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# Psychiatric Comorbidity and Overactive Bladder in Fibromyalgia: A Cross-sectional Analysis

Fibromiyaljide Psikiyatrik Eşlik Eden Hastalık ve Aşırı Aktif Mesane: Kesitsel Çalışma

**Short Title: Fibromyalgia, Psychiatric Problems and Overactive Bladder** (Kadınlarda Fibromiyalji, Psikiyatrik Problemler ve Aşırı Aktif Mesane)

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**Abstract**

**Objective:** To evaluate the prevalence of overactive bladder (OAB) in women with fibromyalgia (FM) presenting with lower urinary tract symptoms, and to examine the relationship between psychiatric comorbidities and symptom severity in this population.

**Materials and Methods:** This cross-sectional study included 240 women aged 18–65 years who met the 2016 American College of Rheumatology criteria for FM and reported lower urinary tract symptoms for at least three months. OAB was diagnosed based on International Continence Society criteria using the OAB-V8 questionnaire (cut-off ≥8) and a three-day bladder diary. Psychiatric symptoms were assessed using the Hospital Anxiety and Depression Scale (HADS). FM severity was measured using the Widespread Pain Index (WPI), Symptom Severity Scale (SSS), and General Symptom Score (GSS). Patients were divided into FM+OAB and FM−OAB groups. Statistical comparisons and correlation analyses were performed.

**Results:** OAB was identified in 148 of 240 FM patients (61.7%). The FM+OAB group had significantly higher mean age (47.2 ± 7.4 vs. 41.5 ± 10.1 years, $p < 0.001$) and fibromyalgia diagnosis time (10.5 ± 8.7 vs. 6.3 ± 6.0 years, $p < 0.001$) compared to the FM−OAB group. Clinically significant anxiety and depression (HADS ≥8) were more prevalent in the FM+OAB group (52.1% vs. 27.3%, $p = 0.006$). FM+OAB patients also had higher scores for WPI, SSS, and GSS (all $p < 0.001$). HADS scores correlated positively with FM symptom severity and OAB-V8 scores ($\rho = 0.30–0.42$, $p < 0.01$).

**Conclusion:** Overactive bladder is highly prevalent among women with fibromyalgia and is associated with greater psychiatric burden and symptom severity. These findings suggest a shared underlying mechanism driven by central sensitization and emotional dysregulation. Routine screening for OAB and psychological distress in FM patients may enhance diagnostic accuracy and guide comprehensive, multidisciplinary treatment strategies.

**Keywords:** fibromyalgia, overactive bladder, psychiatric comorbidity, woman, depression, central sensitization

**Özet**

**Amaç:** Alt üriner sistem semptomları (AÜSS) nedeniyle başvuran fibromiyaljili (FM) kadınlarda aşırı aktif mesane (AAM) prevalansını değerlendirmek ve bu popülasyonda psikiyatrik komorbiditelerle semptom şiddeti arasındaki ilişkiyi incelemek.

**Gereçler ve Yöntemler:** Bu kesitsel çalışmaya, 2016 Amerikan Romatoloji Koleji kriterlerine göre FM tanısı almış, en az üç aydır AÜSS bildiren, 18-65 yaş arası 240 kadın dahil edilmiştir. AAM tanısı, Uluslararası Kontinans Derneği kriterlerine göre OAB-V8 anketi (eşik ≥8) ve üç günlük işeme günlüğü kullanılarak konulmuştur. Psikiyatrik semptomlar Hastane Anksiyete ve Depresyon Ölçeği (HADS) ile değerlendirilmiştir. FM şiddeti Yaygın Ağrı İndeksi (WPI), Semptom Şiddet Ölçeği (SSS) ve Genel Semptom Skoru (GSS) kullanılarak ölçülmüştür. Katılımcılar FM+AAM ve FM-AAM gruplarına ayrılmış, istatistiksel karşılaştırmalar ve korelasyon analizleri yapılmıştır.

**Bulgular:** AAM, FM'li 240 kadının 148'inde (%61,7) saptanmıştır. FM+AAM grubunun ortalama yaşı (47,2±7,4 yıl, FM-AAM grubunda 41,5±10,1 yıl, $p<0,001$) ve fibromiyalji tanı süresi (10,5±8,7 yıl, FM-AAM grubunda 6,3±6,0 yıl, $p<0,001$) anlamlı şekilde daha yüksekti. Klinik açıdan anlamlı anksiyete ve depresyon (HADS≥8) FM+AAM grubunda (%52,1) FM-AAM grubuna (%27,3) göre daha sık görüldü ($p=0,006$). FM+AAM hastalarında WPI, SSS ve GSS skorları da anlamlı şekilde daha yüksekti (tümü için $p<0,001$). HADS skorları FM semptom şiddeti ve OAB-V8 skorlarıyla pozitif yönde koreleydi ($\rho=0,30$-$0,42$, $p<0,01$).

