

Factors associated with sexual function in women with chronic low back pain: Pain intensity, kinesiophobia, and disability

Kronik bel ağrısı olan kadınlarda cinsel işlev ile ilişkili faktörler: Ağrı şiddeti, kinezyofobi ve disabilite

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ABSTRACT

OBJECTIVE: This study aimed to examine the relationship between kinesiophobia and sexual function in adult women with chronic low back pain.

MATERIAL and METHODS: This cross-sectional study was conducted between October and November 2025 at the outpatient clinic of the Department of Physical Medicine and Rehabilitation of a university hospital. A total of 90 sexually active female patients aged 18 to 55 years who had been experiencing low back pain for at least three months were included in the study. Pain intensity was assessed using the Visual Analog Scale (VAS), disability using the Roland-Morris Disability Questionnaire (RMDQ), kinesiophobia using the Tampa Scale for Kinesiophobia (TSK), and sexual function using the Female Sexual Function Index (FSFI). Correlation and multiple linear regression analyses were conducted to explore the relationships between clinical variables and FSFI scores.

RESULTS: The mean FSFI total score was 21.67±3.9, and 76.7% of the participants were identified as having sexual dysfunction. Pain intensity was significantly negatively correlated with the arousal ($r=-0.305$, $p=0.003$), satisfaction ($r=-0.251$, $p=0.017$) subdomains, and the total FSFI score ($r=-0.235$, $p=0.026$). Kinesiophobia levels were significantly negatively associated with desire, arousal, orgasm, satisfaction, and total FSFI score ($r=-0.335$, $p=0.001$). In the regression analysis, age ($p=0.005$), pain intensity ($p<0.001$), and TSK score ($p<0.001$) were identified as significant predictors of sexual function.

CONCLUSION: The findings suggest that kinesiophobia may be an important contributing factor to sexual dysfunction in women with chronic low back pain. This highlights the importance of addressing both physical and psychological components in the management of chronic low back pain to support sexual health and overall quality of life.

Keywords: chronic low back pain, women, sexual dysfunction, kinesiophobia

ÖZ

AMAÇ: Bu çalışmanın amacı, kronik bel ağrısı olan yetişkin kadınlarda kinezyofobi ile cinsel işlev arasındaki ilişkiyi incelemektir.

GEREÇ ve YÖNTEMLER: Bu kesitsel çalışma, Ekim–Kasım 2025 tarihleri arasında bir üniversite hastanesinin Fiziksel Tıp ve Rehabilitasyon polikliniğinde yürütülmüştür. Çalışmaya, en az üç aydır bel ağrısı yaşayan ve aktif cinsel yaşamı bulunan, 18–55 yaş aralığında toplam 90 kadın hasta dâhil edilmiştir. Ağrı şiddeti Görsel Analog Skala (GAS) ile, fonksiyonel yetersizlik Roland Morris Disabilite Sorgulaması (RMDQ) ile, kinezyofobi Tampa Kinezyofobi Ölçeği (TKÖ) ile ve cinsel işlev Kadın Cinsel İşlev İndeksi (FSFI) ile değerlendirilmiştir. Klinik değişkenler ile FSFI puanları arasındaki ilişkileri belirlemek amacıyla korelasyon ve çoklu doğrusal regresyon analizleri yapılmıştır.

BULGULAR: Ortalama FSFI toplam puanı 21,67±3,9 olarak saptanmış, katılımcıların %76,7'sinde cinsel işlev bozukluğu tespit edilmiştir. Ağrı şiddeti, FSFI'nin uyarılma ($r=-0,305$, $p=0,003$), tatmin ($r=-0,251$, $p=0,017$) alt boyutları ve toplam puanı ($r=-0,235$, $p=0,026$) ile anlamlı negatif korelasyon göstermiştir. Kinezyofobi düzeyi; istek, uyarılma, orgazm, tatmin ve FSFI toplam puanı ile anlamlı negatif ilişki göstermiştir ($r=-0,335$, $p=0,001$). Regresyon analizinde ise yaş ($p=0,005$), ağrı şiddeti ($p<0,001$) ve TKÖ skoru ($p<0,001$), cinsel işlevin anlamlı yordayıcıları olarak belirlenmiştir.

