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RESEARCH ARTICLE

Quality of life, psychological status, and functionality in patients with fibromyalgia

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ABSTRACT

Aim: This single-center cross-sectional study aimed to investigate the clinical, demographic, and psychological characteristics of patients with fibromyalgia (FM) and assess the impact of these parameters on quality of life, daily functioning, and psychological well-being.

Materials and Methods: Eighty-six women diagnosed with FM according to the 1990 ACR criteria were included. Socio-demographic, clinical, and psychometric characteristics were recorded. The severity of pain was assessed with the Visual Analog Scale (VAS), while the Fibromyalgia Impact Questionnaire (FIQ), Nottingham Health Profile (NHP), Hamilton Anxiety (HAM-A), and Depression (HAM-D) scales, Symptom Checklist-90-R (SCL90-R), and Modified Fatigue Impact Scale were used to evaluate disease severity, quality of life, and psychological symptoms, respectively. Physical activity level, hand grip strength, 100-meter walking time, and tender point counts were also recorded.

Results: Major anxiety was detected in 61.6% and moderate-to-severe depression in 38.4% of participants. Pain levels (VAS) showed a significant positive correlation with both functional disability (FIQ) and depression (HAM-D). Physical activity was inversely associated with fatigue scores (p=0.039). No significant associations were found between BMI and most clinical parameters, except for walking time. SCL90-R scores indicated elevated somatization and psychological distress in a substantial subgroup.

Conclusion: FM adversely affects quality of life and is commonly accompanied by psychological symptoms. Comprehensive assessment strategies addressing both physical and psychological aspects are essential for effective management.

Keywords: Fibromyalgia, depression, anxiety, quality of life

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INTRODUCTION

Fibromyalgia (FM) is a chronic, non-inflammatory rheumatic condition characterized by widespread musculoskeletal pain, fatigue, sleep disturbance, and cognitive impairment. Although its exact etiology remains unclear, several mechanisms, such as central sensitization, neuroendocrine dysfunction, and psychological factors, have been implicated (1).

Fibromyalgia is more common among women and affects 2-8% of the general population (2). A study applying the 2010 American College of Rheumatology (ACR) criteria reported a prevalence of 2.1%, while regional studies in Turkey revealed rates as high as 10.1% among women aged 50–59 (3,4). In addition to chronic pain, psychological symptoms like depression and anxiety frequently co-occur with FM, contributing to reduced quality of life and functional disability (5).

The prevalence of depression and anxiety in FM ranges widely, influenced by variations in study design and diagnostic tools (6-8). Depressive symptoms may exacerbate functional limitations, whereas anxiety disorders, particularly Post-traumatic stress disorder (PTSD), are notably more prevalent in FM populations (9,10). Patients with FM report a considerable impact on their quality of life. They experience a lower quality of life compared to the general population. The quality of life of FM patients seem to be associated with their FM related disability level and is influenced by their pain problem (11).

Given FM's multifactorial nature and its broad impact on physical and psychological health, this study aimed to comprehensively assess demographic, clinical, and psychological characteristics in FM patients and evaluate their associations with quality of life and functionality.

MATERIALS AND METHODS

Study design and participants

This cross-sectional study was conducted with patients who presented to the Physical Medicine and Rehabilitation outpatient clinic of Karadeniz Technical University Hospital between January 2014 and December 2015. The study was conducted in accordance with the Declaration of Helsinki and received approval from the institutional ethics committee (Protocol No: 2012-78). All participants provided written informed consent.

Inclusion criteria were female sex, age between 18–65 years, a diagnosis of FM based on the ACR 1990 criteria, and the ability to understand and complete questionnaires. Exclusion criteria included the presence of systemic inflammatory or autoimmune diseases (e.g., rheumatoid arthritis, lupus), neurological or severe psychiatric disorders (e.g., psychosis, bipolar disorder), use of centrally acting drugs such as pregabalin, duloxetine, opioids, corticosteroids (>10 mg/day prednisone or equivalent), pregnancy, malignancy, or cognitive impairment affecting the ability to comply with the study.

Data collection

Demographic (age, marital and menopausal status, education, BMI), clinical (disease duration, surgical history, family history), and lifestyle (physical activity level, smoking) information were recorded. Physical assessments included bilateral hand grip strength (dynamometer), 100-meter walking time (in seconds), and the number of tender points.

