Research Article / *Araştırma Makalesi*

Ege Journal of Medicine / *Ege Tıp Dergisi* 2025; 64 (1): 135-142

Levels of anxiety, depression, and quality of life in patients with fibromyalgia during the COVID-19 pandemic: A cross-sectional study

COVID-19 pandemisi sürecinde fibromiyalji sendromlu hastalarda kaygı düzeyi, depresyon ve yaşam kalitesinin değerlendirilmesi, kesitsel çalışma

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ABSTRACT

Aim: Covid-19 pandemic has been reported to cause increased levels of depression, anxiety and posttraumatic stress disorders in the general population. Fibromyalgia syndrome (FMS) patients may be more inclined to develop these problems because of reduced resilience and coping mechanisms. For this reason, we have aimed to assess FMS patients' levels of resilience, Obsession with covid-19, anxiety and quality of life and compare these values with controls living in the same household.

Materials and Methods: Patients diagnosed as having FMS according to the ACR 2016 classification criteria and a control subject living in the same household were included in the study. Subjects were asked to fill out an online questionnaire form containing pain level, Short form 36, covid-19 anxiety scale, Obsession with covid scale and resilience scale for adults. Results were compared between the FMS patients and controls.

Results: 39 FMS patients and 39 controls were included in the study. Demographic characteristics were similar between the groups ($p>0.05$). Subjects with FMS had lower levels of quality of life in addition to worse anxiety and obsession with Covid-19 scores ($p<0.05$). Surprisingly, most subsections of the resilience scale for adults were not significantly different between the groups ($p>0.05$), except for structured style subsection ($p<0.05$).

Conclusion: Patients with FMS are affected more negatively psychologically than controls during the Covid-19 pandemic. Regular follow up visits, whether face to face or through telemedicine should include assessment for pandemic related anxiety and obsession may help control pain and other FMS symptoms.

Keywords: Anxiety, covid-19, fibromyalgia, pain.

ÖZ

Amaç: *Kovid-19 pandemisi sürecinde hem hastalık korkusu hem de sosyal izolasyon nedeni ile kronik ağrısı olan bireylerde sosyal izolasyonun ağrı düzeyleri üzerine de olumsuz etkileri olduğu gösterilmiştir (Hruschak 2021). Bir kronik yaygın ağrı sendromu olan Fibromiyalji hastalarında da sosyal izolasyon nedeni ile anksiyete ve depresyon üzerine olumsuz etkiler olduğu bildirilmiştir (Aloush 2021). Bu bulgulardan yola çıkarak, bu çalışmada, fibromiyalji hastalarının pandemi sürecindeki anksiyete ve depresyon düzeylerinin değerlendirilmesi ve kontroller ile karşılaştırılması amaçlanmıştır.*

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Application date: 20.01.2025 Accepted: 31.01.2025

Gereç ve yöntem: *Çalışmaya her iki grupta 35 gönüllü olacak şekilde toplam 70 hasta dahil edilmesi planlanmıştır. Fibromiyalji grubuna 2015 Amerikan Romatoloji Birliği kriterlerine göre fibromiyalji sendromu kriterlerini karşılayan ve polikliniğimizden takipli olan hastalar dahil edilmiş, kontrol grubuna ise fibromiyalji hastaları ile aynı evde yaşayan birinci derece yakınları dahil edilmiştir. Hastaların demografik özellikleri, Covid-19 geçirip geçirmedikleri, yakın çevrelerinden Covid-19 geçiren olup olmadığı, mevcut ağrı düzeyleri, yaygın ağrı ölçeği ve semptom şiddeti skalası değerleri kaydedilmiştir. Ayrıca yaşam kalitesinin değerlendirilmesi amacı ile katılımcılardan Kısa form 36 (SF36), pandemiden etkilenme düzeylerini değerlendirmek amacı ile de Koronavirüs endişe anketi (KEA), Koronavirüs takıntı anketi (KTA), dayanıklılık düzeylerinin değerlendirilmesi amacı ile Yetişkinler için psikolojik dayanıklılık ölçeğini doldurmaları istenmiştir.*

Demografik ve hastalık özelliklerinin değerlendirilmesinde tanımlayıcı istatistikler, kategorik verilerin dağılımının değerlendirilmesi amacı ile ki-kare testi, nümerik verilerin gruplar arası karşılaştırılması için bağımsız örneklem t-testi uygulanmıştır.

