The Eurasian
Journal of Medicine

Sociodemographic Characteristics, Clinical Signs and Quality of Life in Patients with Fibromyalgia

Fibromiyaljili Hastalarda Sosyodemografik Özellikler, Klinik Bulgular ve Yaşam Kalitesi

Aysegul Kucukali Turkyilmaz[1], Emine Eda Kurt[1], Murat Karkucak[2], Erhan Capkin[2]

[1]Department of Physical Medicine and Rehabilitation, Training and Research Hospital, Recep Tayyip Erdogan University, Rize, Turkey
[2]Department of Physical Medicine and Rehabilitation, Faculty of Medicine, Karadeniz Technical University, Trabzon, Turkey

Abstract

Objective: We aimed to evaluate the sociodemographic and clinical characteristics as well as the quality of life of patients with fibromyalgia (FM).

Materials and Methods: A total of 37 female patients diagnosed with FM and 31 healthy females were included into the study. Individuals were asked about their demographic characteristics. The number of sensitive points (NSP), skin fold sensitivity, cutaneous hyperemia and reticular skin changes of patients and healthy controls were evaluated during physical examination. Individuals were evaluated for pain severity using the Visual Analogue Scale (VAS), for psychological states using the Beck Depression Scale (BDS), for quality of life using the Short Form-36 (SF-36) and for functional status using the Fibromyalgia Impact Questionnaire (FIQ).

Results: The mean age of FM patients was 39.2±6.5 years versus 39.1±6.2 years in the controls. The most frequently encountered FM symptoms were fatigue (94.6%), sleep disturbances (86.5%) and anxiety (86.5%). Differences between FM patients and controls were statistically significant for NSP (p=0.001), VAS (p=0.001), FIQ (p=0.001), BDS (p=0.001) and SF-36 (p=0.003), and FIQ subgroups were also different between the two groups (p<0.001). In the SF-36 survey, FM patients were different from the control in the physical function (p=0.001), pain (p=0.005), general health (p=0.017), physical fitness (p=0.003), and mental health (p=0.008) portions of the survey.

Conclusion: Fibromyalgia has distinct clinical features that lead to low functional capacity and quality of life. Thus, patients' sociodemographic characteristics and the evaluation of their quality of life may be important in the diagnosis and monitoring of treatment progress.

Key Words: Clinical signs, Fibromyalgia syndrome, Sociodemographic characteristics, Quality of life

Özet

Amaç: Fibromiyalji (FM) hastalarının sosyodemografik, klinik özellikleri ve yaşam kalitesini değerlendirmeyi amaçladık.

Gereç ve Yöntem: Fibromiyalji tanısı almış 37 kadın hasta ve 31 sağlıklı kadın çalışmaya alındı. Bireylerin demografik özellikleri sorgulandı. Hastaların ve kontrol grubunun fizik muayenesinde hassas nokta sayısı (HN), deri kıvrım hassasiyeti, kutanöz hiperemi ve retiküler cilt değişikliği değerlendirildi. Bireylerin ağrı şiddeti Görsel Ağrı Skalası (GAS), psikolojik durumları Beck Depresyon Ölçeği (BDÖ), yaşam kalitesi Kısa Form-36 anketi (KF-36), fonksiyonel durumları Fibromiyalji Etki Sorgulama Formu (FES) ile değerlendirildi.

Bulgular: Fibromiyaljili hastaların yaş ortalaması 39.2±6.5, kontrol grubunun 39.1±6.2 idi. FM'li hastalarda en sık yorgunluk (%94.6), uyku bozukluğu (%86.5), anksiyete (%86.5) semptomları tespit edildi. FM hastaları ile kontrol grubu arasında HN (p=0.001), GAS (p=0.001), FES (p=0.001), BDÖ (p=0.001) ve KF-36 (p=0.003) açısından anlamlı farklılık saptandı. İki grup arasında FES alt grupları açısından anlamlı farklılık mevcut idi (p<0.001). KF-36 alt gruplarının karşılaştırmasında gruplar arasında fiziksel fonksiyon (p=0.001), ağrı (p=0.005), genel sağlık (p=0.017), zindelik (p=0.003), mental sağlık (p=0.008) açısından anlamlı farklılık tespit edildi.

