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Assessment of Eating Attitudes, Nutritional Status, and Nutrition Knowledge Level of Healthcare Personnel Working in a Physical Therapy and Rehabilitation Hospital*

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Abstract: In this descriptive cross-sectional study, the aim is to examine the nutritional status, nutritional habits and nutritional knowledge levels of the personnel working in a physical therapy and rehabilitation hospital. The Eating Attitude Test was used to determine the presence of an eating disorder in the participants, and the Basic Nutrition Knowledge Scale was used to determine the nutritional knowledge level of the participants. Ninety-four female (62.67%) and 56 male (37.33%) individuals participated in the study. The mean age of women was 33.67±9.32, and the mean age of men was 38.73±13.58. It was determined that the participants skipped 1 main meal and 2 snacks on average. Eating attitude disorder was found in 46 (30.67%) participants. No statistically significant relationship was found between having an eating behavior disorder and variables such as age, occupation and education level ($p>0.05$). No statistically significant relationship was found between eating behavior disorder and nutritional knowledge level ($p=0.160$). In conclusion, contrary to what was expected, it was determined that the nutritional status of the personnel was not very good, and their nutritional habits and nutritional knowledge levels were insufficient.

Keywords: Health Personnel, Nutritional Habits, Nutritional Knowledge Level, Physical Therapy and Rehabilitation.

JEL Classification: I1, I12, I19

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Bir Fizik Tedavi ve Rehabilitasyon Hastanesinde Çalışan Personelin Yeme Tutumunun, Beslenme Durumunun ve Beslenme Bilgi Düzeyinin Saptanması

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Öz: Tanımlayıcı ve kesitsel tipte yapılan bu çalışmada amaç, bir fizik tedavi ve rehabilitasyon hastanesinde çalışan personelin beslenme durumu, beslenme alışkanlıkları ve beslenme bilgi düzeylerinin incelenmesidir. Katılımcılarda yeme bozukluğu varlığını belirlemek için Yeme Tutum Testi, katılımcıların beslenme bilgi düzeyinin tespiti için ise Temel Beslenme Bilgisi Ölçeğinden yararlanılmıştır. Araştırmaya 94 kadın (%62.67) ve 56 erkek (%37.33) birey katılmıştır. Kadınların yaş ortalaması 33.67±9.32, erkeklerin yaş ortalaması ise 38.73±13.58 olarak tespit edilmiştir. Katılımcıların ortalama olarak 1 ana öğün ve 2 ara öğün atladıkları belirlenmiştir. Kırk altı (%30.67) katılımcıda yeme tutum bozukluğu saptanmıştır. Yeme davranış bozukluğuna sahip olma durumu ile yaş, meslek ve eğitim seviyesi gibi değişkenler arasında istatistiksel olarak anlamlı bir ilişki saptanamamıştır ($p>0.05$). Yeme davranış bozukluğu ile beslenme bilgi düzeyi arasında istatistiksel olarak anlamlı bir ilişki bulunamamıştır ($p=0.160$). Sonuç olarak, beklenenin aksine personelin beslenme durumunun çok iyi olmadığı, beslenme alışkanlıklarının ve beslenme bilgi düzeylerinin yetersiz olduğu belirlenmiştir.

Anahtar Kelimeler: Sağlık Personeli, Beslenme Alışkanlıkları, Beslenme Bilgi Düzeyi, Fizik Tedavi ve Rehabilitasyon.

JEL Sınıflandırması: I1, I12, I19

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** This study was approved by Karadeniz Technical University Health Sciences Scientific Research Ethics Committee with the decision dates 26.10.2023 and 79 numbered.*

GENİŞLETİLMİŞ ÖZ

Araştırma Problemi

Bu çalışma, Türkiye'nin bir ilinde yer alan bir fizik tedavi ve rehabilitasyon hastanesinde çalışan personelin beslenme durumu, beslenme alışkanlıkları ve beslenme bilgi düzeylerinin incelenmesi amacıyla tanımlayıcı ve kesitsel tipte uygulanmıştır.

Araştırma Soruları

Çalışmada aşağıda belirtilen sorulara cevap aranmıştır:

- Çalışmanın yürütüldüğü fizyoterapi ve rehabilitasyon hastanesinde görev alan personelin beslenme durumu ve beslenme alışkanlıkları nasıldır, beslenme bilgi düzeyleri yeterli midir?
- Hastane personelinin beslenme alışkanlıkları ve beslenme bilgi düzeyleri yaş, meslek, eğitim düzeyi gibi kriterler açısından farklılık göstermekte midir?