Outcome measures

The severity of pain was assessed using the Visual Analog Scale (VAS), a widely accepted tool in which patients rate their pain intensity on a 0–10 scale. The Fibromyalgia Impact Questionnaire (FIQ) was used to assess the functional impact of FM across domains such as physical functioning, absenteeism, and symptom severity. To evaluate psychological status, the Hamilton Anxiety Scale (HAM-A) and Hamilton Depression Scale (HAM-D) were administered by trained professionals. These scales measure the severity of anxiety and depressive symptoms, respectively. Fatigue was assessed with the Modified Fatigue Impact Scale, which captures physical, cognitive, and psychosocial dimensions of fatigue. The Nottingham Health Profile (NHP), a general health-related quality of life instrument, was used to evaluate pain, sleep, physical mobility, emotional reactions, and social isolation. Finally, the Symptom Checklist-

90-R (SCL90-R), a comprehensive instrument for psychological symptomatology, provided insights into somatization, obsessive-compulsive traits, depression, anxiety, and other psychiatric features. All scales used in this study have been validated and shown to be reliable in previous psychometric studies (12-16).

Statistical analysis

Statistical evaluation was performed using SPSS (Statistical Package for the Social Sciences) version 13 for Windows. Data are shown as mean ± standard deviation or percentage (%). When comparing measurement data between three groups, if the data were normally distributed, ANOVA was used; if not, the Kruskal-Wallis test was used. When comparing measurement data between two groups, the Student's-t test was used if the data were normally distributed; if not, the Mann-Whitney-U test was used. When examining the relationship between two measurement data, Pearson correlation tests were used if the data were normally distributed; if not, Spearman correlation tests were used. Statistical significance level was accepted as $p < 0.05$. A priori sample size calculation targeted detection of at least a moderate correlation ($r = 0.30$) with a two-sided $\alpha = 0.05$ and 80% power. Using Fisher's z transformation, the required sample size was n = 85 for the primary outcome measure.

RESULTS

A total of 86 female patients were included in this study, with a mean age of 43.20±10.04 years and an average symptom duration of 7.53±7.16 years. Demographic and clinical characteristics of the patients are shown in Table 1.

Table 1. Baseline characteristics of the patients. Data are presented as n (%) or mean ± standard deviation

Parameter	
Menopause status	
premenopause	45 (52.3)
postmenopause	41 (47.7)
Marital status	
married	72 (83.7)
single/widow	14 (16.3)
Education Status	
none	19 (22.1)
primary school	35 (40.7)
middle school and beyond	32 (37.2)
Disease duration	
0-5 yr	45 (52.3)
> 5 yr	41 (47.7)
Former or current smoker, n (%)	24 (27.9)
BMI	
<25	16 (18.6)
25-29.99	40 (46.5)
≥30	30 (34.9)
Physical activity level	
Sedentary	22 (25,6)
Mildly active	40 (46,5)
Moderately/highly active	24 (27,9)
Hand grip strengths	
Right	23.6±8.3
Left	21.4±5.6
100-meter walking time	88.2±15.3
Number of tender points	15.7±2.3
Surgical history	60 (69.8)
Family history	24 (27.9)

BMI: body mass index.

According to the HAM-A results, 32 (37.2%) patients had minor anxiety, 53 (61.6%) patients had major anxiety, and 1 (1.2%) patient had no anxiety. According to the HAM-D results, 35 (40.7%) patients had mild depression, 32 (37.2%) patients had moderate depression, 1 (1.2%) patient had severe depression, and 18 (20.9%) patients had no depression. According to the SCL90-R scale, 73 (84.9%) patients were normal, 12 (14%) patients had a high psychological symptom level, and 1 (1.2%) patient had a very high psychological symptom level. Mean scores for pain, quality of life, and fatigue are also presented in Table 2.

Table 2. Scale results. Data are presented as mean ± standard deviation

Parameter	
VAS	7.93±1.75
FIQ	64.71±12.27
HAM-A	16.54±5.76
HAM-D	13.89±6.15
Modified fatigue impact score	34.63±15.01
NHP – Pain	77.24±24.61
Fatigue	44.37±17.25
Sleep	89.01±23.98
Social isolation	65.23±28.35
Emotional reaction	28.24±30.60
SCL90-R	1.16±0.40

*VAS: Visual Analog Scale, FIQ: Fibromyalgia impact questionnaire, HAM-A: Hamilton anxiety rating scale, HAM-D: Hamilton depression rating scale, NHP: Nottingham Health Profile, SCL90-R: The Symptom Checklist-90-Revised.

Patients were stratified by disease duration (≤5 years vs. >5 years). Those with longer disease duration showed higher mean scores in pain (VAS), fatigue, depression, anxiety, and psychological distress, as well as decreased grip strength and increased walking time, although none reached statistical significance (Table 3).

