ARAŞTIRMA MAKALESİ / *RESEARCH ARTICLE*

Evaluation of Nutritional Status of Fibromialgia Patients

Fibromiyalji Hastalarında Beslenme Durumunun Değerlendirilmesi

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ABSTRACT

Aim: *Fibromyalgia syndrome is a multifactorial health problem that often develops with widespread pain in the skeletal and muscular systems. It is thought that nutrition, diet therapy, and the treatment methods used for the disease may be adequate. This study aims to evaluate the food consumption and anthropometric measurements (body weight, height, body mass index) of patients with fibromyalgia syndrome.*

Material and Method: *This study was conducted with 100 female individuals with a mean age of 33.7±6.4 years, diagnosed with fibromyalgia, who applied to the Van Training and Research Hospital, Physical Therapy and Rheumatology Department Polyclinics. A questionnaire form (containing data on socio-demographic information, dietary habits, and anthropometric measurements) was applied to the participants who accepted the study using the researcher's face-to-face interview technique.*

Results: *While the majority of the participants were housewives (72%), it was determined that 93% of the participants had fatigue and muscle pain, and 91% had sleep disorders. Body mass index (BMI) was 25.0–29.9 kg/m² in 59% of the participants and 30.0–39.9 kg/m² in 8%. It was determined that there was a significant difference between the BMIs of the individuals with the symptoms of fibromyalgia depression (p<0.001), anxiety (p<0.001), and fatigue (p=0.011).*

Conclusion: *To reduce the disease's symptoms and increase the quality of life during the fibromyalgia treatment phase, individuals should be directed to dietitians, and anthropometric measurements should be considered when evaluating their nutritional status.*

Key words: *fibromyalgia syndrome; nutrition; obesity; anthropometric measurements*

ÖZET

Amaç: *Fibromiyalji sendromu, sıklıkla iskelet ve kas sistemlerinde gözlenen yaygın ağrı ile gelişen multifaktöriyel bir sağlık sorunudur. Hastalığa ilişkin kullanılan tedavi yöntemleri ile beraber beslenme ve diyet tedavisinin etkili olabileceği düşünülmektedir. Bu araştırmada fibromiyalji sendromuna sahip hasta bireylerin besin tüketimlerinin ve antropometrik ölçümlerinin (vücut ağırlığı, boy uzunluğu, beden kütle endeksi) değerlendirilmesi amaçlanmaktadır.*

Materyal ve Metot: *Bu araştırma Van Eğitim ve Araştırma Hastanesi Fizik Tedavi ve Romatoloji Bölümü Poliklinikleri'ne başvuran fibromiyalji tanısı almış, 33,7±6,4 yıl yaş ortalamalarına sahip olan 100 kadın birey ile gerçekleştirilmiştir. Araştırmayı kabul eden katılımcılara anket formu (sosyo-demografik bilgiler, beslenme alışkanlıkları ve antropometrik ölçümlerine ilişkin veriler içeren) araştırmacı tarafından yüz yüze görüşme tekniği ile uygulanmıştır.*

Bulgular: *Katılımcıların büyük çoğunluğu ev hanımı (%72) iken, katılımcıların %93'ünde yorgunluk ve kas ağrısı, %91'inde uyku bozuklukları olduğu tespit edilmiştir. Katılımcıların %59'unda beden kütle endeksi (BKİ) 25,0–29,9 kg/m² ve %8'inde 30,0–39,9 kg/m² olduğu bulunmuştur. Bireylerin BKİ'lerinin fibromiyalji hastalık sempromlarından depresyon (p<0,001), anksiyete (p<0,001) ve yorgunluk (p=0,011) ile arasında anlamlı bir fark olduğu saptanmıştır.*

Sonuç: *Fibromiyalji tedavi aşamasında hastalık semptomlarında azalma ve yaşam kalitesinde artış sağlayabilmek amacıyla bireylerin diyetisyenlere yönlendirilmesi ve beslenme durumlarının değerlendirilirken antropometrik ölçümerin de dikkate alınması gerekmektedir.*

Anahtar kelimeler: *fibromiyalji sendromu; beslenme; obezite; antropometrik ölçümler*

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Introduction

The term fibromyalgia is used to describe many pain complaints that are generally encountered in women, cannot be revealed by a clear pathology, and are not well localized. Fibromyalgia syndrome (FMS) is a chronic widespread pain syndrome characterized by chronic widespread musculoskeletal pain, fatigue, sleep disturbances, and many idiopathic pain symptoms[1].

Fibromyalgia syndrome (FMS), whose disease origin and treatment method are not yet fully known, significantly affects the quality of life of patients with many findings, such as sleep disorders, depression, chronic fatigue, and cognitive dysfunction accompanying multiple pain states. The effectiveness of most therapies for fibromyalgia is not strongly supported, with only a few treatments, like cognitive behavioral therapy, antidepressants, and central nervous system depressants, showing small but significant improvements in pain and quality of life[2,3].

