SEXUAL DYSFUNCTION IN PREMENOPAUSAL WOMEN WITH FIBROMYALGIA

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ABSTRACT

Objectives: To determine whether fibromyalgia (FM) has negative effects on the sexual functioning of women not using medication to manage depressive symptoms, this study compared the sexuality of premenopausal patients with fibromyalgia (FM) not using antidepressants to that of healthy subjects and investigated the relationship between sexuality and clinical parameters.

Methods: Sixty-seven sexually active premenopausal patients with FM not using antidepressants and 65 healthy women were included in this study. All subjects completed the Female Sexual Function Index (FSFI), Beck Depression Inventory (BDI), and Fibromyalgia Impact Questionnaire (FIQ).

Results: Patients with FM had significantly higher mean BDI and FIQ scores and lower mean FSFI scores compared with healthy subjects (P < 0.001). Based on FSFI scores, 27 patients with FM (40.2%) and 12 healthy subjects (17.9%, P < 0.001) were found to experience sexual dysfunction. When the subscores for each FSFI domain were evaluated, the most common sexual problem noted was pain during intercourse. Pain associated with sexual dysfunction was significantly higher in FM patients (n = 59, 88%) than in healthy subjects (n = 14, 21.5%; P < 0.001). Likewise, women with FM reported increased sexual dysfunction compared with healthy subjects in terms of orgasm (n = 46, 68.6% vs. n = 31, 47.6%; P = 0.02), desire (n = 38, 56.7% vs. n = 27, 41.5%; P < 0.001), and satisfaction (n = 44, 65.6% vs. n = 25, 38.4%; P < 0.001). The FSFI scores obtained by patients with FM also showed a moderate negative correlation with FIQ (R = -0.314; P < 0.01) and BDI (R = -0.358; P < 0.03) scores.

Conclusion: FM has a negative effect on the sexual functions of premenopausal women and is correlated with disease severity and comorbid depression. Thus, sexual dysfunction should be identified and treated in women with FM to improve their quality of life.

Key words: FSFI, Sexual Dysfunction.

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Introduction

Sexual health is a state of physical, emotional, mental, and social well being in relation to sexuality, and healthy sexuality is a positive and life-affirming part of being human. Female sexual dysfunction is highly prevalent in the general population and is associated with a severe reduction in the quality of life for women. Rheumatic disorders such as rheumatoid arthritis, ankylosing spondylitis, low back pain and fibromyalgia (FM) affect all aspects of daily living, including sexual functioning.

FM is one of the most common chronic musculoskeletal pain disorders. It affects approximately 2-4% of the population, and 85%-90% of patients with this condition are women. Characteristic symptoms of FM include diffuse persistent pain, multiple tender points, stiffness, fatigue, functional impairment, sleep disorders, negative body image, reduced libido, anxiety, and depression. Because sexual functioning is strongly connected to physiological and psychosocial functioning, the physical and emotional symptoms of FM are likely to interfere with all dimensions of sexual functioning in patients with this condition.

Additionally, the medications used to manage FM symptoms, such as antidepressants and mood stabilizers, have well-documented adverse effects on sexual functions.
Several studies of FM patients suggest a possible correlation between FM and sexual dysfunction\(^{(10,14-17)}\). However, only a limited number of studies of sexual dysfunction in women with FM who are not taking antidepressants have been conducted\(^{(18)}\). In this study, we sought to fill this gap in knowledge by investigating the effects of FM on sexuality in premenopausal women with FM who were not using antidepressants.

**Materials and methods**

**Participants**

Healthy subjects were recruited from among the employees of the authors’ hospitals and the family members accompanying patients to the Physical Medicine and Rehabilitation Department of Cerrahpasa Medical Faculty. Both healthy subjects and FM patients were female, 20-50 years of age, premenopausal according to self-reports, and engaging in heterosexual intercourse at least once per month. All participants provided informed consent. Additional inclusion criteria for FM patients included a diagnosis of FM according to the 1990 criteria issued by the American College of Rheumatology\(^{(19)}\) and no antidepressant use for FM symptoms during the 3 months prior to the study. Exclusion criteria included difficulty communicating, mental retardation, a history of sexually transmitted diseases, cervical myelopathy, or cardiovascular, pulmonary, hepatic, renal, hematologic, endocrinological, inflammatory, psychiatric, gynecological, or other decompensated systemic diseases. None of these conditions was detected during the initial screening of recruited patients.