SONUÇ: Bulgular, kronik bel ağrısı olan kadınlarda cinsel disfonksiyonun çok faktörlü yapısı içerisinde, kinezyofobinin dikkate değer bir bileşen olabileceğine işaret etmektedir. Bu durum, kronik bel ağrısının yönetiminde hem fiziksel hem de psikolojik faktörlerin birlikte ele alınmasının, cinsel sağlık ve genel yaşam kalitesini destekleyebileceğini düşündürmektedir.

Anahtar Kelimeler: kronik bel ağrısı, kadın, cinsel fonksiyon bozukluğu, kinezyofobi

INTRODUCTION

Low back pain (LBP) is a common global health problem, with an estimated prevalence of approximately 7% as of 2019.^[1] Chronic low back pain (CLBP) is defined as pain persisting or recurring for more than three months.^[2] Studies have shown that the prevalence of CLBP increases from the third decade of life onward—for example, it is reported as 4.2% in individuals aged 24–39 and increases to 19.6% in those aged 20–59 years.^[3]

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As a multifactorial health condition, CLBP can lead to various negative outcomes such as physical disability, reduced functional capacity, limitations in daily activities, and impaired social participation.^[4] Beyond its physical consequences, CLBP also has significant psychosocial dimensions. In addition to the decline in daily functioning and mobility, an individual's sexual life may also be negatively affected by this condition.^[5] This often manifests as a decrease in sexual desire and a reduction in the frequency of sexual activity. Sexual health is a core component of overall well-being, encompassing physical, emotional, mental, and social aspects. Sexual activity has been associated with enhanced immune function, improved mood, reduced stress levels, increased self-esteem, and a more positive body image.^[6] Despite being an important determinant of health-related quality of life, sexual function is frequently overlooked in individuals with CLBP. The limited number of qualitative studies on this topic and the fact that sexual issues are rarely addressed in clinical settings contribute to its underrecognition.

Kinesiophobia and other psychological factors are also known to play a significant role in the course of CLBP.^[7,8] Kinesiophobia is characterized by the avoidance of physical activity due to fear of movement or re-injury, and it contributes to the chronicity of CLBP.^[8] Avoidance behaviors driven by this fear can extend beyond physical activity and negatively affect sexual life as well. The anticipation of pain during intimacy may lead to decreased sexual contact and desire, and a decline in quality of life.

In light of this information, the primary aim of the present study is to investigate the relationship between kinesiophobia and sexual function in adult female patients with CLBP. The findings of this study are expected to highlight often-overlooked aspects of sexual health in chronic pain populations and contribute to the development of a more holistic approach in clinical practice.

MATERIAL and METHODS

This cross-sectional study was conducted between October and November 2025 at the outpatient clinic of Physical Medicine and Rehabilitation of a university hospital. The study population consisted of adult female patients, aged 18 to 55 years, who presented with CLBP, defined as LBP persisting for more than three months, who reported current pain in the area between the lower posterior margin of the ribcage and the horizontal gluteal fold at the time of evaluation, with or without leg pain. Married women with a current active sexual life were included in the study.

To be eligible for inclusion, patients were required to report a pain intensity score between 2 and 8 on the Numeric

Rating Scale (NRS), ranging from 0 (no pain) to 10 (worst imaginable pain).

Exclusion criteria were as follows:

- History of prior or planned spinal surgery
- Traumatic spinal injury
- Pregnancy or breastfeeding
- Active malignancy
- Use of medications that could affect mood or sexual function (e.g., selective serotonin reuptake inhibitors, antipsychotics, estrogen and/or androgen therapy, beta-blockers)
- Cognitive impairment
- Neurological or psychiatric disorders
- Previously impaired sexual function due to genital disorders, diabetes, or cardiovascular diseases
- History of surgery or radiotherapy involving the hip
- Other painful musculoskeletal disorders

Ethical Approval

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. Ethical approval was obtained from the Non-Interventional Research Ethics Committee of the University Hospital. The ethics committee approval number is E-10840098–202.3.02–7260. Written informed consent was obtained from all participants prior to their inclusion in the study.