**Sonuç:** Aşırı aktif mesane, fibromiyaljili kadınlarda yüksek prevalans göstermekte; bu durum artmış psikiyatrik yük ve semptom şiddetiyle ilişkilidir. Bulgular, santral sensitizasyon ve emosyonel disregülasyonun rol oynadığı ortak bir patofizyolojik mekanizmaya işaret etmektedir. FM hastalarında rutin AAM ve psikolojik sıkıntı taraması, tanısal doğruluğu artırabilir ve kapsamlı, multidisipliner tedavi stratejilerine yön verebilir.

**Anahtar kelimeler:** fibromiyalji, aşırı aktif mesane, psikiyatrik komorbidite, kadın, depresyon, merkezi duyarlılık

## Introduction

Fibromyalgia (FM) is a chronic, centralized pain disorder characterized by widespread musculoskeletal pain, fatigue, cognitive dysfunction, and a variety of somatic symptoms. Beyond its hallmark pain features, FM frequently presents with genitourinary complaints, including lower urinary tract symptoms (LUTS) such as urinary urgency, frequency, and

nocturia. Among these, overactive bladder (OAB) has gained attention as a functionally significant and underrecognized component of the FM symptom complex [1,2].

The pathophysiology of FM and OAB is believed to share common mechanisms, most notably central sensitization-a state of amplified neural signaling in the central nervous system that leads to heightened pain and sensory perception [3,4]. In both disorders, dysregulation of the autonomic nervous system, altered pain processing, and neurogenic inflammation have been implicated. These shared neurobiological pathways suggest that OAB in FM may not merely be coincidental but rather a manifestation of overlapping central dysfunction [1,5,6].

In parallel, psychiatric comorbidities-particularly anxiety and depression-are prevalent in both FM and OAB populations. Up to 60–70% of FM patients experience clinically significant symptoms of depression or anxiety, which have been shown to exacerbate pain, fatigue, and somatic burden [7]. Similarly, psychological distress has been associated with increased urinary urgency and incontinence episodes in patients with OAB, potentially through heightened arousal, cortical hypervigilance, and altered bladder perception [8,9].

Although the independent associations of psychiatric symptoms with FM and OAB are well documented [7,9] limited data exist regarding their combined burden in patients experiencing both conditions [2,10]. In particular, the impact of psychiatric comorbidity on symptom severity and functional status in FM patients with OAB remains poorly understood [10,11]. Elucidating this relationship may inform the development of more integrative treatment strategies [3,9].

The present study aimed to investigate the prevalence and clinical significance of anxiety and depression in FM patients diagnosed with OAB, using validated screening instruments. We further evaluated the relationship between psychiatric symptom burden and FM/OAB severity to better understand the interplay between psychological distress and visceral-somatic sensitization in this patient population.

**Materials and Methods**

This cross-sectional, observational study was conducted at the University of Health Sciences, Umraniye Training and Research Hospital (Istanbul, Türkiye) in the Departments of Physical Medicine and Rehabilitation and Urology. Ethical approval was obtained from the institutional review board (Approval No: B.10.1.TKH.4.34.H.GP.0.01/170), and written informed consent was obtained from all participants.

A total of 240 women aged 18-65 years who met the 2016 American College of Rheumatology (ACR) diagnostic criteria for fibromyalgia [12]. were included. All participants reported LUTS, including urgency, frequency, or nocturia, for a minimum duration of three months. Exclusion criteria included active urinary tract infection, pelvic organ pathology (such as interstitial cystitis or endometriosis), pregnancy, neurological disorders affecting bladder function, a history of pelvic surgery within the past six months, or any systemic condition mimicking OAB symptoms.

Overactive bladder was diagnosed according to the International Continence Society (ICS) criteria, defined as urinary urgency (≥3 episodes per week), with or without urgency incontinence, in the absence of urinary tract infection. The Turkish-validated Overactive Bladder Awareness Tool Version 8 (OAB-V8) was administered to all participants, with a score of ≥8 accepted as indicative of OAB [13]. Participants also completed a three-day bladder diary documenting daytime and nighttime voiding frequency, urgency episodes, and urinary incontinence.

Patients were categorized into two groups based on the presence or absence of OAB: FM+OAB and FM-OAB. Fibromyalgia symptom burden was assessed using the Widespread Pain Index (WPI), Symptom Severity Scale (SSS), and General Symptom Score (GSS), applied during face-to-face evaluations by a physical medicine and rehabilitation specialist.