Using these criteria, 65 healthy subjects and 90 consecutive FM patients were included in this study. One FM patient was later excluded due to a hysterectomy or vaginal surgery in the last 6 months, two FM patients were excluded due to oral or vaginal estrogen therapy, and another FM patient excluded due to pregnancy. Of the remaining 86 patients, 68 who provided informed consent continued the study. However, during the evaluation stage, we determined that one of the patients had not engaged in sexual intercourse with her husband for about 6 months, and she was eliminated from statistical evaluations.

**Parameters Measured**

Data on demographic characteristics including age, body mass index (BMI), educational status, employment, marital status, and duration of complaints were obtained from all subjects. All subjects completed the Turkish version of the Fibromyalgia Impact Questionnaire (FIQ)\(^{(20,21)}\), the Beck Depression Inventory (BDI)\(^{(22,23)}\), and the Female Sexual Function Index (FSFI)\(^{(24,25)}\). Current general pain severity, defined as pain during the past week, was evaluated using a 100-millimeter visual analogue scale (VAS) (0 = no pain and 100 = severe pain).

The FIQ includes 10 questions regarding well being, fatigue, morning stiffness, pain, sleep, anxiety, depression, and occupational distress. This instrument was used to evaluate the efficacy of treatment and the clinical severity of FM; higher FIQ scores are associated with greater impairment\(^{(20,21)}\).

The BDI is a 21-item survey that measures factors related to the affective (e.g., hopelessness, irritability, cognitive problems, feelings of guilt or being punished) and somatic (e.g., fatigue, weight loss, and lack of sexual desire) components of depression. The cutoff for BDI scores was 17\(^{(22,23)}\).

The FSFI is a 19-item, multidimensional, self-administered instrument used to evaluate the basic features of female sexuality. This index produces a total score and scores for six sexual domains: desire, arousal, lubrication, satisfaction, orgasm, and pain during sexual intercourse. Patients with an overall score <22.7 were considered to have sexual dysfunction. When evaluating subscores for each FSFI domain, patients with a desire score <3.6; an arousal score <3.9; a lubrication, orgasm, or satisfaction score <3.6; and a pain score <4 were considered to have sexual dysfunction relative to their subgroup\(^{(24,25)}\).

**Statistical analyses**

Statistical analyses were performed using the Statistical Package for Social Sciences (SPSS), version 16.0 for Windows. The arithmetic mean and standard deviation of the data were determined. Comparisons of demographic characteristics relied on Student’s t-tests for continuous data and chi-square tests for categorical data. A normalized distribution of the data was produced using the single-sample Kolmogorov-Smirnov test. When comparing two groups, t-tests and Mann-Whitney U tests were used for variables exhibiting and not exhibiting a normal distribution, respectively. In patients with FM, potential correlations between age; BMI; duration of complaints; and VAS, FSFI, BDI, and...
FIQ scores were evaluated with Spearman's correlation test. Correlation coefficients (R) from 1 to 0.5 or -1 to -0.5 were considered to indicate a strong correlation, those from 0.5 to 0.25 or -0.5 to -0.25 were considered to indicate a moderate correlation, and those from 0.25 to 0.1 or -0.25 to -0.1 were considered to indicate a weak correlation. Low correlation coefficients reflected the absence of a linear association between variables. Statistical significance was set at P < 0.05. Statistical calculation has been approved by a medical statistician.