Demographic and Clinical Questionnaire

Demographic and clinical data of all participants were collected at the time of enrollment using a standardized Patient Information Form. The form included questions regarding age (in years), highest level of education attained (unlettered, primary school, secondary school, or college/university), and current employment status. Participants' height (in centimeters) and weight (in kilograms) were recorded, and Body Mass Index (BMI) was calculated accordingly. In addition, participants were asked to report the duration of their LBP in months.

The Visual Analog Scale (VAS) is a simple, unidimensional tool widely employed to quantify pain intensity, particularly in adult populations, including individuals with rheumatologic conditions.^[9] It typically consists of a 10-centimeter horizontal or vertical line with endpoints representing the extremes of pain perception—ranging from “no pain” to “worst imaginable pain.” Patients are instructed to place a mark on the line that best represents the severity of their back pain experienced over the past week.

The Roland-Morris Disability Questionnaire (RMDQ) is a widely used and well-validated self-reported instrument developed to evaluate the level of physical disability specifically related to LBP. Although originally designed for use in clinical research—particularly as a standardized outcome measure in clinical trials—it has since found broad application in routine clinical settings for monitoring patient progress. The questionnaire is brief, user-friendly, and easily comprehensible for most patients. The total score is obtained by summing the number of items marked by the patient, with possible scores ranging from 0, indicating no disability, to 24, representing the highest level of disability.^[10,11]

The Female Sexual Function Index (FSFI) is a validated self-administered questionnaire designed to assess various aspects of sexual functioning in women. It covers six domains of sexual health: desire, arousal, lubrication, orgasm, satisfaction, and pain, each rated on a 6-point Likert scale. Domain scores are calculated individually and then summed to produce a total score, where lower values reflect greater sexual dysfunction. A total FSFI score of 26.55 or lower is commonly used as the clinical threshold indicating the presence of sexual dysfunction. The Turkish adaptation of the FSFI has demonstrated strong validity and reliability in psychometric evaluations conducted in Türkiye.^[12]

Kinesiophobia associated with LBP was assessed using the Tampa Scale for Kinesiophobia (TSK). This self-report instrument consists of 17 items that evaluate fear-avoidance beliefs and concerns related to injury or re-injury, particularly in the context of physical and work-related activities. Each item is rated on a 4-point Likert scale. The total score ranges from 17 to 68, with higher scores reflecting greater levels of kinesiophobia. A total score exceeding 37 is generally interpreted as indicative of a high level of kinesiophobia.^[13,14]

Statistical Analysis

Descriptive statistics, correlation analyses, and a multiple linear regression model were used to evaluate the data in this study. Continuous variables were presented as mean ± standard deviation, whereas categorical variables were expressed as frequencies and percentages. Pearson correlation analysis was performed to examine the relationships between FSFI subscales and total score and clinical variables, including VAS, RMDQ, TSK, age, BMI, and duration of LBP. Correlation coefficients (*r*) and significance levels (*p*-values) were reported. To identify the predictors of the FSFI total score, a multiple linear regression analysis was performed. The independent variables included age, BMI, LBP duration, pain intensity measured by the VAS, functional disability assessed by the RMDQ, and kinesiophobia

evaluated using the TSK. The overall model fit was assessed using the coefficient of determination (*R*²) and the adjusted *R*² value. A significance level of *p* <0.05 was accepted for all analyses. All statistical procedures were performed using IBM Statistical Package for Social Sciences (SPSS) program version 25.0 (IBM Corp., Armonk, NY, USA).

RESULTS

Of the 130 patients initially evaluated for the study, 40 were excluded based on the predetermined criteria. Twenty-two patients were excluded due to the use of medications that could affect mood or sexual function, eight patients were excluded because of a history of previous or planned spinal surgery, five patients were excluded due to pregnancy or breastfeeding, and five patients were excluded because of neurological, psychiatric, or other musculoskeletal disorders. A total of 90 patients met all eligibility criteria and were included in the final analysis. The clinical and demographic characteristics of the patients are presented in Table 1. The mean age was 37±6.92 years, BMI was 26.24±4.14 kg/m², and LBP duration was 43.42±11.29 months.