The American College of Rheumatology (ACR) 2010 defined fibromyalgia as a widespread pain condition observed in 11–18 tender points and persisting for at least three months. In 2016, the ACR revised these criteria to improve diagnostic accuracy, combining physician and questionnaire criteria to minimize misclassification of regional pain disorders[4].

As a result of studies, the prevalence of FMS worldwide was between 0.5 and 5.8%. Recent literature review updates show that fibromyalgia prevalence in the general population ranges between 0.2 and 6.6%, and in women specifically, it varies between 2.4 and 6.8%[5].

With the increase in studies that strengthen the hypothesis that oxidative stress plays a role in the origin of FMS, the opinion of increasing the antioxidant level and content of the diet has emerged. Oxidative stress might play a critical role in FM pathophysiology, and various antioxidative procedures have been discussed to diminish fibromyalgia symptoms[6].

The emerging research on oxidative stress in fibromyalgia highlights the potential of dietary interventions. Oxidative stress, characterized by increased levels of prooxidative factors such as nitric oxide and lipid peroxidation, can exacerbate pain sensitization in fibromyalgia[7]. This understanding has led to a growing interest in nutrition as a complementary treatment approach. Antioxidant-rich diets, which counteract oxidative stress, are becoming a focus in managing fibromyalgia symptoms. Modifying dietary habits to include foods high in antioxidants, such as fruits, vegetables, nuts, and seeds, could play a crucial role in alleviating some symptoms of fibromyalgia[8].

This study aims to elucidate the dietary consumption patterns prevalent among individuals diagnosed with Fibromyalgia Syndrome. Additionally, it seeks to evaluate the alignment of specific anthropometric parameters, namely body weight, height, and body mass index (BMI), with the established normative values.

Materials and Methods

This study has been structured as an observational investigation. The requisite sample size for this research was determined utilizing the 'Sample Size Calculator' function provided by Rasoft software. An initial computation suggested a minimum of 81 participants, considering a 5% margin of error. This estimation was grounded on a group of 120 patients diagnosed with fibromyalgia who attended the outpatient clinic of the Physical Therapy and Rehabilitation Department at Van Training and Research Hospital in March 2018. Following this, in April 2018, the necessary minimum participant count was achieved with the enrollment of 100 individuals.

Participants were thoroughly briefed about the study, and due to its voluntary nature, detailed explanations were provided before obtaining informed consent. The consent form was meticulously read and signed by the participants who agreed to partake in the study.

The inclusion of the subjects in the study was subject to their consent, and data collection was carried out through direct, face-to-face interviews. In these interviews, the researcher used a questionnaire form meticulously prepared. The data collected covered various areas such as age, education level, employment status, time since fibromyalgia diagnosis, duration of treatment, comorbid conditions, use of medication and vitamin-mineral supplements, smoking and alcohol consumption habits, main and snack meal details, food intake frequency, eating out practices, physical activity level and anthropometric measurements (height, weight, and BMI).

The inclusion criteria for the study were stringently defined, necessitating participants to be within the age range of 19 to 65 years, of female gender, and demonstrate a willingness to engage in the study. Consequently, this framework led to the exclusion of several demographic groups. Specifically, males and

individuals aged below 19 years or above 65 years were not eligible for participation in this research. This delineation of participant criteria ensured a focused and relevant sample population pertinent to the study's objectives centered on understanding fibromyalgia in the specified demographic.

Statistical Analysis

IBM Statistical Package for Social Sciences (SPSS) program Windows version 21.0 was used to evaluate the data obtained as a result of the research. Descriptive statistics for continuous variables in the study, such as mean, standard deviation, minimum, and maximum values, are expressed as numbers and percentages for categorical variables. The independent t-test was used to compare independent groups, and the One-way ANOVA test was used to compare the means of two or more groups. Pearson correlation coefficients were calculated to determine the relationship between variables. The chi-square test was used to determine the relationship between categorical variables. The statistical significance level was taken as $p<0.05$ in the calculations.

Results

This part of the study includes the patients' data and analyses. Findings regarding the general characteristics and health status of the patients are given in Table 1. The mean age of the patients participating in the study was 33.7±6.4 years. On average, the patients had been diagnosed with Fibromyalgia Syndrome (FMS) for 19.3±13.1 months and had been receiving treatment for 17.0±9.4 months. Regarding educational status, 22% of the patients had no formal education, 2% were literate without formal education, 29% had completed primary education, 7% had finished secondary school, 17% were high school graduates, and 23% had attained a university degree. Occupational distribution was such that 72% of the patients were homemakers, 25% were civil servants, and 3% were manual laborers. A family history of FMS was reported by 7% of the participants, with the highest prevalence of consanguinity observed in their mothers, accounting for 5% of the cases. It was observed that 4% of the participants had a BMI <18.50 kg/m², 29% had a BMI 20.00–24.99 kg/m², 59% had a BMI 25.00–29.99 kg/m² and 8% had a BMI 30.00–39.99 kg/m².

