

Type and Frequency of Primary Headache in Female Patients with Fibromyalgia Syndrome

Fibromiyalji Sendromu Olan Kadın Hastalarda Primer Baş Ağrısı Sıklığı ve Tipleri

¹Cemal GÜRBÜZ^a, ²Halim YILMAZ^a, ³Faruk Ömer ODABAŞI^b, ⁴Hamit GÖKSU^c,
⁵Halil Ekrem AKKURT^a

^aDepartment Physical Medicine and Rehabilitation, University of Health Sciences Konya Training and Research Hospital, Konya, TURKEY

^bDepartment of Neurology, University of Health Sciences Konya Training and Research Hospital, Konya, TURKEY

^cDepartment of Algology, Ankara City Hospital, Ankara, TURKEY

ABSTRACT Objective: To evaluate the frequency and types of primary headache, and to research effects on quality of life and sleep in female patients with fibromyalgia syndrome (FMS). **Material and Methods:** A total of 216 female patients with FMS were included in the study. Fibromyalgia Impact Questionnaire (FIQ) was filled out. Visual Analogue Scale (VAS), Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), Checklist Individual Strength (CIS), Pittsburgh Sleep Quality Index (PSQI) and Short Form-36 (SF-36) were used to determine pain, depression, anxiety, chronic fatigue, quality of sleep, quality of life and physical and mental health respectively. **Results:** Of the 216 patients included in the study, 84.7% had headache, 77.8% of patients with headache diagnosed as primary headache. Patients with primary headache had higher mean age. Tender Point Number (TPN), VAS and FIQ scores were higher although no significant difference in patients with primary headache. Poor sleep quality, depression and anxiety frequencies were 83.3%, 42.6% and 88% respectively. BDI, BAI and BAI outcome scores were significantly higher in patients with primary headache. The PSQI scores were higher in patients with primary headache despite no significant difference. SF-36 physical component, physical role limitation, mental component, mental health and vitality scores were significantly lower in patients with primary headache. CIS total score, fatigue, concentration and physical activity score were significantly higher in patients with primary headache. **Conclusion:** Depression, anxiety and chronic fatigue level increases and quality of sleep and life diminishes in FMS patients with primary headache. Diagnosing and treating primary headaches can improve daily life activities and quality of life.

ÖZET Amaç: Fibromiyalji sendromu (FMS) olan kadın hastalarda primer baş ağrısının sıklığını ve tiplerini değerlendirerek uyku ve yaşam kalitesi üzerindeki etkisini araştırmaktır. **Gereç ve Yöntemler:** FMS tanısı alan 216 hasta çalışmaya alındı. Her hasta için Fibromiyalji Etki Anketi (FEA) dolduruldu. Hastaların ağrı, depresyon, anksiyete kronik yorgunluk, uyku kalitesi, yaşam kalitesi ile fiziksel ve mental sağlık düzeylerinin belirlemek amacıyla sırasıyla Vizüel Analog Skala (VAS), Beck Depresyon Ölçeği (BDÖ), Beck Anksiyete Ölçeği, Yorgunluk Ölçeği (YÖ), Pittsburgh Uyku Kalitesi İndeksi (PUKİ) ve Kısa Form-36 (KF-36) kullanılmıştır. **Bulgular:** Çalışmaya alınan 216 hastanın %84,7'sinde baş ağrısı, bu hastaların da %77,8'inde primer baş ağrısı saptandı. Primer baş ağrısı olanlarda ortalama yaş daha yüksekti. Hassas nokta sayısı, VAS ve FEA skorları anlamlı fark olmasa da primer baş ağrısı olanlarda daha fazlaydı. Kötü uyku kalitesi, depresyon ve anksiyete sıklığı sırasıyla %83,3, %42,6 ve %88 bulundu. BDÖ, BAÖ ve BAÖ son durum skorları, primer baş ağrısı olanlarda anlamlı olarak daha fazlaydı. PUKİ skorları, primer baş ağrısı olanlarda daha yüksekti, ama iki grup arasında anlamlı fark yoktu. SF-36 fiziksel bileşen, fiziksel rol güçlüğü, ruhsal bileşen, ruhsal sağlık ve canlılık skorları, primer baş ağrısı olanlarda anlamlı şekilde daha düşüktü. CIS total skoru, yorgunluk, konsantrasyon ve fiziksel aktivite skorları ise primer baş ağrısı olanlarda anlamlı olarak daha yüksekti. **Sonuç:** Primer baş ağrısının eşlik ettiği FMS'li hastalarda depresyon, anksiyete ve kronik yorgunluk düzeyi artmakta, uyku ve yaşam kalitesi ise azalmaktadır. Primer baş ağrısının saptanması ve etkin tedavisi hastaların günlük yaşam aktivitelerini ve hayat kalitesini artırabilir.