Results

Participant characteristics

Data on the demographic and clinical characteristics of study participants were collected and are presented in Table 1. All FM patients and healthy subjects were married. We found no age difference between the groups; the FM patients were 20–46 years of age (mean = 33.7 ± 6.4) and the healthy subjects were 21-45 years of age (mean = 32.9 ± 6.1). Similarly, no significant differences were noted between the groups in BMI (mean = 25.4 ± 4.1, 26.1 ± 6.2, respectively), duration of marriage (mean = 13.1 ± 8.1, 12.7 ± 8.1, respectively), employment status, and educational level (P > 0.05).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Fibromyalgia Patients N = 67</th>
<th>Healthy Subjects N = 65</th>
<th>P-value †</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yr)</td>
<td>33.7 ± 6.4</td>
<td>32.9 ± 6.1</td>
<td>ns*</td>
</tr>
<tr>
<td>BMI (kg/m2)</td>
<td>25.4 ± 4.1</td>
<td>26.1 ± 6.2</td>
<td>ns*</td>
</tr>
<tr>
<td>Duration of marriage (yr)</td>
<td>13.1 ± 8.1</td>
<td>12.7 ± 6.1</td>
<td>ns*</td>
</tr>
<tr>
<td>Duration of complaint</td>
<td>96.4 ± 56.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>44 (65.7%)</td>
<td>38 (58.4%)</td>
<td>ns†</td>
</tr>
<tr>
<td>Employed</td>
<td>23 (34.3%)</td>
<td>27 (41.6%)</td>
<td>ns†</td>
</tr>
<tr>
<td>Educational level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>1 (%1.5)</td>
<td>1 (%1.5)</td>
<td>ns†</td>
</tr>
<tr>
<td>Primary–high school</td>
<td>48 (71.6%)</td>
<td>43 (%66.2)</td>
<td>ns†</td>
</tr>
<tr>
<td>University</td>
<td>18 (26.9%)</td>
<td>22 (%32.3)</td>
<td>ns†</td>
</tr>
</tbody>
</table>

Table 1: Characteristics of study participants.

Data reported as mean ± standard deviation or number (%)  
BMI: body mass index  
ns: not significant, P > 0.05  
* Student's t-test  
† Chi-square test

Among women with FM, the mean duration of complaints was 96.4 ± 56.6 months (Table 1), and the mean rating of general pain severity was 65 millimeters (min = 23 mm, max = 95 mm; Table 2). The mean BDI (21.7 ± 10.2) and FIQ (68.0 ± 12.9) scores were significantly higher in FM patients than in healthy subjects (12.1 ± 8.5, 42.4 ± 13.4, respectively; P < 0.001). In contrast, patients with FM had significantly lower mean FSFI scores (21.3 ± 3.0) than did healthy subjects (25.1 ± 2.0, P < 0.001; Table 2).

Forty-three women with FM and 16 healthy subjects had BDI scores greater than the cut-off of 17. These women with FM also had significantly lower mean FSFI scores (18.1 ± 2.5) compared women with FM that had BDI scores <17 (23.9 ± 2.3; P < 0.01). None of the healthy subjects with BDI scores >17 had FSFI scores that differed significantly from those of healthy subjects with BDI scores <17 (P > 0.05).

Sexual dysfunction in FM patients

According to FSFI scores, 27 (40.2%) FM patients and 12 (17.9%) healthy subjects experienced sexual dysfunction (P < 0.001). When the subscores for each FSFI domain were evaluated (Table 3), the most common sexual problem was pain during intercourse. Sexual dysfunction associated with pain during intercourse was significantly higher in FM patients (N = 59, 88%) than in healthy subjects (n = 14, 21.5%; P < 0.001).
Similarly, FM patients experienced greater sexual dysfunction than did healthy subjects as measured by orgasm (n = 46, 68.6% vs. n = 31, 47.6%; P = 0.02), desire (n = 38, 56.7% vs. n = 27, 41.5%; P < 0.001), and satisfaction (n = 44, 65.6% vs. n = 25, 38.4%; P < 0.001). FM patients obtained significantly lower FSFI subgroup scores than did healthy subjects for desire (3.1 ± 1.1 vs. 3.9 ± 0.6; P < 0.001), orgasm (3.4 ± 1.1 vs. 4.1 ± 0.7; P = 0.01), satisfaction (3.4 ± 1.0 vs. 4.4 ± 1.2; P = 0.01), and pain (3.4 ± 1.0 vs. 4.5 ± 1.0; P < 0.001; Table 2). However, women with FM did not significantly differ from healthy subjects with respect to arousal (3.7 ± 0.6 vs. 3.9 ± 0.4) and lubrication (3.9 ± 0.5 vs. 3.9 ± 0.4) (P > 0.05).

Table 3: The number of patients with fibromyalgia and healthy subjects identified sexual dysfunction according to Female Sexual Function Index (FSFI) scores.

