5).

In addition, the frequency of inadequate meat and egg consumption was found to be statistically higher in the group that did not receive nutrition education ( $p<0.05$ ). Vegetable consumption of physicians whose specialties are surgical sciences was statistically lower than that of physicians in other specialties ( $p<0.05$ ), the frequency of fast food consumption of single physicians was higher than that of married physicians, and the fast food consumption of young physicians (25–49 years) was higher than that of older physicians ( $p<0.001$ ).

## Discussion

In this study, we examined the nutritional attitudes and practices of physicians residing in Mersin using ASHN, and we computed the daily portion amounts consumed using TUBER data.

In our study, 38.5% of physicians were determined to have a normal weight, 50.6% were overweight, and 10.9% were obese in total. In another study conducted on university hospital physicians, it was reported that 38.7% of men were overweight or obese, while 23.9% of women were overweight or obese, and men were more overweight or obese than women ( $p < 0.05$ ).<sup>[17]</sup> In a study conducted among health-care professionals, it was determined that 57.7% of male physicians participating in the study were overweight and 21.6% were obese, and 22.5% of female physicians were overweight and 10.0% were obese.<sup>[18]</sup> Similar to our study, Kunyhamu et al., (2021)<sup>[19]</sup> stated that being a healthcare worker is associated with obesity, and it was also emphasized in a similar study that obesity is one of the main negative effects of shift work.<sup>[20]</sup> This may be related to the sedentary lifestyle of healthcare workers, especially physicians, due to their busy working conditions outside of work, and may also be affected by the dietary habits in the region.

In recent years, studies have revealed that dyslipidemia and obesity-related diseases may be higher in physicians than in the general population.<sup>[21]</sup> This situation may be associated with the inability to prepare healthy meals due to busy working hours and an increased tendency toward fast food. In fact, in our study, it was found that physicians aged 25–49 and single physicians consumed more fast food. Related to this, in a study, it was found that the healthy eating attitude of married individuals is better than that of single people.<sup>[7]</sup> This is associated with the fact that married physicians have better healthy eating attitudes and that they take on the responsibility of healthy eating for themselves and their families. Additionally, long working hours, a lack of physical activity, and a shift system can lead to negative lifestyle habits and an obesity pattern among physicians. A study conducted among medical students found that due to the difficulty of the medical profession, it pushes students to consume a lot of fast food, and they choose foods randomly.<sup>[22]</sup> Contrary to this study, in a study conducted by the Provincial Health Directorate in our country, it was stated that 36.1% did not consume fast food at all, and 52.5% consumed fast food less frequently.<sup>[23]</sup> This difference may be due to cultural dietary styles in the countries where the studies were conducted.

It was determined that the physicians who participated in our study had a high attitude score toward healthy nutrition. It was shown that there was a significant demand for nutrition education among physicians, despite the fact that the majority of participants had previously received it. Similarly, it has been observed that physicians have more knowledge about nutrition than other health professionals

except dietitians.<sup>[24]</sup> However, in a study conducted in Türkiye, medical doctors' nutritional knowledge levels were found to be moderate or poor.<sup>[25]</sup> Similarly, a study among medical students found that more than half of the students had poor nutritional knowledge.<sup>[26]</sup> In our study, although physicians' ASHN scores were generally high, it was observed that they were still undernourished in terms of some food groups. This contradiction can be explained as physicians' attitudes toward healthy nutrition being good but their behaviors regarding healthy nutrition being inadequate. This may be due to the participants not being able to plan their nutrition adequately during their busy work schedules or not being able to access adequate food options during their limited rest hours. As a matter of fact, although a study reported that some physicians had healthy eating behaviors, it drew attention to the fact that physicians did not have access to proper nutrition during workdays.<sup>[27]</sup> It has also been reported that inadequate nutrient intake has negative effects on physicians' personal health and ability to complete their jobs and reduces professional performance.<sup>[28]</sup>

## Conclusion

As a result, although physicians' attitude scale scores regarding nutrition were high, their consumption was low according to food groups, and the number of those with high BMI levels and those in need of nutrition education was high. In future studies, the underlying reasons for physicians' attitudes toward nutrition should be investigated, and the effects of long hours and shift work on nutritional behavior, well-being, and work performance should be evaluated. In this regard, awareness studies and training should be carried out for physicians and health-care professionals, encouraging them to be more proactive in improving health, and efforts should be made to provide supportive opportunities.

## Disclosures

**Ethics Committee Approval:** The study was approved by the Bahçeşehir University Ethics Committee (no: E-20021704-604.01.01-796, date: 02.02.2021).

**Authorship Contributions:** Design – A.Ş., G.G.; Supervision – G.G.; Data Collection and/or Processing – A.Ş.; Analysis and/or Interpretation – A.Ş.; Literature Search – A.Ş.; Writing – A.Ş., G.G.; Critical Reviews – G.G.

**Conflict of Interest:** All authors declared no conflict of interest.

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