Bulgular: *39 fibromiyalji hastası ve 39 kontrol katılımcı çalışmaya alınmıştır. Hastaların %71,8'i kadın, kontrol grubunun %50'si kadındır ve gruplar arasında cinsiyet açısından anlamlı fark mevcuttur ($p<0,05$). Yaş, medeni durum, ek hastalık varlığı ve çalışma durumu açısından gruplar arasında anlamlı fark saptanmamıştır ($p>0,05$). SF36 ölçeğinin tüm alt gruplarında, fibromiyalji hastalarında kontrollere oranla anlamlı daha kötü skorlar saptanmıştır ($p<0,05$). Covid endişe, covid takıntı ve psikolojik dayanıklılık skorları da fibromiyalji tanılı hastalarda, kendileri ile aynı evde yaşayan kontrollere oranla anlamlı daha kötü saptanmıştır ($p<0,05$).*

Sonuç: *Fibromiyalji hastalarında sağlıklı bireylere oranla yaşam kalitesi ve anksiyete düzeylerinin daha kötü olduğu bildirilmiştir (Baxter, 2014). Çalışmamızın bulguları, fibromiyalji hastalarının Kovid-19 pandemisi sırasında anksiyete ve yaşam kalitesi düzeylerinin daha kötü seyrettiğini göstermektedir. Aynı zamanda fibromiyaljili bireylerde Covid-19'a dair hasta olma korku ve takıntısının da kontrollere oranla daha yüksek olması, fibromiyaljik bireylerde fonksiyonel kayıpları şiddetlendirebilir. Kovid-19 pandemisinin devam ettiği süreçte, fibromiyalji hastalarına bakım veren hekimlerin bu endişe ve takıntı düzeylerini de değerlendirmesi ve gerektiği durumlarda bu endişelere yönelik psikolojik destek sağlanması, hastaların hem anksiyete düzeylerinde azalmaya hem de primer ağrı kontrolüne yardımcı olabilir.*

Anahtar Sözcükler: *Endişe, covid-19, fibromiyalji, ağrı.*

INTRODUCTION

The last 4 years have been marked by the Coronavirus disease 2019 (Covid-19) caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) infection. At the time of writing of this article, more than half a billion people have been infected and worldwide death toll is more than 6 million people (1).

Covid-19 survivors have been reported to suffer from a plethora of psychological alterations such as posttraumatic stress disorder, depression, anxiety and insomnia (2). But regardless of having been infected, population wide reports have revealed that up to 53% of individuals were affected psychologically by the pandemic (3). Another study reported that general rate of negative emotions such as depression, anxiety, and anger increased, while positive emotions and life satisfaction decreased during the pandemic (4).

Fibromyalgia syndrome (FMS) is a chronic widespread pain condition characterized by fatigue, sleep disturbances as well as cognitive and somatic symptoms. Underlying mechanism of FMS is complicated and most often explained by central sensitization with symptoms showing a close correlation with stress, anxiety and physical stressors (5, 6).

There are a number of studies assessing the effect of Covid-19 pandemic on patients with FMS. Most of these studies focus on the effects of social isolation and lack of exercise on disease symptoms such as pain, fatigue, and insomnia while others report the effects of the pandemic on anxiety and depression in patients with FMS (7–10). Differences in level of resilience may explain why some individuals are more severely affected by stress and anxiety. In this study, we aimed to assess and compare levels of resilience, covid related anxiety, obsession with Covid-19 and quality of life in FMS patients with controls, who were living in the same household, in order to control the effects of environmental stressors.

MATERIALS and METHODS

Before the commencement of the study, ethics approval was sought and obtained from the local ethics committee of our university hospital (---- University Approval number: 21-1T/52). Study was carried out in accordance with the Helsinki Declaration. Patients with a diagnosis of FMS and one of their family members who lived in the same household were included in the study, constituting group 1 and group 2 respectively. The reason for selecting controls from the same household was to be able to better control the probable effects of the pandemic and isolation on subjects.

The number of study participants was calculated by a-priori power analysis. With an alpha level of 0.05 and effect size of 0.8 for anxiety and 0.95 power, the minimum required number of subjects in each group was calculated to be 35.