Data presented as number of patients with percentages in parentheses.
† Pearson chi-square test
* Statistically significant

<table>
<thead>
<tr>
<th>FSFI CATEGORY</th>
<th>Dysfunction threshold</th>
<th>Fibromyalgia Patients N (%)</th>
<th>Healthy Subjects N (%)</th>
<th>P-value †</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSFI overall</td>
<td>&lt;22.7</td>
<td>27 (40.2)</td>
<td>12 (17.9)</td>
<td>&lt;0.001 *</td>
</tr>
<tr>
<td>Desire</td>
<td>&lt;3.6</td>
<td>38 (56.7)</td>
<td>27 (41.5)</td>
<td>&lt;0.001 *</td>
</tr>
<tr>
<td>Arousal</td>
<td>&lt;3.9</td>
<td>44 (65.6)</td>
<td>32 (49.2)</td>
<td>0.06</td>
</tr>
<tr>
<td>Lubrication</td>
<td>&lt;3.6</td>
<td>43 (64.1)</td>
<td>33 (50.7)</td>
<td>0.5</td>
</tr>
<tr>
<td>Orgasm</td>
<td>&lt;3.6</td>
<td>46 (68.6)</td>
<td>31 (47.6)</td>
<td>0.02 *</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>&lt;3.6</td>
<td>44 (65.6)</td>
<td>25 (38.4)</td>
<td>&lt;0.001 *</td>
</tr>
<tr>
<td>Pain</td>
<td>&lt;4</td>
<td>59 (88.0)</td>
<td>14 (21.5)</td>
<td>&lt;0.001 *</td>
</tr>
</tbody>
</table>

Table 4: Correlation between clinical parameters and scores in patients with fibromyalgia.

R = correlation coefficient, FSFI: Female Sexual Function Index, BDI: Beck Depression Inventory, DC: Duration of Complaints, VAS: Visual Analog Scale, BMI: Body Mass Index, FIQ: Fibromyalgia Impact Questionnaire

<table>
<thead>
<tr>
<th>Age</th>
<th>FIQ</th>
<th>BMI</th>
<th>VAS</th>
<th>DC</th>
<th>BDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSFI (total) R = 0.092</td>
<td>R = -0.314* P &lt; 0.01</td>
<td>R = 0.276</td>
<td>R = -0.231* P &lt; 0.01</td>
<td>R = -0.186</td>
<td>R = -0.358* P &lt; 0.03</td>
</tr>
<tr>
<td>BDI R = 0.146</td>
<td>R = 0.473* P &lt; 0.05</td>
<td>R = -0.130</td>
<td>R = 0.248* P &lt; 0.05</td>
<td>R = 0.304</td>
<td></td>
</tr>
<tr>
<td>DC R = 0.264* P &lt; 0.05</td>
<td>R = -0.030</td>
<td>R = -0.163</td>
<td>R = -0.166</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAS R = -0.216</td>
<td>R = 0.342* P &lt; 0.01</td>
<td>R = -0.194</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI R = 0.240* P &lt; 0.05</td>
<td>R = -0.030</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>FIQ R = 0.183</td>
<td></td>
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</tbody>
</table>

Discussion

The results of this study show that sexual dysfunction was more prevalent in premenopausal FM patients not using antidepressants than in healthy subjects. Sexual dysfunction in FM patients was also correlated with disease severity and comorbid depression.

Several hypotheses have been proposed to explain the association between sexual dysfunction and FM in women. Prins et al. argued that the psychological but not the physiological aspect of the sexual response cycle is disturbed in women with FM. Indeed, Tikiz et al. suggested that the psychological pathway is not involved, that FM is directly associated with sexual dysfunction, and...
that coexisting depression has a neutral effect on sexual function. However, it seems more likely that FM leads to sexual dysfunction via interrelated psychological and physiological factors\(^{(15)}\). This is supported by results from our study, which indicated greater sexual dysfunction in premenopausal FM patients (Table 3) and lower mean values for pain, desire, satisfaction, and orgasm (Table 2) in these patients compared with healthy subjects. Desire and satisfaction are psychological aspects of sexual function, whereas pain during intercourse is a physiological factor, and orgasm is a function of both processes.