Literatür Taraması

Dünya Sağlık Örgütü (WHO, 2012) beslenmeyi, "sağlığın ve gelişmenin kritik bir parçası" olarak tanımlamaktadır. Aynı şekilde dengeli beslenme; sağlık, gelişim ve bulaşıcı hastalıklardan korunmanın temelini oluşturmaktadır (WHO, 2023). Beslenme bilgisi; besinlerin enerji, makro ve mikro besin değerlerini, beslenme süreçlerini, diyet-sağlık-hastalık ilişkilerini ve beslenme konularını içermektedir (Miller ve Cassady, 2015; Batmaz, 2018). Yeterli beslenme bilgi düzeyine sahip bireyler sağlığı iyileştiren davranışlar geliştirebilmektedir (Danke, 2001). Yetersiz beslenme bilgisi ise birçok hastalığın ortaya çıkmasına zemin hazırlamakta ve kalıcı olabilmektedir (Baysal vd., 2022). Uygun beslenme eğitimi ile sağlıklı yaşam tarzına ulaşmak mümkündür (Hui, 2002; Choi ve Lee, 2007). Mesleki sorumlulukları gereği sağlık profesyonellerinin insanlar için örnek davranış sergilemeleri ve rehber niteliğine sahip olmaları beklenmektedir (Yalçınkaya vd., 2007). İnsanlarla sürekli etkileşim halinde olan sağlık çalışanlarının, doğru beslenme bilgi ve alışkanlıkları ile toplumun bilinçlenmesinde ve sağlığın gelişmesinde olumlu etki yapacağı açıktır. Bu nedenle bu çalışma, bir fizyoterapi ve rehabilitasyon hastanesinde görev yapan sağlık çalışanlarının beslenme durumlarını, beslenme bilgilerini ve beslenme alışkanlıklarını belirlemek amacıyla planlanmış ve yürütülmüştür.

Metodoloji

Araştırmanın evrenini Türkiye'de bulunan bir fizik tedavi ve rehabilitasyon hastanesinde görev yapan personel oluşturmaktadır. Örneklem için seçim yapılmadan tüm evren üzerinde çalışılmak istenmiştir. Hastane çalışanlarının tamamı ile yüz yüze görüşme gerçekleştirilmiş, ankete katılmaya gönüllü olan 150 kişi ile çalışma yürütülmüştür. Verilerin bir kısmı; demografik bilgiler, sağlık özellikleri, bazı antropometrik ölçümler ve çalışanların beslenme alışkanlıklarını içeren 16 soruluk anket formu ile toplanmıştır. Paketli besin tüketim sıklığının belirlenebilmesi için 8'li Likert ölçeğinin kullanıldığı bir soru formu tasarlanmıştır. Yeme davranış bozukluğu varlığını belirlemek için bireylere Yeme Tutum Testi (YTT-26) (Garner vd., 1982; Ergüney-Okumuş ve Sertel-Berk, 2020) uygulanmıştır. Araştırmada elde edilen bulgular değerlendirilirken, istatistiksel analizler için IBM SPSS Statistics 22.0 (IBM Corp., Armonk, NY, USA) programı kullanılmıştır. Çalışmada yer alan sürekli değişkenler arasındaki ilişkilerin tespiti için Spearman korelasyon katsayısı, karşılaştırılan kategorik değişkenler arasındaki ilişkinin tespiti için ise Ki-kare testi kullanılmıştır. Örneklem sayısının yetersiz olduğu kategorik verilerde Fisher'ın kesin testi uygulanmıştır. Verilerin normal dağılım varsayımına uyup uymadığını test etmek amacıyla Shapiro-Wilk testi kullanılmıştır. Parametrik test varsayımlarının sağlandığı ikili grup karşılaştırmalarında bağımsız örnekler t-testi kullanılmıştır. Parametrik test varsayımlarının sağlanmadığı ikili grup karşılaştırmalarında Mann-Whitney U Testi, çoklu grup karşılaştırmalarında ise Kruskal-Wallis H Testi uygulanmıştır. Gruplardan en az birinin diğerlerinden farklı olduğunun belirlenmesi durumunda Dunn-Bonferroni post-hoc analiz yöntemi kullanılmıştır.