Sonuç: Fibromiyalji farklı klinik özelliklere sahiptir. FM'li hastalarda fonksiyonel kapasite ve yaşam kalitesi düşük tespit edilmiştir. Bu yüzden hastaların sosyodemografik özellikleri ve yaşam kalitesinin değerlendirilmesi hastalığın tanı, tedavi ve takibinde önemli olabilir.

Anahtar Kelimeler: Klinik bulgular, Fibromiyalji sendromu, Sosyodemografik özellikler, Yaşam kalitesi

Introduction

Fibromyalgia (FM) is a chronic muscle skeletal system disease characterized by widespread pain, sleep disturbances, fatigue, decreased pain threshold and psychological distress [1].

Although the etiology and mechanisms of FM are not completely understood, neuroendocrine dysfunctions, alterations of central pain mechanisms and central sensitization are considered to be the most important factors in its development [2]. Signs and symptoms, such as morning stiffness,

headache, dizziness, irritable bowel and bladder syndromes, Raynaud's phenomenon, restless leg syndrome, dysmenorrhea, subjective swelling in the hands, paresthesia, skin sensitivity, and reticular skin color changes, often accompany FM [3], with fatigue as the most frequent complaint [4, 5].

American College of Rheumatology (ACR) 1990 FM criteria include widespread body pain and pain in tender point sites [6]. However, ACR 2010 FM diagnostic criteria include, in addition to a widespread pain severity score, a somatic symptom severity score, with its components fatigue, morning stiffness and cognitive symptoms [7]. This finding illustrates the importance of the assessment of the clinical characteristics in patients with FM.

Because FM causes pain and fatigue, FM deteriorates the daily lives and functional statuses of patients to a greater extent, and therefore, patient productivity is decreased as well. It is reported that functional disability rate in FM patients is between 9-44% [8]. Additionally, psychological problems of FM patients cause negative effects on quality of life. In one study where myofacial pain syndrome in FM patients was compared with healthy controls, the quality of life was found to be very low [9]. Therefore, the evaluation of FM disease in different aspects, such as environmental factors, economic status and individual differences, would be effective to increase the quality of life.

In this present study, we aimed to evaluate sociodemographic and clinical characteristics as well as the quality of life in patients with FM compared with healthy controls.

Materials and Methods

Thirty-seven female patients 20 to 60 years in age who were diagnosed with FM according to the ACR 1990 diagnostic criteria and referred to the Physical Therapy and Rehabilitation Outpatient Clinic with complaints of widespread pain between February 2011 and May 2011 as well as 31 healthy women in the same age group were included in the study. Patients with metabolic, endocrine and neurological diseases, all of which might cause secondary FM, were excluded. All patients and healthy controls were informed of the study, and informed consents were obtained from all subjects.

Laboratory tests containing complete blood count, erythrocyte sedimentation rate and routine biochemistry tests were performed after physical examinations of FM patients and control group. The heights and weights of all patients and controls were recorded, and body mass indices (BMI) were calculated. Patient age, duration of complaints, occupation, marital status, number of children, education level, exercise routine, alcohol and smoking habits, psychological trauma and antidepressant drug use histories were ascertained. The number of tender points, skin fold sensitivity, cutaneous hyperemia and reticular skin color changes were evaluated during the physical examination of both the patient and control groups.

All participants were evaluated for pain threshold measurements using the Visual Analogue Scale (VAS), for psychological states using the Beck Depression Scale (BDS), for quality of life using the Short Form-36 questionnaire (SF-36), and for functional states using the Fibromyalgia Impact Questionnaire (FIQ) form.

Assessment tools used

SF-36: This is a scale composed of 36 questions, which are used to evaluate the quality of life of patients with chronic pain. It measures eight different features, namely physical function, physical role limitation, pain, general health, physical fitness, social function, emotional role limitation and mental health [10, 11].

VAS: The VAS measures the pain threshold of patients on a scale ranging from 0 to 10, which was listed along on a 10-cm line. No pain is defined as 0, whereas the most severe pain is defined as 10. The patient is asked to mark his/her pain severity on this scale [12].