Inclusion criteria

-A diagnosis of FMS according to the American college of rheumatology (ACR) 2016 classification criteria

-Older than 18 years of age

Exclusion criteria

-Illiteracy

-A history of Covid-19 infection in the last month

-Change in medication to treat FMS in the last 3 months

- Living alone (lack of a control subject)

-Severe neurological or psychiatric disorder that might hinder subjects' ability to answer the study questions

Recruiting Process

Subjects were informed and asked to participate in the study during routine outpatient visits. Those patients who lived alone were excluded. Patients who agreed to take part in the study were referred to the investigators and were further informed about the specifics of the study. All subjects were asked to sign the informed consent form. After enrollment, patients were questioned regarding their symptoms, personal and family history. They underwent a complete musculoskeletal examination. ACR 2016 FMS classification criteria were assessed and recorded by the investigator. After the examination, patients were sent by phone a link to the online study questionnaire and were asked to answer the questions for themselves. They were also requested to ask a partner/family member who lived in the same household to answer the same questions.

Study parameters

ACR 2016 FMS Classification criteria: Symptom severity scale and widespread pain index were assessed by the investigator during history taking and physical examination and recorded in the study form (11). Subjects were also included in the study if they met the classification criteria.

Health Survey Questionnaire Short Form 36 (SF-36): Turkish version of this self-reported survey assessing different subcategories of quality of life was completed by all participants (12). Subcategories consist of physical functioning, physical role, emotional role, vitality, mental health, social function, bodily pain, and general health and score range between 0-100. SF-36 has previously been used in patients with FMS to assess quality of life and higher scores indicate better functioning (13).

Coronavirus anxiety scale (CAS): This measure was developed by Lee et al. (14) to screen for dysfunctional anxiety related to the Covid-19 pandemic. Each 5 items are scored from 0 to 4. Higher scores and an overall score higher than 9 may indicate high anxiety levels (15).

Obsession with covid scale (OCS): A companion scale to CAS, OCS assessed the levels of dysfunctional and persistent thinking related to Covid-19. This 4 item scale identifies individuals with scores higher than 7 as having dysfunctional Covid-19 thinking (16, 17).

Resilience scale for adults (RSA): This scale was developed to assess individuals' levels of resilience and resistance to developing negative mental outcomes as a result of trauma and stress (18). RSA was found to be a reliable instrument to assess protection against trauma that consists of six factors, namely perception of self, planned future, social competence, structured style, family cohesion and social resources. Turkish version of the inventory was used for this study (19).

Statistical analysis

Statistical Package for the Social Sciences (SPSS ver. 20.0) was used for statistical analyses. Demographic information and disease characteristics were presented using descriptive statistical methods. Comparison for numeric variables between groups were carried out using independent samples t-test and categorical variables were compared using chi-square test. Correlations between parameters were analyzed by Pearson correlation analysis. A p value lower than 0.05 was accepted as significant.

RESULTS

Between October 2021 and February 2022, 39 patients with FMS and 39 controls were enrolled in the study. Demographic characteristics from both groups are presented in Table-1. Subjects were similar in age, marital status, employment status, number of comorbidities, and a history for infection with SARS-CoV-2.

FMS patients had a mean disease duration of 8 years. Their pain levels, widespread pain and symptom severity scale measurements are presented in Table-2.

FMS patients had significantly worse scores for all subcategories of SF-36, except physical functioning ($p<0.05$). Covid-19 anxiety and obsessions scores were also significantly worse in patients with FMS ($p<0.05$). Surprisingly, except for structured style subcategory, resilience scale for adults was found to be similar in both groups ($p>0.05$). Results of comparison analyses between the two groups regarding quality of life, Covid-19 related anxiety, Covid-19 obsession and resilience are presented in Table-3.

In FMS patients, widespread pain index scores were found to correlate significantly with CAS (p<0,05, r: 0,6). Age showed a negative correlation with bodily pain and physical functioning sub-scores of SF-36, which indicated less pain and better function in younger patients (p<0,05, r: -0,7 and r: -0, 6 respectively). We did not detect a statistically significant correlation between resilience scale for adults scores and other study parameters. For brevity, only statistically significant correlations are presented in Table-4.