Bulgular ve Sonuçlar

Yeme davranış bozukluğu ile beslenme bilgi düzeyi arasında anlamlı bir ilişki tespit edilememiştir ($p=0.160$). Aynı şekilde eğitim durumu ile beslenme bilgi düzeyi arasında istatistiksel olarak anlamlı bir ilişki bulunamamıştır ($p=0.076$). Çalışmada yer alan 31 katılımcı sigara, 15 katılımcı alkol, 10 katılımcı hem sigara hem alkol kullanmaktadır. Beslenme bilgi düzeyi ile sadece sigara içme alışkanlığına sahip olma ($p=0.382$), sadece alkol içme alışkanlığına sahip olma ($p=0.394$) veya hem sigara hem de alkol tüketimi alışkanlığına sahip olma durumu arasında istatistiksel olarak anlamlı ilişkiler bulunamamıştır. Kronik hastalığa sahip olma ile beslenme bilgi düzeyi arasında istatistiksel olarak anlamlı bir ilişki olup olmadığı test edilmiş ve anlamlı bir ilişki tespit edilememiştir ($p=0.647$). Benzer şekilde COVID geçirmiş olma durumu ile beslenme bilgi düzeyi arasında istatistiksel olarak anlamlı bir ilişki tespit edilememiştir ($p=0.264$).

INTRODUCTION

According to the definition of the World Health Organization (WHO), health is not only the absence of illness or disability but also a state of complete physical, mental, and social well-being. Nutrition plays a significant role among the factors that affect health. Nutrition is essential for growth, sustaining life, maintaining and improving health, and leading a productive and healthy life. WHO (2012) defines nutrition as a critical component of health and development. Similarly, balanced nutrition forms the basis for health, development, and prevention of infectious diseases (WHO, 2023).

Nutrition knowledge encompasses the energy, macro and micronutrient values of foods, nutritional processes, diet-health-disease relationships, and nutrition-related topics (Miller and Cassady, 2015; Batmaz, 2018). Individuals with adequate nutrition knowledge can develop health-promoting behaviors (Danke, 2001). Inadequate nutrition knowledge can lead to the onset of many diseases and can be long-lasting (Baysal et al., 2022). Achieving a healthy lifestyle is possible through appropriate nutrition education (Hui, 2002; Choi and Lee, 2007). An individual's nutritional status reflects the satisfaction level of their physiological needs for nutrients. By determining nutritional status, the impact of nutrition on individual or community health can be measured (Pekcan, 2012). Dietary habits include how, why, and with whom individuals eat, and how they procure, store, use, and dispose of food (Karaca, 2014).

Health professionals are expected to set an example for people and be guiding figures due to their professional responsibilities (Yalçınkaya et al., 2007). Health professionals who are in constant interaction with people will have a positive impact on raising awareness and improving health by possessing accurate nutrition knowledge and habits. Therefore, this study was planned and conducted to determine the nutritional status, nutrition knowledge, and dietary habits of healthcare professionals working in a physical therapy and rehabilitation hospital. The study aimed to answer the following questions:

• What are the nutritional status and dietary habits of the staff working in the physical therapy and rehabilitation hospital where the study was conducted, and is their level of nutrition knowledge adequate?

• Do the dietary habits and nutrition knowledge of hospital staff differ according to criteria such as age, occupation, and education level?

2. MATERIALS AND METHODS

2.1. Aim and Research Type

This is a descriptive and cross-sectional study conducted to examine the nutrition status, dietary habits, and nutrition knowledge levels of healthcare personnel working in a physical therapy and rehabilitation hospital located in a city in Turkey.

2.2. Population and Sample

The population of the study consists of healthcare personnel working in a physical therapy and rehabilitation hospital in Turkey. While the entire population was intended to be studied without selection, the study was conducted with 150 individuals due to the voluntary basis of participation.

2.3. Data Collection Tools

Part of the data was collected using a 16-item questionnaire form, which includes demographic information, health

characteristics, some anthropometric measurements, and the dietary habits of the participants. A questionnaire form was designed using an 8-point Likert scale to determine the frequency of packaged food consumption. The Eating Attitudes Test (EAT-26) (Garner et al., 1982; Ergüney-Okumuş and Sertel-Berk, 2020) was administered to determine the presence of eating behavior disorders in individuals. The Basic Nutrition and Nutrition Health Knowledge Scale (NKLSA-NK) (Batmaz, 2018), which is part of the Nutrition Knowledge Level Scale for Adults (NKLSA), was used to determine the participants' nutrition knowledge levels. A Numerical Rating Scale (NRS) was used to determine the degree of relationship between nutrition and health, and another NRS was employed to assess how accurately participants found their dietary preferences in daily life.