Keywords: Fibromyalgia; headache disorder; quality of life; quality of sleep; depression; anxiety

Anahtar Kelimeler: Fibromiyalji; baş ağrısı bozukluğu; yaşam kalitesi; uyku kalitesi; depresyon; anksiyete

Correspondence: Hamit GÖKSU

Department of Algology, Ankara City Hospital, Ankara, TURKEY/TÜRKİYE

E-mail: hamitgoksu@yahoo.com



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Fibromyalgia syndrome (FMS) is a chronic syndrome, etiology and pathophysiological mechanisms are unknown and it is characterized by painful tender points in some parts of the body and generalized musculoskeletal pain.¹ In epidemiological studies, the incidence was reported to be 5% for women and 1.6% for men. Although the etiopathogenesis has not been explained yet, it has been suggested that various factors such as sleep disorder, neuroendocrine dysfunction, regional blood flow change, metabolic and immunological disorders play a role.² Genetic factors, various virus infections, stress, chronic sleep disorders, physical or emotional traumas are blamed in the etiology.³ Chronic diffuse musculoskeletal pain is seen in all patients. This is the main finding in patients with fatigue, sleep disorder, headache, cognitive disorder, irritable bowel syndrome, irritable bladder syndrome and also temporomandibular dysfunction.⁴ Factors such as cold weather, moisture, non-restful sleep, physical and mental fatigue, stress can also trigger symptoms.

Headache is one of the major symptoms of FMS and an important cause of morbidity. Clinical observations report accompanying headache exacerbate FMS symptoms simultaneously or immediately subsequent to a headache attack, suggesting that headache may represent a triggering factor for fibromyalgia. Although migraine and non-migraine headaches are reported to be in the range of 28-58% in FMS patients, studies conducted in recent years suggest that this rate is higher.^{5,6} In our study, we aimed to search the frequency and types of primary headaches and the effect of headache on life quality and sleep disorder in fibromyalgia patients.

MATERIAL AND METHODS

The study was conducted according to Helsinki Declaration. Ethics committee approval was obtained from Selçuk University Faculty of Medicine with 2016/19 approval number (date 2.2.2016). A total of 216 female patients older than 18-year old who had diagnosed with FMS meeting 1990 ACR criteria were included in the study. Patients with systemic disease, major psychiatric disease, endocrine disease, a known sleep disorder, antidepressant or anxiolytic drug use, cervical radiculopathy, cervical myelopa-

thy were not included in the study. Informed consent forms were obtained by informing the patients who accepted to participate in the study. The study was performed cross-sectional.

Demographic features including age, height, weight, body mass index [BMI: body weight (kg)/height (m²)], educational status, marital status, family type, occupational status, monthly income, number of children, alcohol intake/cigarette smoking, status of menopause of each participant were noted. The presence and type of headaches of the participants were determined by the same neurologist. A 0-10 cm Visual Analogue Scale (VAS) was used for pain level. Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI) were used to determine the levels of depression and anxiety respectively. To assess quality of life, physical and mental health assessments, Short Form-36 (SF-36) was utilized. Chronic fatigue level was determined with Checklist Individual Strength (CIS), Pittsburgh Sleep Quality Index (PSQI) was applied to evaluate sleep quality and impairment over one-month period. Also, Fibromyalgia Impact Questionnaire (FIQ) was completed by attenders. Tender point number (TPN) was noted for every patient.