Table 1. Participants' characteristics

Variable	Patients (n=90)
Age (years)*	37±6.92
BMI (kg/m²)*	26.24±4.14
LBP Duration (months)*	43.42±11.29
Education, n (%)	
Unlettered	8 (8.9)
Primary school	16 (17.8)
Secondary school	26 (28.9)
College school or above	40 (44.4)
Occupational status, n (%)	
Employed	45 (65.2)
Housekeepers	24 (34.8)
VAS*	5.89±1.72
RMDQ*	7.82±2.65
TSK*	40.02±3.64
FSFI	
Total*	21.67±3.9
Desire*	3.1±0.88
Arousal*	3.62±0.77
Lubrication*	3.97±0.9
Orgasm*	3.46±0.84
Satisfaction*	3.52±0.87
Pain*	4±0.61
Sexual dysfunction	
Yes	69 (76.7)
No	21 (23.3)

BMI: body mass index; LBP: low back pain; VAS: visual analog scale; RMDQ: Roland-Morris disability questionnaire; TSK: Tampa scale for kinesiophobia; FSFI: female sexual function index; *: values are presented as mean ± standard deviation; categorical variables are expressed as n (%).

Table 2. Correlation between FSFI scores and clinical variables in patients with CLBP

Variables		Desire	Arousal	Lubrication	Orgasm	Satisfaction	Pain	FSFI-Total
Age (years)	r	0.033	-0.046	-0.083	-0.162	-0.140	-0.132	-0.108
	p	0.755	0.667	0.437	0.127	0.189	0.213	0.313
BMI	r	0.086	-0.027	0.063	-0.069	-0.039	0.035	0.011
	p	0.418	0.801	0.556	0.520	0.713	0.746	0.921
LBP Duration (months)	r	0.022	-0.007	-0.038	-0.198	-0.136	0.256	-0.118
	p	0.835	0.947	0.722	0.061	0.202	0.015	0.266
VAS	r	-0.185	-0.305	-0.169	-0.200	-0.251	0.030	-0.235
	p	0.081	0.003	0.112	0.059	0.017	0.777	0.026
RMDQ	r	-0.258	-0.166	-0.189	-0.124	-0.149	-0.030	-0.199
	p	0.014	0.119	0.075	0.245	0.161	0.780	0.060
TSK	r	-0.237	-0.393	-0.167	-0.407	-0.225	-0.173	-0.335
	p	0.025	<0.001	0.115	<0.001	0.033	0.103	0.001

Values of $p < 0.05$ were accepted as significant and are marked in bold; BMI: body mass index; LBP: low back pain; VAS: visual analog scale; RMDQ: Roland-Morris disability questionnaire; TSK: Tampa scale for kinesiophobia; FSFI: female sexual function index; r: correlation coefficient:

Table 3. Linear regression model of association between clinical variables and FSFI-total score

Variables	B	SE	95% CI		p-value
			Lower	Upper	
Age (years)	-0.056	0.019	-0.096	-0.019	0.005
BMI (kg/m ²)	-0.007	0.032	-0.069	0.059	0.837
LBP Duration (months)	-0.012	0.012	-1.148	-0.537	0.314
VAS	-0.849	0.154	-0.225	0.024	<0.001
RMDQ	-0.099	0.062	-0.753	-0.451	0.118
TSK	-0.597	0.076	-0.096	-0.019	<0.001
Constant	54.099	2.455	48.93	58.61	<0.001

Values of $p < 0.05$ were accepted as significant and are marked in bold; SE: standard error; CI: confidence interval; VAS: visual analog scale; RMDQ: Roland-Morris disability questionnaire; TSK: Tampa scale for kinesiophobia; BMI: body mass index; LBP: low back pain.