Eating Attitudes Test (EAT-26)

The Eating Attitudes Test-26 (EAT-26) is a shortened form of the Eating Attitudes Test-40 developed by Garner and Garfinkel (1979). It consists of three different sections: demographic information, eating habits, and questions related to disturbances in eating behavior in the past six months. The first and third sections of the scale are not included in the scoring. A score of 20 or above on the scale indicates a disturbance in eating attitudes.

Nutrition Knowledge Level Scale for Adults (NKLSA)

The NKLSA is a scale with two sub-dimensions developed by Batmaz (2018). The NKLSA-NK sub-dimension consists of 20 items, while the Food Preference (NKLSA-FP) sub-dimension consists of 10 items. The items in the scale are rated on a 5-point Likert scale. The maximum score that can be obtained in NKLSA-NK is 80, and in NKLSA-FP, it is 48.

2.4. Implementation of Data Collection Tools

The participants were informed about the purpose of the study and the content of the questionnaire form. After obtaining written consent from the participants, the questionnaire form was applied through face-to-face interviews with the personnel during their available time slots.

2.5. Data Analysis

IBM SPSS Statistics 22.0 (IBM Corp., Armonk, NY, USA) was used for statistical analysis. Parametric continuous variables were presented as mean ± standard deviation, and categorical variables were presented as frequency (n) and percentage (%). In non-parametric tests, the median values for the compared groups were provided. A p-value of less than 0.05 was considered statistically significant. Spearman correlation coefficient was used to determine the relationships between continuous variables, and the Chi-square test was used to determine the relationship between categorical variables. In cases where the sample size was insufficient for categorical data, Fisher's exact test was applied. The assumption of data normality was verified by the Shapiro–Wilk test. The independent samples t-test was used for comparison of normally distributed continuous data between groups. Mann-Whitney U Test was used for the comparison of two independent groups when parametric test assumptions were not met, and the Kruskal-Wallis H Test was used for comparisons between multiple groups. Dunn-Bonferroni post-hoc analysis was conducted if at least one group was found to be different from the others.

2.6. Ethical Consideration

This study was approved by Karadeniz Technical University Health Sciences Scientific Research Ethics Committee with the decision dates 26.10.2023 and 79 numbered. Moreover, written permission/consent was obtained from the

Provincial Health Directorate, the hospital's chief physician, and the participants. The study was conducted by the Helsinki Declaration.

3. RESULTS

In the first part of the study, the participants' general characteristics, health features, and some anthropometric features were questioned. The study included 94 females (62.67%) and 56 males (37.33%). The majority of the participants (60%) were personnel such as medical secretaries and technicians, while 45.33% of the participants were university graduates. When the ages of the participants were examined, it was found that 64% were in the range of 26-50 years old, which could be considered as middle-aged The average age of the female participants were 33.67±9.32, and the average age of the males were 38.73±13.58. The overall average age was calculated as 35.56±11.36. When individuals' health features were questioned, it was determined that 16% had chronic diseases and 25.33% had experienced COVID-19.The Body Mass Index (BMI) values of the participants ranged from 16.02 kg/m^2 to 41.02 kg/m^2, with an average BMI of 25.05±4.86 kg/m^2. According to the WHO classification (WHO, 2000), obese/overweight individuals accounted for 12.7% of all participants, while 32% of the individuals were mildly overweight (see Table 1).

Table 1. Participants' General Characteristics and Health Characteristics

General Characteristics	Frequency (n)	Percent (%)	Health Characteristics	Frequency (n)	Percent (%)
Gender			**Chronic Disease**		
Woman	94	62.67	Yes	24	16
Man	56	37.33	No	126	84
Total	150	100	Total	150	100
Age			**Smoking**		
0-25	36	24	Yes	31	20.67
26-50	96	64	No	119	79.33
51 and above	18	12	Total	150	100
Total	150	100	**Alcohol**		
Occupation			Yes	15	10
Physiotherapist	16	10.67	No	135	90
Intern	18	12	Total	150	100
Physician	8	5.33	**COVID Experience**		
Nurse	18	12	Yes	38	25.33
Other	90	60	No	91	60.67
Total	150	100	Not Sure	21	14
Education			Total	150	100
Primary School	7	4.67	**Body Mass Index (BMI) Classification**		
High School	56	37.33	Underweight	8	5.3
Associate Degree	16	10.67	Normal	75	50
Bachelor's Degree	68	45.33	Overweight, Mildly obese	48	32
Master's Degree	3	2	Obese	19	12.7
Total	150	100	Total	150	100

In the second part of the study, the participants' dietary habits and eating attitudes were questioned. The average number of main meals was 2.14±0.44, and the average number of snacks was 1.05±0.08. These values indicate that participants skip an average of 1 main meal and 2 snacks. The most preferred snacks were dried/fresh fruits (30.7%) and tea/coffee (70.5%). While 68.7% of the participants reported skipping meals, the most commonly skipped meal was breakfast (39.8%). Forty-six participants reported skipping snacks due to lack of opportunity (see Table 2).