In the present study, pain during sexual intercourse was the most prevalent sexual problem among patients with FM. Indeed, FM is considered a disorder of pain regulation\(^{(26)}\), as indicated by increased sensitivity to painful stimuli (hyperalgesia) and lowered pain threshold (alldynia)\(^{(27)}\). Pain is an anti-aphrodisiac, and it is difficult to imagine that patients will achieve sexual satisfaction when high levels of pain are experienced\(^{(28)}\). Pain occurring during sexual intercourse in patients with FM may also result from local changes. Gordon et al.\(^{(29)}\) reported that vulvar pain disorders were observed in approximately 20.6% of women with FM. Basson\(^{(20)}\) reported that pelvic muscle hypertonicity may cause dyspareunia in women, which may be particularly relevant in FM patients with diffuse pain. Moreover, tender points in pelvic muscles contribute to hypertonicity and dyspareunia\(^{(15)}\). Pelvic and abdominal pain associated with irritable bowel syndrome in women with FM may also be aggravated by pressure on the abdomen and precluded both prone and supine sexual positions. Deep penetration may also cause rectal pressure when abdominal symptoms of gas and bloating are present. Additionally, tactile or pressure stimuli at points on the body that are tender to the touch may limit sexual fondling and even light touching may be intolerable in the presence of hypersensitivity to touch\(^{(22)}\).

Aydin et al.\(^{(18)}\) used FSFI scores to assess sexual function in newly diagnosed FM cases and found that sexual dysfunction was associated with pain during intercourse in 50% of FM patients (mean pain score = 3.9). Similarly, Yilmaz et al.\(^{(17)}\) used FSFI scores to report a mean pain score of 4.0 in 126 FM patients in ongoing medical treatment. In contrast, our study found greater sexual dysfunction related to pain during intercourse (88%) and a lower mean pain score, 3.4, which represents more painful sexual intercourse.

This may be attributed to longer disease duration and lack of antidepressant use in our patient population.

Depressive symptoms, as well as pain, may be associated with disease activity and is common to all rheumatic diseases. Women with FM have higher rates of depression than does the general population, and sexual dysfunction in FM patients may be primarily associated with depression and manifest as reduced desire\(^{(20,31)}\). In our study, we found significantly higher mean BDI and FIQ scores in women with FM compared with healthy subjects (p < 0.001). Similarly, depressive symptoms and FM disease severity were moderately negatively correlated with level of sexual functioning. Other studies using a similar design have reported comparable results\(^{(18,19)}\). Nevertheless, Tikiz et al.\(^{(16)}\) did not find a relationship between FM disease severity and sexual function and reported that major depressive symptoms had no additional negative effects on sexuality. These differences may be attributed to study design in that only one major case of depression was included in the study conducted by Tikiz et al. and a different scale was used for rating depression. In our study, use of antidepressants was grounds for exclusion. However, one limitation of our study was its failure to inquire about use of other medications.

Cayan et al. reported that sexual dysfunction in healthy Turkish women is common as 21.7% in the ages of 18-27 years, 25.5% in the ages of 28-37 years, 53.5% in the ages of 38-47 years\(^{(25)}\). Our results are compatible with sexual dysfunction that was reported both in healthy female in Turkish population\(^{(25)}\) and in the other countries\(^{(32-36)}\). Sexuality is a taboo issue in Turkey. It is difficult to convince people to talk about their sexual life. Fifteen of 83 FM cases (18%) and 41 of 106 healthy subjects (38%) who provided informed consent and met the inclusion criteria did not want to be included in this study due to fear of reporting sexual dissatisfaction. Along with the requirement that participants engage in sexual intercourse at least once per month, which may prove challenging for patients with long-term sexual dysfunction, this may have also affected the data collected in the study. This study is further limited by the relatively small number of patients, the fact that the sexual functions of FM patients were not evaluated after FM treatment, and that partner-related factors, such as premature ejaculation and erectile dysfunction, were not investigated.
Thus, prospective studies with large patient populations are needed to investigate changes in female sexual function after FM treatment.

In conclusion, FM has a negative effect on sexual functions in premenopausal women and is correlated with disease severity and comorbid depression. In daily practice, physicians involved in the management of FM patients should consider the negative physiological and psychosocial effects of sexual dysfunction on female patients to improve their quality of life. Further studies are needed to determine the relationship between FM and sexual dysfunction and the impact of sexual rehabilitation on FM symptoms.

References


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