The mean VAS score was 5.89 ± 1.72 , the RMDQ score was 7.82 ± 2.65 , and the TSK score was 40.02 ± 3.64 . The total FSFI score was 21.67 ± 3.9 . The FSFI subdomain scores were as follows: desire 3.1 ± 0.88 , arousal 3.62 ± 0.77 , lubrication 3.97 ± 0.90 , orgasm 3.46 ± 0.84 , satisfaction 3.52 ± 0.87 , and pain 4.00 ± 0.61 . Among all participants, 69 (76.7%) were classified as having sexual dysfunction, and 21 (23.3%) had no sexual dysfunction.

Correlation analysis was conducted to examine the relationships between FSFI scores and clinical variables, as shown in Table 2. Low back pain duration showed a significant correlation only with the FSFI pain subdomain ($r = -0.256$, $p = 0.015$). VAS was significantly correlated with arousal ($r = -0.305$, $p = 0.003$), satisfaction ($r = -0.251$,

$p = 0.017$), and FSFI-total ($r = -0.235$, $p = 0.026$). TSK was significantly correlated with desire ($r = -0.237$, $p = 0.025$), arousal ($r = -0.393$, $p < 0.001$), orgasm ($r = -0.407$, $p < 0.001$), satisfaction ($r = -0.225$, $p = 0.033$), and FSFI-total ($r = -0.335$, $p = 0.001$). RMDQ showed a significant correlation only with desire ($r = -0.258$, $p = 0.014$). There was no significant correlation between RMDQ and FSFI-total. Age and BMI were not significantly correlated with FSFI-total or any FSFI subdomains.

The results of the multiple linear regression analysis identifying clinical variables associated with FSFI-total scores are presented in Table 3. The analysis revealed a significant negative relationship between FSFI-total scores and age ($B = -0.056$, $p = 0.005$), VAS pain intensity ($B = -0.849$,

$p < 0.001$), and TSK scores ($B = -0.597$, $p < 0.001$). No significant relationship was observed between FSFI-total and BMI, LBP duration, or RMDQ scores.

DISCUSSION

Women's quality of life is significantly influenced by their sexual health. CLBP, as a musculoskeletal condition, can negatively impact various aspects of sexual activity.^[15-17] However, sexual dysfunction is often overlooked in the routine clinical evaluation of individuals with CLBP. This study demonstrated that sexual dysfunction is highly prevalent among women with CLBP, with a substantial proportion of participants showing impairments in multiple FSFI subdomains. Significant negative correlations were observed between both kinesiophobia and pain intensity scores and the total FSFI score, as well as several subdomains. In the multiple linear regression model, kinesiophobia, pain intensity, and age were identified as independent predictors of overall sexual dysfunction, based on total FSFI scores.

Studies evaluating sexual life in individuals with CLBP are limited. Large-scale studies conducted in Iran and Nigeria reported that 71% and 95.2% of individuals with CLBP, respectively, experienced sexual dysfunction.^[18,19] Pain intensity, psychological distress, and functional disability were identified as the primary contributing factors to this condition. Similarly, Bahouq et al. reported that 81% of Moroccan patients with CLBP experienced sexual dysfunction, which was negatively affected by advanced age and poor functional status.^[20] Consistent with the existing literature, our study also revealed a high prevalence of sexual dysfunction (76.7%) among women with CLBP. Moreover, a significant negative correlation was found between pain intensity and sexual function. This finding supports the notion that pain may be one of the key contributing factors in the development of sexual dysfunction associated with CLBP.

In addition to pain and functional limitations, psychological factors such as kinesiophobia may also potentially affect the sexual life of individuals with CLBP. Kinesiophobia is defined as an excessive and irrational fear that movement will cause pain or lead to re-injury, and is recognized as a significant barrier to physical activity in this population.^[21] Since sexual activity involves a certain degree of physical movement, bodily coordination, and a sense of comfort and confidence in one's body, a high level of kinesiophobia may be associated with avoidance of sexual activity, reduced sexual satisfaction, and overall impairment in sexual function.