BMI was significantly associated only with walking performance: patients with BMI ≥30 had significantly slower walking times than those with BMI <25 ($p<0.01$), but other clinical parameters and psychometric scores did not differ significantly by BMI (Table 4).

Moderate/high activity was associated with an approximately10.6-point lower MFIS than sedentary (95% CI 1.7 to 19.5, $p = 0.039$, Table 5).

Correlation analyses revealed that VAS scores were positively correlated with FIQ and HAM-D scores.

Table 3. Comparison of results according to disease duration

	Hand grip strength		100 m walking time	VAS	FIQ	mFIC	Tender point count	HAM-A	HAM-D	Scl90R
	Right	Left								
0-5 year	23.4	21.7	87.6	7.8	62.6	34.1	15.6	15.9	13.1	1.15
>5 year	22.4	21.7	90.7	8	66.9	35.1	15.8	17.1	14.7	1.17
p value	.356	.997	.263	.474	.103	.762	.747	.230	.217	.945

VAS: Visual Analog Scale, FIQ: Fibromyalgia impact questionnaire, mFIC: Modified fatigue impact score, HAM-A: Hamilton anxiety rating scale, HAM-D: Hamilton depression rating scale, SCL90-R: The Symptom Checklist-90-Revised.

Table 4. Comparison of results according to body mass index

	Hand grip strength		100 m walking time	VAS	FIQ	mFIC	Tender point count	HAM-A	HAM-D	Scl90R
	Right	Left								
BMI < 25	25.3	23.3	80.5	7.6	64.8	35.3	15.8	17	13	1.25
BMI = 25-29.99	22.5	21.8	87.6	7.8	64.3	32.7	16	15.2	13.2	1.12
BMI ≥ 30	22.2	20.7	95.6	8.2	65	36.7	15.2	18	15.2	1.16
p value	.085	.292	**<.001***	.565	.973	.530	.486	.131	.339	.387

* <25 - (25-29.99) p=0.124 ; <25 - ≥30 p<0.01 ; (25-29.99) - ≥30 p=0.15

VAS: Visual Analog Scale, FIQ: Fibromyalgia impact questionnaire, mFIC: Modified fatigue impact score, HAM-A: Hamilton anxiety rating scale, HAM-D: Hamilton depression rating scale, SCL90-R: The Symptom Checklist-90-Revised.

Table 5. Comparison of results according to physical activity level

	Hand grip strength		100 m walking time	VAS	FIQ	mFIC	Tender point count	HAM-A	HAM-D	Scl90R
	Right	Left								
Sedentary	22.7	21.3	92.1	8.3	67.8	38.9	15.8	17	13	1.25
Mildly active	22.3	21	89.3	7.7	63.5	36	15.9	15.2	13.2	1.12
Moderately/highly active	26.7	22.3	85.9	7.8	63.8	28.3	15.3	18	15.2	1.16
p value	.107	.671	.243	.472	.385	**.039***	.632	.131	.339	.387

*sedentary-mildly active p=1.00; sedentary-moderately/highly active p=0.04; mildly active- moderately/highly active p=0.13

VAS: Visual Analog Scale, FIQ: Fibromyalgia impact questionnaire, mFIC: Modified fatigue impact score.

Table 6. Correlations between scores

	Tender point count	VAS	FIQ	Modified fatigue impact score	HAM-A	HAM-D	Scl90-R
Tender point count	1	.053	.118	.119	-.096	-.025	-.037
VAS		1	.597*	.142	.195	.302*	.112
FIQ			1	.452*	.472*	.580*	.304*
Modified fatigue impact score				1	.543*	.526*	.384*
HAM-A					1	.764*	.385*
HAM-D						1	.350*
Scl90-R							1

The r values are shown. *; p<0,05 VAS: Visual Analog Scale, FIQ: Fibromyalgia impact questionnaire, HAM-A: Hamilton anxiety rating scale, HAM-D: Hamilton depression rating scale, SCL90-R: The Symptom Checklist-90-Revised.

FIQ scores showed strong positive correlations with VAS, HAM-A, HAM-D, and SCL90-R. Similarly, both anxiety (HAM-A) and depression (HAM-D) scores were significantly correlated with fatigue and psychological distress (Table 6).

DISCUSSION

The findings of this study support the notion that FM is a complex syndrome involving both physical and psychological dimensions. The high mean VAS pain score (7.93) confirms the intense pain experienced by patients, consistent with previous studies (17,18). The FIQ is a widely used tool to assess quality of life in FM patients and has been shown to be more sensitive than the SF-36 (19). In this study, the mean FIQ score was 64.7, with 37.2% of patients scoring ≥70, indicating severe impact. These findings are consistent with previous literature reporting similar average scores across large FM cohorts (20,21).