BDS: This is a scale composed of 21 questions to define depression levels of patients. Each question receives a point between 0-3 in increasing order such that the total score (0-63) can be calculated. The higher the total points, the more severe the depression [13, 14].

FIQ: The FIQ was developed to measure the functional states of FM patients. It measures 10 different features, namely physical disability, feeling good, loss of working day, difficulty in working, pain, fatigue, feeling fresh, stiffness, anxiety and depression [15, 16].

Statistical analysis

Normal distribution of measured data was examined by Kolmogorov Smirnov test. If the data were normally distributed when comparing both groups, Student's t tests were employed. If the data were not normally distributed, Mann-Whitney U tests were employed. Qualitative data comparisons of patients and controls was performed using the chi-squared test. For correlation analyses, normally distributed data were analyzed by Pearson's correlation; skewed data were analyzed by Spearman's correlation. Measured data were described as the arithmetic mean±standard deviation whereas categorical data were described as percentages (%). A statistical level of significance was accepted at p<0.05.

Results

Socio-demographic data of the patients with FM and the controls are given in Table 1. Statistically significant differences were detected between the groups in psychological trauma (p=0.004) and antidepressant drug use histories (p=0.001) (Table 1).

Clinical symptoms of patients with FM and the controls were given in Table 2. All symptoms were more frequent in FM patients compared with the control group (Table 2).

While skin fold sensitivity, reticular skin color change and cutaneous hyperemia in FM patients were detected in 94.6% (n=35), 29.2% (n=11) and 81.1% (n=30) of patients, respectively, these signs were detected in the control group in 6.5% (n=2), 0% (n=0), 9.7% (n=3) of subjects, respectively. Statistically significant differences were detected between the two groups in skin fold sensitivity (p=0.001), reticular skin color change (p=0.001), and cutaneous hyperemia (p=0.001).

There were statistically significant differences between FM patients group and the control group in number of sensitive points (p=0.001), VAS (p=0.001), FIQ (p=0.001), BDS (p=0.001) and SF-36 (p=0.003) (Table 3).

Fibromyalgia patients and the control group were compared in FIQ subgroups. There were statistically significant differences between the FIQ subgroups in physical disability, well-being, number of lost working days, working ability, pain, fatigue, feeling fresh, stiffness, anxiety, and depression (p<0.001) (Table 4).

While there was no statistically significant difference among the groups in SF-36 subgroup comparisons in emotional role limitation (p=0.095), physical role limitation (p=0.167) and social function (p=0.858), there were statistically significant differences in physical function (p=0.001), pain (p=0.005), general health (p=0.017), feeling fresh (p=0.003), and mental health (p=0.008) (Table 5).

A significant correlation was found in patients with FM between FIQ vs. BDS (r=0.430 p=0.008), FIQ vs. SF-36 (r=0.562 p=0.000), and SF-36 vs. BDS (r=0.469 p=0.003) (Table 6).

Discussion

Chronic extensive pain in patients with fibromyalgia has negative effects on the quality of life and causes functional disability [17]. The correct initial diagnosis was provided in 34% of FM patients [18]. We believe that a correct understanding of clinical and functional features of FM patients is a determinant in the diagnosis and treatment of FM. Therefore, we aimed to evaluate the functional levels, quality of life as well as demographic and clinical features of FM patients in our study.

Socio-demographic features of FM patients in our study were consistent with many studies in the literature. The typi-

Table 1. Comparison of sociodemographic characteristics of fibromyalgia patient and control groups