Table 2. Participants' Eating Habits

Features	Frequency (n)	Percent (%)	Features	Frequency (n)	Percent (%)
Snack Preferences			**Skipped Meals**		
Bagel, pastry, toast	38	25.3	Breakfast	41	39.8
Dried/fresh fruits	46	30.7	Brunch	8	7.8
Biscuits, chocolate, candy	42	28.0	Lunch	35	34.0
Dairy desserts	3	2.0	Afternoon snack	6	5.8
Nuts	21	14.0	Dinner	7	6.8
Total	**150**	**100**	Night snack	6	5.8
Preferred Beverages for Snacks			**Total**	**103**	**100**
Water	28	18.7	**Reasons for Skipping Meals**		
Tea, coffee	106	70.5	To lose weight	15	14.5
Fruit juices	4	2.7	Not in the mood	36	35.0
Soft drinks	4	2.7	Forgetfulness	6	5.8
Mineral water, soda	8	5.4	Lack of opportunity	46	44.7
Total	**150**	**100**	**Total**	**103**	**100**
Skipping Meals Status					
Yes	103	68.7			
No	47	31.3			
Total	**150**	**100**			

Table 3 presents the participants' frequency of packaged food consumption. The results revealed a low consumption rate for canned and frozen foods, chips, cornflakes, confectioneries, packaged sauces, and teabags. The percentage of participants who did not consume chips, cornflakes, and confectionery was 40.7%, 60.6%, and 33.3%, respectively. Only 10.7% of participants reported daily consumption of milk and dairy products. The consumption patterns of biscuits or crackers mirrored those of chocolate. While only 3.3% of participants included chocolate in every meal, a slightly higher percentage (4.7%) reported consuming biscuits or crackers at every meal.

Table 3. Participants' Frequency of Packaged Food Consumption

Food	Consumption Frequency (%)								
	Every meal	Every day	3-4 times a week	1-2 times a week	Once every 15 days	Once a month	Rarely	Never	Total
Milk and dairy products	7.3	10.7	38.0	24.7	2.0	2.7	8.6	6.0	100
Biscuits, crackers	4.7	5.3	30.7	27.3	11.3	2.7	10.0	8.0	100
Chocolate, etc.	3.3	12.7	22.0	24.7	11.3	2.0	9.3	14.7	100
Canned foods	-	-	2.6	6.0	8.0	10.7	30.0	42.7	100
Frozen foods	-	-	5.3	8.7	10.7	11.3	33.3	30.7	100
Chips	-	-	7.3	5.3	10.7	8.7	27.3	40.7	100
Cornflakes	0.7	1.3	2.0	3.3	2.7	4.7	24.7	60.6	100
Confectioneries	0.7	2.7	10.0	11.3	8.0	6.7	27.3	33.3	100
Packaged sauces	0.7	1.3	3.3	5.3	5.3	3.3	21.3	59.5	100
Teabags	2.7	4.0	11.3	7.3	5.3	5.3	26.0	38.0	100

In the third part of the study, behavioral questions and the EAT-26 were applied to determine the presence of eating disorders in the last six months. The average EAT-26 score in this study was 12.76±0.72 and eating attitude disorders were identified in 46 participants (30.67%). Eating behavior disorder had no statistically significant relationship with age, occupation, and educational level (p=0.289, p=0.575, p=0.323, respectively). While a statistically significant relationship was found between skipping meals and eating behavior disorders (p=0.021), no statistically significant relationship was found between the number of main meals and eating behavior disorders (p=0.075). Additionally, the study investigated whether there was a statistically significant relationship between eating behavior disorders and the frequency of consumption of certain foods, but no statistically significant relationship was found with any of the considered food groups.

24 participants (16%) reported having chronic diseases. The relationship between having chronic diseases and eating behavior disorders was tested, and no statistically significant relationship was found (p=0.230). 38 participants

(25.33%) reported having had COVID-19, and 21 participants (14%) were undecided about whether they had had COVID-19. After removing the "undecided" participants from the analysis, the relationship between having had COVID-19 and eating behavior disorders was tested, and no statistically significant relationship was found (p=0.153) (see Table 4).