STATISTICAL ANALYSIS

Statistical analysis of the study was done by SPSS 21.0 package program. Descriptive measures for all variables were calculated, Student t-test was used for two independent groups, normalization for normal non-distributed variables are preferred and Mann-Whitney U test was used in two groups and Kruskal-Wallis nonparametric tests were preferred in more than two groups. In order to determine the relationship between categorical variables, Monte Carlo corrected chi-square analysis method was preferred. Pearson correlation was found in cases where parametric conditions were obtained to determine correlations between numerical variables. $p < 0.05$ was considered statistically significant in the whole study. The sample size was calculated with 10% difference at 0.05 significance level with 90% power taking into consideration the known percentage (76%) with G*Power 3.1.5 program. Sample size was set at 216.

RESULTS

Sociodemographic and clinical features of patients with and without primary headache are shown in Table 1. Of the 216 patients included in the study, 84.7% had headache. When classified according to primary headache, 22.2% of patients had no primary headache and 77.8% had primary headache. The classification of patients according to primary headache is presented in Figure 1. Patients with primary headache had higher mean age significantly. TPN, VAS and FIQ scores of patients with primary

headache were higher although no significant difference was found between groups. 83.3% of all FMS patients had poor sleep quality according to the PSQI and 42.6% had depression and 88% had varying degrees of anxiety in terms of BDI and BAI. BDI, BAI and presence of depression according to BAI outcome scores were significantly higher in FMS patients with primary headache. The PSQI scores were higher in patients with primary headache but no significant differences were found. Table 2 shows the PSQI, BDI and BAI scores of the patients with and without primary headache. SF-36 physical component, physical

TABLE 1: Sociodemographic and clinical characteristics of patients with and without primary headache.

FMS patients	Primary headache	Non-primary headache	p value	Total	
Primary headache n (%)	48 (22.2%)	168 (77.8%)	<0.001	216 (100%)	
Age (years)	44.62±6.45	40.84±7.01	0.002	41.68±7.05	
BMI	28.79±2.26	28.91±4.70	0.738	28.89±4.27	
Duration of disease (months)	38.56±47.87	34.28±40.89	0.565	35.23±42.46	
TPN	13.25±2.41	14.44±2.61	0.008	14.18±2.61	
VAS score	7.05±1.87	7.32±1.81	0.622	7.26±1.82	
FIQ score	58.41±16.03	65.73±13.12	0.007	64.10±14.11	
Marital status n (%)					
	Married	42 (87.5%)	150 (89.3%)	0.44	192 (88.9%)
	Single	0 (0%)	6 (3.6%)		6 (2.8%)
	Widow	6 (12.5%)	12 (7.1%)		18 (8.3%)
Menopausal status n (%)					
	Postmenopausal	15 (31.2%)	30 (17.9%)	0.04	45 (20.8%)
	Premenopausal	33 (68.8%)	138 (82.1%)		171 (79.2%)

FMS: Fibromyalgia syndrome; BMI: Body mass index; VAS: Visual analogue scale; TPN: Tender point number; FIQ: Fibromyalgia Impact Questionnaire.

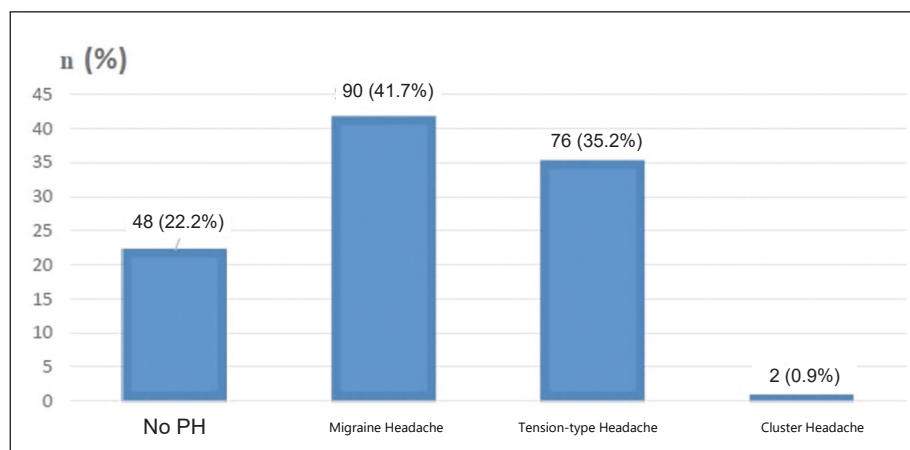


FIGURE 1: The classification of patients according to primary headache.