	FM patient group Mean±SD	Control group Mean±SD	P
Age (years)	39.2±6.5	39.1±6.2	0.939
BMI (kg/cm^2)	27.8±5.2	25.8±5.8	0.131
Number of deliveries	2.5±1.6	2.0±1.5	0.171
	n (%)	n (%)	
Marital status			0.228
Married	30 (81.1)	24 (77.4)	
Unmarried	3 (8.1)	6 (19.4)	
Divorced	4 (10.8)	1 (3.2)	
Education level			0.690
Illiterate	4 (10.8)	1 (3.2)	
Primary school	22 (59.5)	20 (64.5)	
High school	6 (16.2)	5 (16.1)	
University	5 (13.5)	5 (16.1)	
Occupation			0.399
House-wife	23 (62.2)	24 (77.4)	
Craftman-workman	4 (10.8)	2 (6.5)	
Officer-student	10 (27)	5 (16.1)	
Economical status			0.077
Good	7 (18.9)	2 (6.5)	
Fair	25 (67.6)	28 (90.3)	
Poor	5 (13.5)	1 (3.2)	
Smoking			0.151
Yes	10 (27)	4 (12.9)	
No	27 (73)	27 (87.1)	
Alcohol intake			0.189
Yes	2 (5.4)	-	
No	35 (94.6)	31 (100)	
Psychological trauma history			0.004
Yes	13 (35.1)	2 (6.5)	
No	24 (64.9)	29 (93.5)	
Antidepressant use history			0.001
Yes	24 (64.9)	4 (12.9)	
No	13 (35.1)	27 (87.1)	
Exercise history			0.201
Yes	15 (40.5)	8 (25.8)	
No	22 (59.5)	23 (74.2)	

BMI: body mass index

Table 2. Frequencies of concomitant symptoms in patients with fibromyalgia and control group

	Fibromyalgia group n (%)	Control group n (%)
Sleep disturbances	32 (86.5)	8 (25.8)
Fatigue	35 (94.6)	11 (35.5)
Morning stiffness	30 (81.1)	3 (9.7)
Headache	31 (83.8)	9 (29)
Dizziness	24 (64.9)	-
Urethral syndrome	20 (54.1)	-
Dysmenorrhea	28 (75.7)	3 (9.7)
Paresthesia	29 (78.4)	2 (6.5)
Dyspnea	19 (51.4)	2 (6.5)
Anxiety	32 (86.5)	9 (29)
Depression	25 (67.6)	6 (19.4)
Irritable bowel syndrome	27 (73)	-
Sicca syndrome	23 (62.2)	-
Raynaud's phenomenon	20 (54.1)	-
Feeling of swelling	19 (51.4)	-
Total	37	31

Table 3. Comparison of clinical characteristics of fibromyalgia patient group and control group

	FM patient group Mean±SD	Control group Mean±SD	p
Number of sensitive points	14.8±1.7	1.6±2.3	0.001
VAS (cm)	7.9±1.8	1.6±1.6	0.001
BDS	16±5.8	10.4±7.4	0.001
FIQ	64.8±15	21±8.5	0.001
SF-36	46.6±18	60.1±17.4	0.003

VAS: visual analogue scale, FIQ: fibromyalgia impact questionnaire, BDS: beck depression scale, SF-36: short form-36

Table 4. Comparison of FIQ subgroups between fibromyalgia patient group and control group

	FM patient group Mean±SD	Control group Mean±SD	p
Physical disability	6.8±1.0	5.6±1.6	0.00
Feeling good	4.7±2.3	8.9±1.5	0.00
Loss of workpower	4.1±3.0	1.4±1.8	0.00
Working ability	6.2±2.9	0.7±1.1	0.00
Pain	7.4±2.7	0.5±0.9	0.00
Fatigue	7.5±2.4	0.9±1.4	0.00
Feeling fresh	7.7±2.3	0.7±1.1	0.00
Stiffness	6.9±2.6	0.7±1.1	0.00
Anxiety	7.1±2.2	0.7±1.4	0.00
Depression	6.5±2.7	0.9±1.7	0.00
Total score	64.8±15	21±8.5	0.00

Table 5. Comparison of SF-36 subgroups in fibromyalgia patient group and control group

	FM patient group Mean±SD	Control group Mean±SD	p
Physical function	58.9±21.6	81.6±14.7	0.001
Physical role limitation	30.4±37.8	46.8±43.7	0.167
Pain	37.3±14.7	48.8±16.2	0.005
General health	43.2±21	54.8±17.5	0.017
Physical fitness	43.2±19.6	56.1±13.9	0.003
Social function	66.9±21.3	67.7±17	0.858
Emotional role limitation	36.9±42.2	59.1±48.5	0.095
Mental health	56.1±16.9	66.1±12.4	0.008
Physical function score	42.6±17	57.6±17.3	0.001
Mental health total score	49.3±18.5	60.8±17.1	0.010
Total score	46.6±18	60.1±17.4	0.003

cal FM patient graduated from primary school graduated, was married and was a housewife, similar to previous findings in the literature [19-21].