Anxiety and depression are prevalent and often severe in FM patients. In this study, 61.6% had major anxiety and 37.2% had moderate depression based on HAM-A and HAM-D scores. Although higher than some previous reports, differences may be due to the assessment tools used (22,23). Consistent with previous literature, anxiety did not correlate with pain intensity, suggesting that anxiety in FM may operate independently of pain perception (8). These findings highlight the importance of incorporating psychological evaluation into FM management, as focusing solely on physical symptoms would be insufficient.

SCL90-R scores highlighted prominent somatization tendencies. The relationship between FM and somatization has been previously investigated in the literature, and it has been determined that somatization is more common in patients with FM compared to other chronic pain syndromes and inflammatory diseases (24,25). Multiple symptoms of FM can be expressed as somatization, which can cause the person to focus on

their health. Conversely, focusing on their health can lead to somatization. This preoccupation with internal somatic states can ultimately lead to an increase in depression and obsessive-compulsive symptoms as the individual attempts to cope with FM symptoms, and cognitive and behavioral adaptation to pain becomes impaired (24). However, the pathophysiological basis of FM pain and the role of central sensitization should not be ignored.

In this study, higher pain levels (VAS) were associated with worse quality of life (FIQ) and greater depressive symptoms, aligning with some prior research (17,26). It should be kept in mind that chronic pain may be caused by a psychiatric disorder, but pain itself may also negatively affect quality of life and cause psychiatric disorder. FIQ scores also correlated with fatigue, anxiety, depression, and psychological distress, emphasizing the interplay between pain, psychological factors, and functional impairment in FM.

The mean disease duration was 7.5 years, but longer duration was not associated with increased pain, fatigue, or psychological symptoms. This aligns with previous research and suggests that FM symptoms do not necessarily worsen over time (27).

Encouragingly, patients with higher physical activity levels reported lower fatigue scores, suggesting the potential benefit of physical activity on fatigue. This observation is consistent with existing literature demonstrating that regular physical activity improves central pain modulation, enhances mitochondrial efficiency, and reduces pro-inflammatory cytokines, all of which contribute to reduced fatigue in fibromyalgia (21,28). Moreover, exercise has been shown to improve sleep quality, autonomic balance, and psychological well-being, which in turn further decreases fatigue perception. Taken together, these findings reinforce the role of physical activity as a non-pharmacological cornerstone in FM management, particularly for alleviating fatigue symptoms (11,29,30).

The prevalence of chronic pain is high in overweight and obese patients, and functional capacity and quality of life are negatively affected in these patients. Obesity is also common in patients with FM (30-45%), but the relationship between them has not yet been clearly understood (31). In this study, BMI was not significantly associated with pain, psychological symptoms, or quality of life. Despite high rates of overweight and obesity, BMI was only significantly associated with longer walking time. This indicates that while obesity may impact physical performance, it does not necessarily intensify subjective symptom burden. Prior studies have produced conflicting evidence, with some reporting increased FM symptomatology in obese patients (32,33). There are also studies (34,35) in the literature showing that the prevalence of depression and anxiety is significantly higher in obese FM patients than in non-obese patients. Although the increase in BMI is not directly related to FM, it should be kept in mind that it will negatively affect treatment results. In addition, the fact that weight loss has been shown to significantly reduce FM symptoms and provide a significant decrease in tender point count suggests that it would be appropriate to include obesity treatment among FM treatment targets (36,37).

Limitations: The number of patients included in the study was smaller compared to some studies in the literature. At the same time, all of the patients included in our study were women. This situation should be taken into account when evaluating the results of our study. In addition, our study was conducted only on patients with FM; a control group was not included.

Conclusion

It was determined that psychological symptoms are also prominent along with widespread pain in FMS and that quality of life is negatively affected. The fact that psychological symptoms are prominent suggests that stress plays a role in the pathogenesis of this disease and reveals the necessity of psychosocial support in these patients.

Ethical approval

The study protocol was approved by the Karadeniz Technical University School of Medicine Ethics Committee (protocol number: 2012-78).

Author contribution

Concept: MK; Design: MK, EÇ; Data Collection or Processing: HBŞ; Analysis or Interpretation: HBŞ, MK; Literature Search: HBŞ, MK, EÇ; Writing: HBŞ. All authors reviewed the results and approved the final version of the article.

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Conflict of interest

The authors declare that there is no conflict of interest.

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