Psychiatric comorbidities were assessed using the Turkish version of the Hospital Anxiety and Depression Scale (HADS) [14]. This instrument consists of two subscales, each scored from 0 to 21, with a cut-off value of ≥8 indicating clinically relevant anxiety or depression.

**Statistical Analysis**

Statistical analyses were performed using IBM SPSS Statistics for Windows, Version 25.0 (IBM Corp., Armonk, NY, USA). Continuous variables were expressed as mean ± standard deviation (SD), and categorical variables were presented as frequencies and percentages. The Shapiro–Wilk test was used to evaluate the normality of continuous variables.

Comparisons between the FM+OAB and FM-OAB groups were made using the independent samples Student's t-test for normally distributed variables and the Mann-Whitney U test for non-normally distributed variables. Categorical variables were compared using Pearson's chi-square test. Spearman's rank correlation coefficient (ρ) was used to assess the

relationship between HADS scores and fibromyalgia-related symptom scores (WPI, SSS, GSS) and OAB severity (OAB-V8 score). A p-value <0.05 was considered statistically significant.

**Results**

A total of 240 women with FM were included in the study. Among them, 148 patients (61.7%) met the diagnostic criteria for overactive bladder (FM+OAB), while 92 (38.3%) did not (FM-OAB).

Participants in the FM+OAB group were significantly older (47.2±7.4 vs. 41.5±10.1 years; p<0.001) and had a longer duration of fibromyalgia (10.5±8.7 vs. 6.3±6.0 years; p<0.001) compared to the FM−OAB group. No significant difference was observed in educational attainment between the groups (p=0.142).

Clinically significant anxiety (HADS-A ≥8) and depression (HADS-D ≥8) were more common in the FM+OAB group than in the FM−OAB group (52.1% vs. 27.3%; p=0.006 for both). Mean HADS-anxiety scores were significantly higher in the FM+OAB group (10.2±3.1 vs. 7.5±2.8; p<0.001), as were HADS-depression scores (9.4±2.7 vs. 6.3±2.9; p<0.001).

Fibromyalgia symptom burden was also greater in the FM+OAB group. WPI scores were significantly higher (13.8±3.1 vs. 10.4±4.2; p<0.001), as were SSS (7.1±1.9 vs. 5.6±2.1; p< 0.001) and GSS scores (4.9±1.3 vs. 3.2±1.8; p<0.001). These comparisons are summarized in **Table 1**.

Correlation analyses demonstrated significant associations between psychiatric symptoms and fibromyalgia-related measures. HADS-anxiety scores showed moderate positive correlations with WPI (ρ=0.36), SSS (ρ=0.38), and GSS (ρ=0.34), all p<0.01. Similarly, HADS-depression scores correlated with WPI (ρ=0.30), SSS (ρ=0.41), and GSS (ρ=0.33), all p<0.01. In addition, both HADS subscales were positively associated with OAB severity as measured by OAB-V8 scores (ρ=0.42 and ρ=0.39 for anxiety and depression, respectively; p<0.001 for both). These results are presented in **Table 2**.

These findings suggest that FM patients with coexisting OAB experience a greater psychiatric and somatic symptom burden compared to those without OAB, with meaningful correlations between psychological distress and symptom severity across domains.

**Discussion**

In this cross-sectional study, we found that more than 60% of women with FM who presented with LUTS met the diagnostic criteria for OAB [1,2]. FM patients with OAB (FM+OAB) demonstrated significantly higher rates of clinically relevant anxiety and depression symptoms compared to those without OAB (FM−OAB) [8-10]. In addition, psychiatric symptom scores were positively correlated with both fibromyalgia severity measures (WPI, SSS, GSS) and OAB symptom severity (OAB-V8) [9,11,12]. These findings suggest that FM patients with coexisting OAB experience a greater psychiatric and somatic symptom burden compared to those without OAB, with meaningful correlations between psychological distress and symptom severity across domains.

Previous studies have noted that genitourinary symptoms are commonly reported in individuals with FM, yet the underlying mechanisms have not been fully elucidated [1,2,6]. Central sensitization-a state of augmented responsiveness of the central nervous system to stimuli-has been proposed as a unifying pathophysiological framework linking FM and OAB [3,4]. Both disorders share features such as heightened pain perception [5], autonomic dysfunction [6], neurogenic inflammation, and impaired descending inhibitory control [4]. Neuroimaging studies have revealed overlapping activation in regions such as the insula, anterior cingulate cortex, and periaqueductal gray matter in response to both pain and urinary urgency, reinforcing the notion of shared central processing pathways [3,5].