In addition to the complaint of widespread pain, which was observed in all of the patients with FM, we frequently detected the symptoms of fatigue, sleep disturbances, anxiety, headache, morning stiffness and paresthesia and found a significant difference compared with the control group. The incidence of these symptoms in many literatures also supported our study. In a large study in which 2596 patients with FM were evaluated, complaints of morning stiffness,

fatigue and sleep disturbances were frequently identified [22]. Gürer et al. frequently found complaints of fatigue, morning stiffness, headache, paresthesia and sleep disturbances in patients included in their study [23]. We believe that improving the frequent complaints observed in patients with FM, which might have resulted in functional impairments, such as fatigue, headache and sleep disturbances, will significantly improve the patients' quality of life.

Several studies showed that FM is often accompanied by depressive disorders. It was reported that patients with FM have a lifetime prevalence of depression of 50-70%, while

Table 6. Correlation coefficients between VAS, BDS, FIQ, SF-36 in fibromyalgia patients (r)

	VAS	BDS	FIQ	SF-36
VAS	-	0.211**	0.476*	0.637***
BDS	0.211**	-	0.430*	0.469*
FIQ	0.476*	0.430*	-	0.562***
SF-36	0.637***	0.469*	0.562***	-

VAS: visual analogue scale, FIQ: fibromyalgia impact questionnaire, BDS: beck depression scale, SF-36: short form-36, *: $p < 0.05$, **: $p > 0.05$, ***: $p < 0.001$

major depression was diagnosed in only 18-36% [24]. In a study conducted in Turkey, the proportion of depression in patients with FM was found to be 32% [25]. Again, in a study evaluating 100 patients with FM, the prevalence of anxiety was found to be 52% [26]. Yunus et al. [27] determined that the depression rate in patients with FM was similar to rheumatoid arthritis and healthy individuals. Many studies suggested that FM is associated with anxiety accompanying the clinical findings of the disease but not with a depressive personality disorder [28, 29]. In one study, BDS results of the patients with FM were classified, and a score of <9 was considered normal (10%), 9-16 was mild depression (50%), 17-30 was moderate depression (38%), >30 was severe depression (2%), and average BDS was defined as 15 [30]. Sivas et al. [4] found the mean BDS to be 22 in their study in patients with FM and detected a significant correlation between FIQ and BDS. Similarly, in our study, we found the average BDS to be 16 (mild depression), and the prevalence anxiety to be 86.5% for patients with FM. We identified a history of psychological trauma in 35.1% and a history of antidepressant use in 64.9% of the patients. We found a significant relation between SF-36 and FIQ and BDS when we evaluated the functional level and quality of life of patients with FM. These results made us believe that the differences in socioeconomic status, education level and lifestyle may have a played role in determining the depression and anxiety levels of FM patients.

Chronic widespread pain in FM negatively affects functional activity and quality of life of patients. The FIQ scale was developed to assess the functional capacity, physical symptoms and psychological state of FM patients. In a study conducted in Turkey, the mean FIQ was found to be 57 in patients with FM and 16 in the control group [4]. Pagano et al. [17] evaluated FIQ sub-groups and found all parameters to be significantly higher than those of the control group in their study of 40 FM and 40 control patients. Similar to this study, we found FIQ sub-group values high in patients with FM. We detected a significant difference between patients with FM and the control group. We found the mean FIQ to be 65 in patients with FM and 21 in the control group. In our study, we also found

lower functional impairment in patients with FM compared with the control group.