Table 4. Examination of the Presence of Eating Disorder Based on Various Characteristics of the Participants

Features	Eating Disorder		
Occupation	**No**	**Yes**	**p-value**
Physiotherapist, physician, nurse	28	14	
Intern	11	7	0.575
Other	65	25	
Age (years)			
0-25	22	14	
26-50	71	25	0.289
≥51	11	7	
Education Level			
Primary School	7	0	
High School	39	17	0.326
Associate Degree	10	6	
Bachelor's Degree-Postgraduate	48	23	
Smoking Status			
Yes	19	12	0.382
No	85	34	
Alcohol Consumption Status			
Yes	9	6	0.394
No	95	40	
Smoking and Alcohol Consumption Status			
Yes	98	42	0.496
No	6	4	
Meal Skipping			
Yes	65	38	0.021*
No	39	8	
Number of Snacks			
1	1	3	
2	56	26	0.075
3	9	9	
COVID-19 History			
Yes	22	16	0.153
No	65	26	
Presence of Chronic Disease			
Yes	14	10	0.230
No	90	36	

: <0.05

The scores given by individuals with eating behavior disorders and those without them regarding the relationship between nutrition and health were compared, and it was found that the scores did not vary significantly with a 95% confidence level (p=0.838). The mean score for 46 individuals with eating behavior disorders was 8.625±2.06, with a median of 9.5, while the mean score for 104 individuals without eating behavior disorders was 8.609±2.12, with a median of 10. Similarly, the scores given by individuals with eating behavior disorders and those without them regarding their food preferences were compared, and it was found that the scores did not vary significantly with a 95% confidence level (p=0.272). The mean score for 46 individuals with eating behavior disorders was 6.5±2.37, with a median of 7, while the mean score for 104 individuals without eating behavior disorders was 6.217±2.37, with a median of 6.

In the fourth part of the study, the scores obtained from the NKLSA-NK scale were examined to determine the participants' level of nutrition knowledge. Nearly half of the participating personnel (49.33%) had a moderate level

of basic nutrition knowledge. Only 4 individuals were found to have very good nutrition knowledge. Participants were asked to evaluate the degree of relationship between nutrition and health on a scale of 0 to 10, and the average of the obtained scores was 8.62±2.07. Similarly, participants were asked how correctly they found their food preferences in their daily lives, and the average score given by hospital staff was calculated as 6.41±2.37 (see Table 5).

Table 5. Individuals' NKLSA Score and Classification

NKLSA-NK Classification	n	%			
Poor	47	31.33			
Fair	74	49.33			
Good	25	16.67			
Excellent	4	2.67			
NKLSA Score	**Mean**	**Std.**	**Median**	**Minimum**	**Maximum**
Basic Nutrition Knowledge Scale	48.36	8.87	48.5	24	80
Nutrition-Health Relationship NRS	8.62	2.07	10	0	10
Correctness in Food Preference NRS	6.41	2.37	7	0	10

NRS: *Numerical rating scale,* ***Std.:*** *Standard deviation*

Out of 150 participants, 120 (80%) rated the degree of relationship between nutrition and health as 8 or higher out of 10. However, the "degree of finding daily food preferences correct" varied among the participants. While 111 participants gave a score of 5 or higher to the question, 26% rated the degree of finding their food preferences correct as 5 or below.

The relationship between participants' level of nutrition knowledge and some demographic characteristics, health status, eating behavior disorders, and dietary habits was examined. Participants' level of nutrition knowledge had a statistically significant relationship with both participants' occupations and age groups (p=0.013, p=0.028, respectively). A test was conducted to determine whether age differed according to the level of nutrition knowledge without considering age as a categorical variable, and a statistically significant difference was found (p=0.043). Post-hoc tests revealed that there was a statistically significant difference between the ages of individuals with "good-very good" nutrition knowledge and those with "poor" nutrition knowledge (p=0.039). The mean age of individuals with "poor" nutrition knowledge was 38.77±12.32, while the mean age of individuals with "good-very good" nutrition knowledge was 32.21±11.67. No statistically significant relationship was found between educational status and the level of nutrition knowledge (p=0.076).

When the relationship between EAT-26 and NKLSA-NK was questioned, no significant relationship was found between eating behavior disorders and the level of nutrition knowledge (p=0.160). Nevertheless, the percentage of individuals without eating behavior disorder was higher at all levels of NKLSA-NK (poor, moderate, good, very good), but this difference was not sufficient to indicate a statistically significant relationship. Moreover, when comparing the NKLSA-NK scores of participants with eating behavior disorder (47 ± 9.60) to those without eating behavior disorder (48.96 ± 8.51), no statistically significant difference in mean scores was found (p=0.213) (see Table 6).