Importantly, our study adds to the existing literature by highlighting the influence of psychological distress on the severity of both FM and OAB symptoms. Anxiety and depression are not only prevalent in these populations but have been shown to modulate symptom intensity, treatment response, and quality of life [7-10]. In our analysis, the strong association between HADS scores and WPI, SSS, and OAB-V8 scores suggests a bidirectional relationship: psychiatric burden may exacerbate somatic and visceral symptoms, while chronic symptomatology may, in turn, worsen psychological wellbeing. This reciprocal amplification reflects a classic pattern seen in other central sensitivity syndromes, including irritable bowel syndrome, chronic fatigue syndrome, and migraine [10,11,15].

From a clinical perspective, our results underscore the importance of integrated assessment and management strategies for FM patients, particularly those reporting LUTS. Systematic screening for OAB symptoms using simple tools such as the OAB-V8 [13], in conjunction with validated psychiatric scales like the HADS, can facilitate earlier recognition

and tailored intervention. Multimodal treatment plans incorporating pharmacological (e.g., duloxetine, pregabalin) [16-18], behavioral (e.g., cognitive-behavioral therapy) [19], and physical (e.g., pelvic floor training) modalities [20,21] may be more effective than traditional symptom-based approaches.

This study has several strengths. It is one of the few to examine the relationship between overactive bladder and psychiatric comorbidity in women with fibromyalgia using validated assessment tools, including the 2016 ACR criteria [12], ICS-based OAB definition, and the HADS [14]. The inclusion of a relatively large, well-characterized sample strengthens the reliability of the findings. Subgroup analysis between FM+OAB and FM−OAB allowed for clearer interpretation of psychiatric burden in relation to symptom severity.

However, some limitations should be noted. The cross-sectional design prevents causal inference [22]. Reliance on self-reported data, including symptom scales and bladder diaries, may introduce recall bias. Objective urodynamic testing was not performed. Additionally, potential confounders such as medication use, sleep quality, and pain-related psychological factors were not systematically evaluated.

**Conclusion**

Our findings demonstrate that OAB is highly prevalent among women with FM and is strongly associated with increased anxiety, depression, and symptom severity. These results suggest that OAB in FM may reflect a shared pathophysiological mechanism driven by central sensitization and affective dysregulation, rather than a coincidental comorbidity. Routine screening for urinary and psychiatric symptoms in FM patients is warranted to improve early recognition and guide integrated, multidisciplinary treatment strategies. Future longitudinal and interventional studies are needed to clarify causal pathways and evaluate targeted therapeutic approaches for this overlapping phenotype.

**Ethics Committee Approval**: Ethical approval for this study was obtained from University of Health Sciences, Umraniye Training and Research Hospital Clinical Research Ethics Committee (Approval number and date: 09.05.2025- B.10.1.TKH.4.34.H.GP.0.01/170).
**Informed Consent:** An informed consent was obtained from all the patients.
**Publication:** The results of the study were not published in full or in part in form of abstracts.
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**Conflict of Interest:** The authors declare that they have no conflicts of interest.
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**Table 1.** Demographic and clinical characteristics of participants by OAB status

| Variable | FM−OAB (n=92) | FM+OAB (n=148) | P-value |
|---|---|---|---|
| Number of participants | 92 | 148 | — |
| Age (years) | 41.5±10.1 | 47.2± .4 | <0.001 |
| Disease duration (years) | 6.3±6.0 | 10.5±8.7 | <0.001 |
| Clinically significant anxiety (%) | 27.3% | 52.1% | 0.006 |
| Clinically significant depression (%) | 27.3% | 52.1% | 0.006 |
| WPI score | 10.4±4.2 | 13.8±3.1 | <0.001 |
| SSS score | 5.6±2.1 | 7.1±1.9 | <0.001 |
| GSS score | 3.2±1.8 | 4.9±1.3 | <0.001 |

Data are presented as mean ± standard deviation or number (%). Group comparisons were performed using the independent-samples t-test for continuous variables and the chi-square test for categorical variables

**Table 2.** Correlation between HADS scores and symptom measures

| Variable | Spearman's ρ | P-value |
|---|---|---|
| HADS-anxiety vs. WPI | 0.36 | < 0.01 |
| HADS-anxiety vs. SSS | 0.38 | < 0.01 |
| HADS-anxiety vs. GSS | 0.34 | < 0.01 |
| HADS-anxiety vs. OAB-V8 | 0.42 | < 0.001 |
| HADS-depression vs. WPI | 0.30 | < 0.01 |
| HADS-depression vs. SSS | 0.41 | < 0.01 |
| HADS-depression vs. GSS | 0.33 | < 0.01 |
| HADS-depression vs. OAB-V8 | 0.39 | < 0.001 |

Spearman's rank-order correlation coefficients (ρ) were used to assess the strength of the associations between variables