We provided FM patients with a SF-36 form, which included one scale to assess the quality of life. We found a mean score of 46 in patients with FM and 60 in the control group. At the same time, when we assessed the SF-36 subgroups and found a significant difference between the FM patients group and the control group. Additionally, we detected a significant relation between FIQ and SF-36 in our study. In an investigation evaluating SF-36 subgroups in patients with FM, a significant difference was found between the patients with FM and the control group similar to our study [31]. Martinez et al. [32] assessed 32 patients with FM, found lower scores for SF-36 subgroups, when compared with our study. In a similar study, SF-36 subgroups were found to be lower in patients with FM compared with our study. We believe that this difference may be due to the demographics of the patients.

In conclusion, fatigue, sleep disturbances and anxiety are frequently reported in FM patients. Complaint of widespread pain affects FM patients' quality of life and limits their functional status. Contributing to this might be high incidences of anxiety and mild depression, according to patients' BDS scores. We believe that using various questionnaires during the evaluation of the patients with FM for these symptoms may be important to plan the required treatment. Moreover, patients' request for treating the pain may alter the psychological component of this disease.

Conflict of interest statement: The authors declare that they have no conflict of interest to the publication of this article.

References

1. Cantürk F. Fibromiyalji ve Diğer Eklem Dışı Romatizmal Hastalıklar. Beyazova M, Gökçe Kutsal Y: Fiziksel Tıp ve Rehabilitasyon; 2000: p 1654-61.
2. İnanıcı F. Fibromiyalji ve Miyofasial Ağrı Sendromları. Türkiye Klinikleri Fiziksel Tıp ve Rehabilitasyon Dergisi 2005; 10: 11-8.
3. Laurence A, Bradley, Alarcon GS. Miscellaneous Rheumatic Diseases. In: Kopman WJ, Moreland LW (eds). Arthritis and Allied Conditions. Philadelphia: Lipincott Williams&Wilkins, 2005: 1869-910.
4. Sivas FA, Başkan BM, Aktekin LA, Çınar NK, Yurdakul FG, Özoran K. Fibromiyalji hastalarında depresyon, uyku bozukluğu ve yaşam kalitesinin değerlendirilmesi. Turk J Phys Med Rehab 2009; 55: 8-12.
5. Leblebici B, Turhan N, Adam M, Çetin N, Bağış S. Geriatrik populasyonda fibromiyalji sendromu. Turk J Rheumatol 2009; 24: 6-9.
6. Wolfe F, Smythe HA, Yunus MB. The American College of Rheumatology 1990 Criteria for the Classification of Fibromyalgia. Report of the Multicenter Criteria Committee. Arthritis Rheum 1990; 33: 160-72. **[CrossRef]**
7. Wolfe F, Clauw DJ, Fitzcharles MA, et al. Fibromyalgia criteria and severity scales for clinical and epidemiological studies: A modification of the ACR preliminary diagnostic criteria for fibromyalgia. J Rheumatol 2011; 38: 1113-22. **[CrossRef]**

8. Şendur Ö. F. Ağrılı kas sendromları. In: Oğuz H, Dursun E, Dursun N (eds). Tıbbi Rehabilitasyon, Nobel Tıp Kitabevi, İstanbul, 2004, 1221-38.

9. Tüzün EH, Albayrak G, Eker L, Sözay S, Daşkapan A. A comprasion study of quality of life in women with fibromyalgia and myofascial pain syndrome. Disabil Rehabil 2004; 26: 198-202. **[CrossRef]**

10. Rugiene R, Dadoniene J, Venalis A. Adaptation of health-related quality of life (SF-36) questionnaire, its validation and assessment of performance for control group and patients with rheumatoid arthritis. Medicana Kaunas 2005; 41: 232-9.

11. Koçyiğit H, Aydemir Ö. Fişek G. Ölmez N, Memiş A: Kısa Form-36 (KF-36)'nın Türkçe versiyonunun güvenilirliği ve geçerliliği. İlaç ve Tedavi Dergisi 1999; 12: 102-6.

12. Wewers ME, Lowe NK. A critical review of visual analoque scales in the measurement of clinical phenomena. Res Nurs Health 1990; 13: 227-36. **[CrossRef]**

13. Hisli N. Beck Depresyon ölçeğinin bir Türk örnekleminde geçerlilik ve güvenilirliği. Psikoloji Dergisi 1988; 6: 118-22.