TABLE 2: Sleep quality, depression and anxiety outcomes of FMS patients.

FMS patients	No primary headache (n=48)	Primary headache present (n=168)	p value
Primary headache n (%)	48 (22.2%)	168 (77.8%)	<0.001
PSQI score	7.22±3.46	8.87±4.03	0.015
BDI score	12.72±7.54	17.24±8.74	0.003
BAI score	14.18±8.17	20.91±10.19	<0.001
PSQI outcome			p=0.079
Good sleepers	12 (25%)	24 (14.3%)	
Poor sleepers	36 (75%)	144 (85.7%)	
BDI outcome			0.72
No depression	33 (68.8%)	91 (54.2%)	
Depression present	15 (31.2%)	77 (45.8%)	
BAI outcome			<0.001
Not	12 (25%)	14 (8.3%)	
Mild	18 (37.5%)	45 (26.8%)	
Moderate	16 (33.3%)	61 (36.3%)	
Severe	2 (4.2%)	48 (28.6%)	

FMS: Fibromyalgia syndrome; PSQI: Pittsburg Sleep Quality Index; BDI: Beck Depression Inventory; BAI: Beck Anxiety Inventory.

role limitation, mental component, mental health and vitality scores were lower in patients with primary headache SF-36 summary and subgroup scores of FMS patients are given in Table 3. CIS total score, fa-

tigue, concentration and physical activity score were higher in patients with primary headache. CIS total and subgroup scores of patients with and without primary headache are shown in Table 4.

TABLE 3: SF-36 summary and subgroup scores of FMS patients with and without primary headache.

FMS patients (n=216)	Non-primary headache (n=48)	Primary headache (n=168)	p value
SF-36 physical component	42.41±20.71	31.48±13.65	0.002
Physical function	49.06±24.90	38.21±20.79	0.024
Body pain	24.85±33.75	34.69±16.25	0.390
Physical role limitation	38.28±36.14	20.09±30.86	<0.001
Perception of health	63.88±18.72	48.93±18.77	0.039
SF-36 mental component	56.56±19.74	41.86±18.30	<0.001
Social function	58.44±20.11	52.15±18.70	0.016
Mental health	56.56±19.74	41.86±18.30	<0.001
Emotional role limitation	45.83±44.36	30.36±39.09	0.04
Vitality	52.25±21.59	37.59±19.26	<0.001

FMS: Fibromyalgia syndrome; SF-36: Short Form-36.

TABLE 4: CIS total and subgroup scores of FMS patients with and without primary headache.

FMS patients	Non-primary headache (n=48)	Primary headache (n=168)	p value
CIS total score	96.18±18.65	110.25±20.67	<0.001
CIS fatigue	42.31±10.59	48.01±8.10	<0.001
CIS concentration	24.68±6.18	27.14±6.18	0.007
CIS motivation	17.62±4.92	19.55±6.52	<0.013
CIS physical activity	11.56±4.56	15.19±4.83	<0.001

FMS: Fibromyalgia syndrome; CIS: Checklist Individual Strength.

DISCUSSION

This study included patients diagnosed with FMS according to the 1990 ACR criteria. Although FMS can be seen in all ethnic groups at all ages and genders, it affects women most frequently between 40-60 ages. Advanced age, low socioeconomic status, smoking and alcohol were supposed to be risk factors.^{7,8}

The mean age and duration of marriage of FMS patients without primary headache were higher than those with primary headache, consistently with the literature.

FMS, chronic fatigue syndrome and primary headache are disorders characterized by diffuse pain, weakness and headache, respectively. They are called as functional somatic syndromes due to overlap of symptoms and complex interactions between them.⁹ FMS, tension-type headache (TTH) and migraine are included in central sensitization syndromes.¹⁰⁻¹² In a study, for FMS patients with headache, especially with migraine, FMS symptoms had been reported to increase simultaneously or immediately after headache.¹² This suggests that headache may be a precipitating factor that triggers FMS.