The anthropometric measurements of the participants are given in Table 2. It was observed that the mean height of the participants was 161.6±4.4, the mean body weight was 67.3±7.8, and the mean BMI was 25.8±3.1.

The FMS symptoms seen in the participants are shown in Table 3. According to these data, 93% of FMS patients had fatigue and muscle pain, and 91% had sleep disorders.

The participants' food preferences outside the home are shown in Table 4. It has been observed that 80% of the individuals prefer kebab types while eating outside the house, 78% prefer pita/lahmacun/flatbread, and 19% prefer fast food.

Table 1. *General characteristics and health conditions of the patients*

	$\bar{X}$ ± SD	Min- Max
Age (year)	33.7±6.4	21-46
Time to be diagnosed with FMS (months)	7.5-6.2	1-120
Treatment duration (months)	17.0-9.4	0-120
Level of education	**n**	**%**
Illiterate	22	22.0
Literate	2	2.0
Primary school	29	29.0
Middle School	7	7.0
High school	17	17.0
University	23	23.0
Occupation Status		
Housewife	72	72
Officer	25	25
Employee	3	3
Presence of FMS in the family		
Yes	7	7
No	93	93
Kinship Level		
Mother	5	5
Sibling	2	2
Body Mass Index (kg/m²)		
<18.50	4	4
18.50-24.99	29	29
25.00-29.99	59	59
30.00-39.99	8	8
>40.00	0	0
Total	100	100

Table 2. *Anthropometric measurements of the participants*

	$\bar{X}$	SD	Min	Max
Height (cm)	161.6	4.4	148.0	170.0
Weight (kg)	67.3	7.8	46.0	94.0
Body Mass Index (kg/m²)	25.8	3.1	18.0	36.7

Table 3. *Disease symptoms in individuals*

Symptom Sign	Yes		No		Total	
	n	%	n	%	n	%
Numbness and tingling in hands and feet	67	67	33	33	100	100
Intestinal complaints (such as gas, constipation, diarrhea)	46	46	54	54	100	100
Tiredness	93	93	7	7	100	100
Morning stiffness	44	44	56	56	100	100
Sleeping disorder	91	91	9	9	100	100
Muscle pains	93	93	7	7	100	100
Anxiety	6	6	4	4	100	100
Depression	29	29	71	71	100	100

Table 4. *Food preferences of the participants outside the home*

Type of food consumed outside the home	Yes		No		Total	
	n	%	n	%	n	%
Fast food (hamburger, pizza, bakedpotato, etc.)	19	19	81	81	100	100
Pita/lahmacun/pancake	78	78	22	22	100	100
Types of kebab	80	80	20	20	100	100
Grill types	27	27	73	73	100	100
Types of frying	1	1	99	99	100	100
Juicy home cooking (with meat)	2	2	98	98	100	100
Juicy home cooking (without meat)	0	0	100	100	100	100
Salad varieties	3	3	97	97	100	100

Table 5. *The relationship between the education level and occupation of the participants and their food preferences outside the home*

	Fast food	Piza/ lahmacun/ Pancake	Kebap	Grilled	Roast	Home-cooked meals (with meat)	Home-cooked meals (without meat)	Salad
	p	p	p	p	p	p	p	p
Education status	<0.001	0.304	0.301	0.060	0.641	0.204	-	0.262
Job	<0.001	0.016	0.602	0.021	0.220	0.672	-	0.010

Chi-square Test; p<0.05

Table 6. *The relationship between fibromyalgia symptoms and food preferences outside the home*

	Fast food	Piza/ lahmacun/ Pancake	Kebap	Grilled	Roast	Home-cooked meals (withmeat)	Home-cooked meals (withoutmeat)	Salad
	p	p	p	p	p	p	p	p
Numbness and tingling inhands and feet	0.139	0.007	0.560	0.602	0.481	0.316	-	0.990
Intestinal complaints (such as gas, constipation, diarrhea)	0.705	0.163	0.160	0.521	0.276	0.122	-	0.466
Tiredness	0.503	0.663	0.695	0.923	0.783	0.695	-	0.629
Morning stiffness	0.485	0.036	0.920	0.611	0.257	0.107	-	0.422
Sleeping disorder	0.796	0.987	0.055	0.735	0.752	0.653	-	0.580
Muscle pains	0.321	0.499	0.061	0.025	0.798	0.717	-	0.044
Anxiety	0.881	0.489	0.833	0.719	<0.001	0.718	-	0.043
Depression	0.774	0.389	0.321	0.010	0.116	0.509	-	0.144

Chi-square Test; p<0.05

The relationship between the education level and occupation of the participants and their food preferences outside the home is shown in Table 5. It was observed that there was a significant relationship between the education level of the participants and fast food consumption. In addition, it was observed that there was a significant relationship between the professions of the participants and fast food, grill, and salad.