14. Beck AT, Ward CH, Mendelson M, Mock JE, Erbaugh JK. An inventory for measuring depression. Arch Gen Psychiatry 1961; 4: 561-71. **[CrossRef]**

15. Sarmer S, Ergin S, Yavuzer G. The validity and realibility of the Turkish version of the Fibromyalgia Impact Questionnaire. Rheumatol Int 2000; 20: 9-12. **[CrossRef]**

16. Burckhardt CS, Clark SR, Bennett RM. The fibromyalgia impact questionnaire: development and validation. J Rheumatol 1991; 18: 728-33.

17. Pagano T, Matsutani LA, Ferreira EA, Marques AP, Pereira CA. Assessment of anxiety and quality of life in fibromyalgia patients. Sao Paula Med J 2004; 122: 252-8. **[CrossRef]**

18. Fitzcharles MA, Boulas P. Inaccuracy in the diagnosis of fibromyalgia syndrome: analysis of referrals. Rheumatology 2003; 42: 263-7. **[CrossRef]**

19. Pamuk ÖN, Yeşil Y, Çakır N. Factors that affect the number of tender points in fibromyalgia and chronic widespread pain patients who did not meet the ACR 1990 criteria for fibromyalgia: are tender points a reflection of neuropathic pain? Semin Arthritis Rheum 2006; 36: 130-4. **[CrossRef]**

20. Yanık B, Gökmen D, Sarp Ü, Aytür YK, Ergin S. Ten year results of a fibromyalgia out-patient clinic: Is there a happy ending? Turk J Rheumatol 2011; 26: 19-28. **[CrossRef]**

21. Soran N, Altındağ Ö, Demirkol A. Fibromiyalji sendromunda depresyon düzeyi ve klinik parametrelerle ilişkisi. Rheumatism 2008; 23: 1-4.

22. Bennett RM, Jones J, Turk DC, Russell IJ, Matallana L. An internet survey of 2,596 people with fibromyalgia. BMC Musculoskelet Disord 2007; 8: 27. **[CrossRef]**

23. Gürer G, Şendur ÖF. Fibromiyaljili hastalarımızın klinik özellikleri ile bulgular arasındaki korelasyonlar. Rheumatism 2006; 21: 41-4.

24. Goldenberg DL. Fibromyalgia syndrome a decade later: what have we learned? Arch Intern Med 1999; 159: 777-85. **[CrossRef]**

25. Bilgici A, Akdeniz O, Güz H, Ulusoy H. Fibromiyalji sendromunda depresyon ve sosyal uyumun rolü. Turk J Phys Med Rehab 2005; 51: 98-102.

26. Hayta E, Doğan ÖT, Doğan SC, et al. Fibromiyalji tanısı konan 100 kadın olgunun klinik özellikleri. Cumhuriyet Med J 2010; 32: 74-9.

27. Yunus MB, Ahles TA, Aldag JC, Masi AT. Relationship of clinical features with psychological status in primary fibromyalgia. Arthritis Rheum 1991; 34: 15-21. **[CrossRef]**

28. Nordahl HM, Stiles TC. Personality styles in patients with fibromyalgia, major depression and healthy controls. Ann Gen Psychiatry 2007; 9: 6-9.

29. Celiker R, Borman P, Oktem F, Gokce Kutsal Y, Basgoze O. Psychological disturbance in fibromyalgia: relation to pain severity. Clin Rheumatol 1997; 16: 179-84. **[CrossRef]**

30. Güven AZ, Panza EK, Gündüz OH. Depression and psychosocial factors in Turkish women with fibromyalgia syndrome. Eura Medicophys 2005; 41: 309-13.

31. Martinez JE, Barauna Filho IS, Kubokawa K, Pedreira IS, Machado LA, Cevasco G. Evaluation of the quality of life in Brazilian women with fibromyalgia, through the medical outcome survey 36 item short-form study. Disabil Rehabil 2001; 23: 64-8. **[CrossRef]**

32. Verbunt JA, Pernot DH, Smeets RJ. Disability and quality of life in patients with fibromyalgia. Health and Quality of Life Outcomes 2008; 6: 8. **[CrossRef]**