The most common type of primary headache is TTH. In a study, the prevalence of migraine and TTH in our country was 16.4% and 31.7%, respectively.¹³ Cluster headache (CH) is more common in men unlike other primary headaches. The incidence of CH in the general population is 0.12.¹⁴ Although migraine and non-migraine headaches are reported to be between 28-58% in FMS patients, recent studies suggest that this rate is higher.⁵ Approximately 50-55% of patients with FMS have tension-type headache and, less commonly have, migraine.¹⁵⁻¹⁶ In a study conducted by the American National Headache Society, the prevalence of FMS was found to be increased in patients with migraine and tension headache.⁶

In a large epidemiological study conducted in 2015, the prevalence of migraine was found to be 55.8% in patients with FMS.¹⁷ De Tommaso et al. reported the FMS prevalence as 36.4% in 217 FMS patients with headache.¹⁸ The incidence of headache, pericranial muscle sensitivity, anxiety, and sleep disturbance were associated with FMS in their study. In

the same study, a positive correlation was found between FIQ score and headache frequency. They found a correlation between VAS, TPN and headache frequency. Giamberardino et al. reported that prevention of migraine may prevent the development of FMS in persons prone to FMS or may prevent deterioration in patients with FMS.¹⁹ They also showed that patients with migraine prophylaxis had reduced flare-up of FMS. In our study, 84.7% of the patients had headache and 77.8% had primary headache. These ratios were similar with results of other studies.^{6,18} Patients with primary headache had higher mean age significantly. TPN, VAS and FIQ scores of patients with primary headache were higher although no significant difference was found between groups. Depression prevalence in FMS is up to 80% and anxiety prevalence is up to 70%.²⁰⁻²² In a study that evaluates depression, sleep disturbance and quality of life in patients with fibromyalgia, symptoms such as poor sleep, resting sleep, fatigue and morning stiffness were reported to be higher than 70%.¹⁰ In two different studies published in 2000, there was no significant correlation between TPN and severity of psychological disorders in FMS patients with or without depression disorder or do not have depression.^{16,23}

The prevalence of sleep disturbance in FMS patients is reported to be between 70% and 99%.⁹⁻¹¹ Although the relationship between sleep problems and musculoskeletal pain is not fully understood, it is known that decreased sleep quality increases pain sensitivity.²⁴

Marcus et al. found no differences in psychological disorder, evaluated with BDI, PSQI scores and SF-36 subgroup scores among patients with and without headache.⁶ In 2015, Liu et al.²⁵ found that headache prevalence and headache-related disability were more common, sleep quality was poorer, and depression and anxiety were more frequent in patients with migraine accompanied by FMS.

In this study, 83.3% of all FMS patients had poor sleep quality according to the PSQI, 42.6% had depression and 88% had varying degrees of anxiety in terms of BDI and BAI. BDI, BAI and presence of anxiety disorder according to BAI outcome scores

were significantly higher in FMS patients with primary headache. The PSQI scores were higher in patients with primary headache but no significant differences were found. These findings are consistent with available literature.

In the study, SF-36 physical component, physical role limitation, mental component, mental health and vitality scores were lower in patients with primary headache. Unlike the results of our study, Marcus et al. found no differences in SF subgroup scores between patients with and without headache.⁶ CIS total score, fatigue, concentration and physical activity scores were higher in patients with primary headache. This finding may suggest that primary headache aggravates chronic fatigue and associated factor in FMS.

Eventually, patients with FMS with primary headache had worse sleep quality. Also for patients with primary headache, depressive symptoms and anxiety disorder were more common, quality of life scores were lower and chronic fatigue was more prominent.

There were some limitations of our study. Because of the lack of control group, no comparison was made between the patients with and without FMS in terms of primary headache types and other parameters. VAS, TPN, FIQ, BDI, BAI, CIS, SF-36 and subscale were not compared according to primary

headache types. Polysomnography, which is accepted as the gold standard for the evaluation of sleep, was not performed, sleep quality was evaluated subjectively according to the PSQI result.

CONCLUSION

FMS is a condition accompanied by many symptoms including headache. The diversity of the accompanying symptoms requires a multidisciplinary approach. Primary headache is more common in FMS patients than normal population likewise FMS is more common in patients with headache compared to the normal population.

The frequency and severity of other comorbidities also increase FMS patients with accompanying primary headache. Inspired by the results of previous studies and our study, we suggest that prevention or treatment of primary headache, especially migraine may prevent the development of FMS in patients prone to FMS or worsening of symptoms in patients with FMS. So, all patients diagnosed with FMS should be evaluated for primary headache.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

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