Table 6. The Relationship Between EAT-26 and NKLSA-NK

	Eating Behavior Disorder Based on EAT-26			
	No (Below 20 points)	**Yes** (20 points and above)	**Total**	**Test Statistics p-value**
n (%)	104 (69.33)	46 (30.67)	150 (100)	t=1.251
NKLSA-NK Score	48.96± 8.51	47± 9.60	48.36± 8.87	$p = 0.213$ [a]
NKLSA-NK				
Poor (below 45 points)	28 (59.6) [26.9]	19 (40.4) [41.3]	47 (100) [31.3]	
Fair (45-65 points)	53 (71.6) [51.0]	21 (28.4) [45.7]	74 (100) [49.3]	$\chi^2 = 3.645$
Good (56-65 points)	20 (80.0) [19.2]	5 (20.0) [10.9]	25 (100) [16.7]	$p = 0.160$ [b]
Very good (above 65 points)	3 (75.0) [2.9]	1 (25.0) [2.2]	4 (100) [2.7]	
Total	104 (69.3) [100]	46 (30.7) [100]	150 (100) [100]	

Note: *Values in parentheses ( ) represent row-wise percentage share, and values in brackets [ ] represent column-wise percentage share.* ***NKLSA-NK:*** *The Basic Nutrition and Nutrition Health Knowledge Scale,* ***EAT-26:*** *Eating Attitudes Test-26.* [a]***:*** *p value based on independent samples t-test,* [b]***:*** *p-value based on chi-square test after "Good" and "Excellent" categories were combined.*

In this study, 31 participants were smokers, 15 participants were alcohol users, and 10 participants were both smokers and alcohol users. There was no statistically significant association between participants' nutrition knowledge level and their smoking habits (p=0.382), alcohol consumption (p=0.394), or both smoking and alcohol consumption (p=0.496). The relationship between having chronic diseases and the level of nutrition knowledge was tested, and no statistically significant relationship was found (p=0.647). Similarly, no statistically significant relationship was found between having had COVID-19 and the level of nutrition knowledge (p=0.264).

DISCUSSION AND CONCLUSIONS

Due to the prevalence of nutrition issues among physical therapy patients, research has begun exploring the role of physical therapists in managing nutrition. The American Physical Therapy Association (2023) emphasizes the importance of physical therapists' involvement in nutrition and its benefits for patient health. However, in Turkey, there is currently no specialized nutrition system for physical therapy, and healthcare personnel lack sufficient education and training to advise patients on optimal nutrition. Therefore, it is crucial for personnel in institutions like physical therapy and rehabilitation hospitals to possess adequate nutrition knowledge and apply it effectively in patient interactions. Our study aims to assess the nutrition status, dietary habits, and nutrition knowledge of healthcare personnel working in such a hospital setting.

Exercise, fundamental to physical therapy, is crucial for implementing nutrition interventions. Recent studies suggest that combining nutrition with physical therapy can enhance patients' function, activity, participation, and quality of life (Inoue et al., 2022; Kou et al., 2019; Wakabayashi and Sakuma, 2014). These findings underscore the significant relationship between nutrition and physical therapy. In our study, we investigate whether healthcare personnel in hospital settings possess the expected high level of nutrition knowledge. We examine how factors like education level, gender, age, and other criteria influence their understanding of healthy nutrition.

In our study, we utilized the basic nutrition knowledge scale within the NKLSA to determine the participants' level of nutrition knowledge and found that nearly half of the participating personnel (49.33%) had a moderate level of basic nutrition knowledge, with only 4 individuals having very good nutrition knowledge. A percentage of 31.33% of the participants had low nutrition knowledge. When looking at the literature, it is observed that different question forms/tests with different question formats other than the NKLSA have been used for the level of nutrition knowledge, but most of these tests found the participants' level of nutrition knowledge to be low. In a study