Table-1. Demographic characteristics of study participants

	FMS group (n:39)	Control group (n:39)	p
Age, years, Mean ± SD	45.7±9.2	40.3±14.7	0.051^{a}
Marital status, n (%)			
Single	6 (15.4)	12 (30.8)	0.17^{b}
Separated/divorced/widowed	6 (15.4)	2 (5.1)	
Married	27(69.2)	25 (64.1)	
Sex, female, n(%)	28 (71.8)	20 (51)	0.06^{b}
Employment, n(%)			
Employed	21 (53.8)	27 (69.2)	0.24^{b}
Looking for a job	1 (2.6)	5 (12.8)	
Retired	4(10.3)	2(5.1)	
Homemaker	13 (18)	5 (12.8)	
Comorbidity, n(%)			
Hypertension	8 (20.5)	6 (15.3)	0.19^{b}
Diabetes	2 (5.1)	1 (2.6)	
Other	10 (25.6)	14 (35.8)	
None	21 (53.8)	16 (41)	
History of Covid-19 infection, yes, n (%)	1 (2.6)	4 (10.2)	0.17^{b}
Contact who has had Covid-19			
Significant other	1 (2.6)	2(5.1)	0.61^{b}
Child	0	1 (2.6)	
Sibling	4 (10.3)	2 (5.1)	
Other relative	12 (30.8)	10 (25.6)	
Friend	7 (18)	12 (30.8)	
Neighbor	1 (2.6)	1 (2.6)	

FMS: Fibromyalgia syndrome, SD: Standard deviation, n: number, a: independent samples t test, b:chi square test

Table-2. Disease characteristics of group 1 (FMS patients, n:39)

FMS disease duration, years, mean ± SD	8±9.5
VAS pain, mean ± SD	7,0 ± 1,4
Widespread pain index, mean ± SD	8,1 ±3,2
Symptom severity scale, mean ± SD	9,0 ± 3,5

FMS: Fibromyalgia syndrome, SD: Standard deviation, VAS: Visual analog scale

Table-3. Comparison of parameters between FMS patients and controls

	FMS group (n:39)	Control group (n:39)	p
SF-36 subgroup scores, %, mean ± SD			
Physical functioning	51.7±22.3	65.5 ± 20.3	0.06
Physical role	33.3 ±40.2	78.2± 24.4	0.00**
Emotional role	54.6 ±25.9	74.3 ± 22.2	0.00**
Vitality	40.2 ±9.5	55.1 ±16.4	0.00**
Mental health	40.5 ±19.2	65.2±21.1	0.00**
Social function	43.1 ±17.8	79.4±15.5	0.00**
Bodily pain	44.7 ±17.6	76.2±16.1	0.00**
General health	35.0±20.3	77.6 ±17.5	0.00**
Covid-19 anxiety scale, mean ± SD	3.0±2.9	2.4±2.0	0.03*
Obsession with Covid-19 scale, mean ± SD	4.2 ±2.7	3.5±2.8	0.04*
Resilience scale for adults, mean ± SD			
Perception of the self	2.6±0.4	3.5±0.5	0.82
Planned future	1.6 ± 0.2	2.1±0.3	0.14
Structured style	2.1±0.3	2.4±0.3	0.02*
Social competence	2.4±0.3	2.8±0.4	0.21
Family cohesion	3±0.4	3.9±0.6	0.82
Social resources	3.7±0.5	4.2±0.6	0.53

FMS: Fibromyalgia syndrome, SD: Standard deviation, n: number, SD: standard deviation, SF-36: Short form 36, * $p<0.05$, ** $p<0.005$, independent samples t test.

Table-4. Results of correlation analysis

	Age	**CAS**	**OCS**
	r	**r**	**r**
SF-36 sub scores			
Physical functioning	-0.6*	-0.2	-0.4
Physical role	-0.3	-0.1	-0.2
Emotional role	0.1	-0.1	-0.3
Vitality	-0.3	-0.2	-0.2
Mental health	0.1	-0.3	-0.4
Social function	0.2	-0.2	-0.3
Bodily pain	-0.7*	-0.3	-0.1
General health	-0.2	-0.2	-0.1
WPI	0.4	0.6*	0.2
SSS	0.3	0.3	0.2

P: Pearson coefficient, FMS: fibromyalgia syndrome, SF-36: Health Survey Questionnaire Short Form 36, CAS: Covid-19 anxiety scale, OCS: Obsession with Covid-19 scale, WPI: Widespread pain index, SSS: Symptom severity scale, VAS: Visual analog scale, * $p<0.05$