Information on the relationship between the participants' fibromyalgia symptoms and their food preferences outside the home is shown in Table 6. When the relationship between fibromyalgia disease symptoms and the type of food preferred when eating outside the house was examined, a significant relationship was observed between numbness in the hands and feet and consumption of pita bread/lahmacun/pancake. In addition, it was observed that there was a significant relationship between morning stiffness and consumption of pita/lahmacun/pancake, muscle aches and pita/lahmacun and salad consumption, anxiety and frying consumption, depression, and grill consumption.

The findings regarding the relationship between the body mass indexes of the participants and the symptoms of fibromyalgia disease are shown in Table 7. The relationship between fibromyalgia disease symptoms and BMI was found to be significantly correlated with fibromyalgia symptoms such as fatigue, anxiety, and depression.

Table 7. *The relationship between the participants' body mass indexes and fibromyalgia disease symptoms*

	Body mass index
	p
Numbness and tingling in hands and feet	0.234
Intestinal complaints (such as gas, constipation, diarrhea)	0.28
Tiredness	0.011
Morning stiffness	0.388
Sleeping disorder	0.079
Muscle pains	0.385
Anxiety	<0.001
Depression	<0.001

Independent t Test; p<0.05

Discussion

This investigation assessed the nutritional status and dietary habits of fibromyalgia syndrome (FMS) patients attending the Physical Therapy and Rheumatology Outpatient Clinics at Van Training and Research Hospital in April 2018. One hundred female participants were enrolled following informed consent.

Demographic analysis revealed a mean age of 33.7±6.4 years, predominantly female, deviating slightly from the traditional demographic associated with FMS, suggesting an evolving age-related prevalence pattern. This observation aligns with recent epidemiological studies indicating a downward shift in age distribution among FMS patients[9,10]. Gender predominance remains consistent with established trends in FMS epidemiology, as recent literature reports a higher incidence in females[11,12].

Educational attainment among participants varied widely, reflecting FMS's indiscriminate impact across educational levels, a finding corroborated by recent scholarly research[13,14].

An emerging focus in FMS research is the correlation between occupational engagement and the syndrome's prevalence. Most of our study cohort were homemakers, paralleling findings from other studies that noted increased FMS cases in sectors with labor force growth[15]. Furthermore, the nexus between FMS and psychological morbidities such as depression and anxiety was evident, with 29% of our cohort diagnosed with depression. This is consistent with findings from Malik et al., who reported a 60% depression rate among FMS patients[16], and other research underscoring the frequent medical consultations by FMS patients with concurrent depression[17].

Symptomatic manifestations of FMS, including neuropathic discomfort, gastrointestinal disturbances, fatigue, sleep irregularities, musculoskeletal pain, and psychological distress, were prevalent in our study cohort, particularly fatigue, myalgia, and sleep disruptions. This aligns with literature documenting the ubiquity and seasonal exacerbation of these symptoms[18,19].

Our analysis also supports recent research trends linking elevated BMI with increased FMS prevalence and symptom intensity[20,21]. The intricate interplay among obesity, depressive states, and anxiety within the FMS patient population mirrors recent scholarly discourse[22,23].

Conclusion

As a result, in this study, it was determined that the obesity rate is high in fibromyalgia patients, and it is observed more frequently in homemakers. The most common symptoms encountered by the participants were fatigue, muscle aches, and sleep disturbances. It was observed that the BMI of the participants was significantly correlated with fatigue, anxiety, and depression, which are fibromyalgia symptoms. In line with these results, it is known that obesity is associated with fibromyalgia symptoms, and medical nutrition therapy compatible with obesity is recommended.

In the treatment of fibromyalgia syndrome, it was concluded that patients should be directed to a dietitian after diagnosis to reduce symptoms and increase their quality of life. Body mass index should also be taken into account while evaluating nutritional status.

Ethical Approval

For this study, "Ethics Committee Approval" no: 92, dated 12.03.2018, was received from Okan University Clinical Research Ethics Committee.

Financial Resource

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Conflict of Interest

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

Author Contributions

Idea/Concept: HT; Design: HT; Supervision/Consultancy: MT; Data Collection/Processing: HT; Analysis/Interpretation: HT, MT; Literature Review: HT; Writing the Article: HT; Critical Review: MT.

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