conducted with 105 primary care physicians in Riyadh, Saudi Arabia, a nutrition knowledge questionnaire consisting of 16 multiple-choice questions was mailed, and the average score of correctly answered questions was found to be 51.7%, with approximately 75% of physicians describing their knowledge as weak (Al-Numair, 2004). In a study by Schaller and James (2005) to assess the general nutrition knowledge of Australian nurses, a question form designed by Sabry et al. (1987) was used, and the results showed that the nurses' nutrition knowledge was between low and moderate levels. In a similar study conducted by Daradkeh et al. (2012) to determine the nutrition knowledge of primary care physicians in the state of Qatar, a questionnaire consisting of multiple-choice questions was administered to 136 physicians working in various health centers in Qatar, and it was found that most doctors did not have expertise in advising their patients appropriately about the role of nutrition in causing, preventing, and treating diseases. A study aimed at determining the nutrition knowledge levels of doctors, nurses, and nutritionists working in some educational hospitals in Tehran was conducted by Abdollahi et al. (2013). In this cross-sectional study, a total of 198 participants, including 28 nutritionists, 81 nurses, and 89 doctors, were included. According to the answers given to the prepared multiple-choice question forms, the median knowledge scores of nutritionists, doctors, and nurses were found to be 85%, 77%, and 75%, respectively, while the mean accuracy scores were found to be 87%, 79%, and 76%, respectively. The study concluded that all groups had insufficient knowledge, especially in clinical nutrition subjects.

For a healthy eating pattern, it is recommended to have 3 main meals and 2-3 snacks per day. In our study, it was determined that the healthcare personnel participating in our study skipped an average of 1 main meal and 2 snacks per day. While 68.7% of individuals reported skipping meals, it was determined that the most skipped meal was breakfast (39.8%). In a study conducted by Yücel (2015) with 321 healthcare workers consisting of physicians, nurses, health officers, health licensees, and health technicians, it was found that 74.5% of healthcare workers skipped meals, with lunch being the most skipped meal by 46.5%, and 54.8% cited lack of opportunity as the reason for skipping meals. The rate of consuming snacks during the day was 82.3%, with tea/coffee (72.3%) being the most preferred beverage and fruits (28.3%) being the most preferred food for snacks. These findings show significant similarities with the snack consumption choices in our study, in which the most preferred foods and beverages for snacks were dried/fresh fruits (30.7%) and tea/coffee (70.5%), respectively. Although the Turkey Dietary Guideline (TUBER) (Pekcan et al., 2016) recommends that all age groups consume milk and dairy products daily, only 10.7% of the participants in this study consumed milk and dairy products daily.

In our research, where eating behavior disorder was attempted to be detected with EAT-26, the mean EAT-26 score was found to be 12.76±0.72 and eating attitude disorder was detected in 46 (30.67%) participants. The average test score and percentage of eating attitude disorders in our study are similar to the results of a study by Ergin (2014). In the mentioned study, which aimed to determine the frequency of orthorectic behavior in healthcare and non-healthcare personnel, 206 healthcare personnel and 206 non-healthcare personnel participated. 77.2% of healthcare personnel and 81.6% of non-healthcare personnel considered themselves healthy. The average EAT-26 score for healthcare personnel was 11.7±8.37, and for non-healthcare personnel, it was 12.0±8.03. There was no statistically significant difference observed between healthcare personnel and non-healthcare personnel in terms of EAT scores. When evaluated for EAT scores between healthcare personnel and non-healthcare personnel, eating attitude disorders were observed in 5.8% and 93.4% of the two groups, respectively. On the other hand, in our study, no statistically

significant relationship was found between having an eating behavior disorder and variables such as age, occupation, and education level. Nelson et al. (1997) examined the nutrition knowledge of acute care physiotherapists. The average score of 151 participants who answered the nutrition test was found to be 72.3%. When comparing the nutrition knowledge scores of physiotherapists with gender, age, years of experience, work environment, sources of nutrition education, and attitudes, no statistically significant difference was found.

In conclusion, contrary to expectations, the nutrition status of the personnel in the physical therapy center where the study was conducted was found to be not very good, and their dietary habits and nutrition knowledge levels were found to be insufficient. When compared with the results of similar studies in the literature, it was observed that this situation is also observed in different types of hospitals in different countries. According to the American Dietetic Association, nutrition undergraduate programs should be part of the clinical science curriculum as well as continuing education seminars (Maillet and Young, 1998). Healthcare workers who are in constant communication with patients should consider increasing their nutrition knowledge levels, primarily to protect and improve their own health, and if necessary, attend conferences or seminars on these topics.

Research Limitations

The biggest limitation of our study is that the sample population consists only of healthcare personnel working in a single physical therapy and rehabilitation hospital. The voluntary basis of participation in the study has also led to a limitation in the sample size. Therefore, it is important for the results of the study to be supported by similar studies in the literature to obtain consistent conclusions.

AUTHOR CONTRIBUTION STATEMENT

All authors have contributed equally.

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CONFLICT OF INTEREST STATEMENT

There is no conflict of interest with any institution or person within the scope of the study.

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