There is a limited number of studies in the literature that have examined the relationship between kinesiophobia and sexual function. In a cross-sectional study conducted by Yenişehir et al., sexual function was compared between women with and without pregnancy-related pelvic girdle pain.^[22] The study showed that kinesiophobia was significantly associated with sexual desire, frequency of intercourse, and partner satisfaction. Similarly, in a study by Xiao et al. involving female kidney transplant recipients, a significant positive correlation was found between sexual dysfunction and activity avoidance behaviors.^[23]

These studies reinforce the significant impact of kinesiophobia on sexual life. Various studies have shown that individuals with CLBP often experience high levels of kinesiophobia, which in turn has a markedly negative effect on their quality of life.^[24,25] However, to our knowledge, only a limited number of studies have directly investigated the impact of fear of movement on sexual life in this patient population. One of these studies was conducted by Ferrari et al.^[26] In this study, sexual function was assessed indirectly through item 8 of the Oswestry Disability Index, and sexual dysfunction was found to be significantly associated with depression, rumination, and particularly activity avoidance—a core component of kinesiophobia. Çokar et al. also investigated sexual dysfunction, quality of life, and difficulties in addressing sexual issues among individuals with CLBP, evaluating the relationships between biopsychosocial variables using hierarchical cluster analysis.^[27] Using a custom-designed questionnaire composed of close-ended yes/no items, various aspects of sexuality were assessed. The findings revealed that sexual function clustered together with psychological and physical variables such as kinesiophobia, pain catastrophizing, and functional disability. In contrast, our study evaluated sexual function in a comprehensive and multidimensional manner using the FSFI, which assesses various domains of sexuality, including desire, arousal, lubrication, orgasm, satisfaction, and pain. Our findings revealed significant negative correlations between kinesiophobia levels and several FSFI subscales—namely, desire, arousal, orgasm, satisfaction—as well as the total FSFI score. This suggests that patients' fear of movement may impact not only the frequency of sexual activity but also qualitative aspects of sexual function. Furthermore, in the regression analysis, kinesiophobia was identified as an independent predictor of the total FSFI score.

Many previous studies investigating the relationship between sexual function and physical disability have reported that increased physical disability negatively affects sexual functioning. However, in our study, no statistically significant association was found between RMDQ scores and either the total FSFI score or its other subdomains.

Nonetheless, a significant negative correlation was identified between RMDQ scores and the FSFI desire subdomain. Possible reasons contributing to this result may include the limited sample size, the relatively homogeneous functional disability levels among participants, and the multidimensional nature of sexual function, which is influenced by factors beyond physical capacity.

This study has several limitations. First, due to its cross-sectional design, causal relationships between variables cannot be established. The study was conducted in a single center with a relatively small sample size, which limits the generalizability of the findings. Additionally, only female participants were included, and there was no healthy control group, restricting the ability to compare outcomes. Data were collected solely through self-reported questionnaires without the use of objective clinical measurements. Furthermore, participants' psychological status (e.g., anxiety, depression) was not thoroughly assessed. Since psychological factors may influence both pain perception and sexual function, the absence of such assessments may have limited the interpretability of the findings. Therefore, future research with larger, multicenter samples and comparative designs is needed to confirm and expand upon these findings.

In conclusion, the findings of this study underscore the importance of considering kinesiophobia as a contributing factor to sexual dysfunction in women with CLBP. Addressing psychological components such as fear of movement, alongside physical symptoms, may help improve clinical outcomes and support the adoption of a more holistic approach to the management of sexual health in this patient population. Accordingly, multidisciplinary strategies aimed at reducing fear-avoidance behaviors—such as psychoeducational interventions including cognitive behavioral therapy, safe movement strategies, pain education, and physiotherapy approaches focused on restructuring maladaptive behavior patterns—may prove beneficial. Counseling programs that explicitly address fears related to sexuality and provide comprehensive education on both pain and sexual health have the potential to enhance quality of life in this group of patients.

Ethics Committee Approval

The study was approved by Istanbul Medipol University Non-Interventional Clinical Research Ethics Committee. (date and number of approval: 21.10.2025/E-10840098–202.3.02–7260).

Peer-review

Externally peer-reviewed.

Conflict of Interest

No conflict of interest was declared by the authors.

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