DISCUSSION

In this study, we have enrolled as controls, subjects sharing the same household as the FMS patients. to assess the effects of the pandemic on FMS patients and at the same time control for other factors that may play a role in pandemic-related anxiety such as social isolation and loss of a family member, assuming family members sharing the same home would also be affected by the same factors to a degree. Resilience may play an important role in developing mental health conditions such as depression, post-traumatic stress disorder or anxiety after a stressful life event. The discussion of whether resilience is a character trait or a dynamic trait continues but it is widely accepted that resilience is a protective factor making individuals less vulnerable to adverse life events (20). FMS patients have been reported to possess reduced resilience against stressful events (21).

Surprisingly for us, we did not detect a difference in most subcategories of the Resilience scale for adults. This may partly be explained by subjects sharing the same household as the controls, therefore being subject to similar environmental factors and similar quarantine and pandemic conditions. Genetic background of resilience might in part explain this similarity between the groups, and although controls did not report widespread pain, other genetic similarities could account for similar levels of resilience between our FMS and control groups.

Many studies have detected the negative effect of FMS on quality of life. Galvez-Sánchez et al. (6) reported that FMS patients had lower scores in all subcategories of SF-36, compared to healthy adults. Pain, depression and anxiety levels all correlated with lower quality of life, and all mutually influenced each other. Similarly, Akay et al. (22) reported that pain intensity, anxiety and alexithymia were related to lower quality of life and disability. In this study, we found that greater widespread pain scores correlated with worse covid related anxiety scores. Our patients had lower scores on all sub scores of the SF-36 scale, except physical functioning. This was an unexpected result. FMS patients usually report worsening symptoms with exercise and physical activity. Our results may have been caused by a lack of exercise because of the quarantine and lockdown regulations during the pandemic, which reduced the difference in physical functioning in FMS patients as well as the controls. Regular exercise tailored to the patients' needs has been shown time and again to provide favorable outcomes in decreasing pain levels in FMS (23–25). In this period of decreased physical activity, all patients should be encouraged to stay physically active in order to combat increased pain levels during lockdown and social isolation.

We found that patients' greater spread of pain correlated with higher levels of covid-19 related anxiety. Pain and anxiety are parts of a vicious cycle, each aggravating the other. Anxiety also negatively impacts patients' sleep quality, which further worsens pain and central sensitization. Covid-19 related anxiety may also cause patients to delay seeking medical attention and to fear going outside to exercise. Telemedicine assessment of anxiety and referral of those patients with high anxiety levels may help control pain and other related somatic symptoms (26). Physical exercise is also beneficial for the control of anxiety and other psychological symptoms of FMS, which in turn may help control widespread pain levels (27, 28). We also found that older patients had worse pain and physical function scores. Older individuals are already at more risk for social isolation and anxiety. Worsening of pain and physical function may exacerbate this situation. All patients with FMS should be questioned regarding their exercise habits and supported in finding the best way to stay active during and after the pandemic.

Limitations of the study

Because we have enrolled patients who lived with a significant other or family member to control for environmental and local stressors, we were not able to assess if living alone had any effect on any of the study parameters.

Our sample size may have been too small to detect the differences in resilience between the groups.

We carried out our study during the pandemic, but we do not have data regarding subjects' pre-pandemic pain and anxiety levels. We tried to control this by having a control group with similar environmental factors and restrictions.

Although we carried a power analysis a-priori using variance for covid anxiety scale, we did not do a power analysis for resilience. The reason for our inability to detect difference in resilience levels may be due to the sample size being too small, in other words, we might have made a type 2 error for resilience.

CONCLUSION

Symptom severity of FMS is closely correlated with levels of anxiety, depression and physical stressors. During the Covid-19 pandemic, social isolation, decreased levels of exercise, anxiety and obsession with Covid-19 and difficulty getting healthcare may all play a role in aggravating pain and other FMS related symptoms. Assessing individuals with FMS about their fears and anxieties around Covid-19 may help physicians better care for patients' somatic and psychological needs. Referring those patients with significant anxiety to proper psychological counseling and therapy and encouraging patients to exercise might play a role in disease control and increasing quality of life.

Conflict of interest statement: The authors have no conflicts of interest to declare.

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