ORIGINAL ARTICLE

THE RELATIONSHIP OF KINESIOPHOBIA WITH PAIN AND QUALITY OF LIFE IN PATIENTS WITH CHRONIC LOW BACK PAIN

Kronik Bel Ağrısı Olan Hastalarda Kinezyofobi ile Ağrı ve Yaşam Kalitesi Arasındaki İlişki

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ABSTRACT

Objective: This study aimed to evaluate the presence of kinesiophobia, risk factors, and the relationship between kinesiophobia and pain and quality of life in people with chronic low back pain (LBP).

Material and Methods: The study was cross-sectional in design. Patients aged 18-65 years who presented to the physical medicine and rehabilitation clinic with chronic low back pain for more than 3 months were included in the study. Demographic data and pain duration of the patients were recorded. The pain level was assessed using a visual analog scale (VAS), the presence of kinesiophobia using the Tampa Kinesiophobia Scale (TKS), quality of life using the Short Form-12 (SF-12), and functional disability using the Oswestry Disability Index (ODI).

Results: The study was conducted in 89 patients. Of the patients, 64 (71.9%) were female and 25 (28.1%) were male. The median age was 52 (21) years. There was no correlation between age, gender, body mass index (BMI), and TKS scores (r=0.066, p=0.536; r=-0.126, p=0.240 and r=0.131, p=0.221, respectively). We found a moderate negative correlation between TKS score and SF-12 physical and mental scores (r=-0.372, p<0.001; r=-0.324, p<0.001), a moderate positive correlation between TKS score and ODI (r=0.530, p <0.01), and a weak positive correlation between TKS score and VAS score and pain duration (r=0.261, p=0.013; r=0.230, p=0.030).

Conclusion: Patients with chronic LBP have high levels of kinesiophobia, which is associated with pain severity and duration. High kinesiophobia scores are considered to potentially have a negative impact on quality of life and activities of daily living.

Keywords: *Chronic Low Back Pain; Disability; Kinesiophobia; Quality Of Life*

ÖZET

Amaç: Kronik bel ağrısı olan kişilerde kinezyofobi varlığını, risk faktörlerini ve oluşan kinezyofobi ile ağrı ve yaşam kalitesi arasındaki ilişkiyi değerlendirmeyi amaçladık.

Gereç ve Yöntemler: Çalışmamız kesitsel bir tasarıma sahipti. Çalışmaya fiziksel tıp ve rehabilitasyon kliniğine üç aydan uzun süreli kronik bel ağrısı ile başvuran 18-65 yaş arası hastalar dahil edildi. Tüm hastaların sosyodemografik verileri ve ağrı süreleri kaydedildi. Hastaların ağrı düzeyi vizüel analog skala (VAS); kinezyofobi varlığı Tampa Kinezyofobi Ölçeği (TKÖ); yaşam kalitesi kısa form-12 (SF-12); fonksiyonel yetersizlik Oswestry Disabilite İndeksi (ODİ) ile değerlendirildi.

Bulgular: Çalışmaya 89 hasta dahil edildi. Hastaların 64'ü (%71,9) kadın, 25'i (%28,1) erkekti. Median yaş 52 (21)'ydi. Yaş, cinsiyet ve VKİ ile TKÖ skorları arasında bir korelasyon saptanmadı (sırasıyla; r=0,066, p=0,536; r=-0,126, p=0,240 ve r=0,131, p=0,221). TKÖ skoru ile SF-12 fiziksel ve mental skorları arasında orta derecede negatif korelasyon (r=-0,372, p<0,001; r=-0,324, p<0,001); TKÖ skoru ile ODİ arasında orta düzeyde pozitif korelasyon (r=0,530, p <0,01), TKÖ skoru ile VAS skoru ve ağrı süresi arasında zayıf pozitif korelasyon saptadık (r=0,261, p=0,013; r=0,230, p=0,030).

Sonuç: Kronik bel ağrılı hastalar, ağrı şiddeti ve süresi ile ilişkili olan yüksek düzeyde kinezyofobiye sahiptir. Yüksek kinezyofobi skorlarının yaşam kalitesini ve günlük yaşam aktivitelerini olumsuz yönde etkileyebileceği düşünülmektedir.

Anahtar Kelimeler: *Disabilite; Kinezyofobi; Kronik Bel Ağrısı; Yaşam Kalitesi*

INTRODUCTION

Chronic low back pain (LBP) is a common musculoskeletal disorder characterized by pain in the lumbar region lasting longer than 7-12 weeks (1). Although 80% of patients with acute LBP recover within 6 weeks, the symptoms may persist for more than 3 months and progress to chronic LBP in 7-10% of patients (2). Chronic LBP affects approximately 70-80% of the working young population in industrialized countries at some point in their lives. So, it causes notable labor force and economic losses (3).

Fear of movement and activity (kinesiophobia) is a psychological factor associated with the severity and duration of pain in individuals with chronic pain (4). The prevalence of kinesiophobia in individuals with chronic pain was reported as approximately 50% (5). It is reported that the persistent pain of patients with LBP cannot solely explained by clinical findings; it is also influenced by physical, perceptual, social, and behavioral factors underlying the disease (6). The cognitive responses to pain form the fear-avoidance model (7). In this model, the destructive effect of pain increases the fear of re-injury, which leads to an avoidance response and results in disuse, depression, and disability in the long term (6). Kinesiophobia, which develops as a result of pain in patients with chronic LBP, leads to a decrease in activities, physical capacity, strength, and flexibility. This leads to delays in treatment by causing disruptions in early mobilization and physical therapy exercises in patients with LBP (8). In addition, decreased physical activity levels may lead to obesity, diabetes, and cardiovascular diseases. In addition, it causes isolation from society and psychological problems, leading to impairment in the patient's activities of daily living and quality of life (9).

The aim of our study was to identify risk factors for kinesiophobia in patients with chronic LBP and to determine whether kinesiophobia affected disability and quality of life.

MATERIAL AND METHOD

This cross-sectional study included 89 patients aged 18-65 who presented to the physical medicine and rehabilitation clinic with chronic LBP. Personal information (gender, age, marital status, occupation, educational status, height, weight, body mass index (BMI)), general health information (chronic disease, history of operation), and total duration of pain were recorded with a form. Volunteers with LBP for more than 3 months were included in the study. Patients who had undergone spinal or pelvic surgery, those with structural spinal deformities, rheumatologic, malignant, infectious, or chronic neurological diseases, pregnant patients, those with mental or cognitive disorders, and patients who did not wish to participate in the study were excluded.

The patient's pain level was assessed by a visual analog scale (VAS). The VAS is a valid and reliable scale to determine the patient's pain perception severity. Patients are informed about the meaning of the numbers on a 10 cm horizontal VAS. 0 means no pain, 10 represents the most severe pain encountered in life, 5 means moderate pain, and the patient is asked to describe the severity of pain on the scale (10).

The presence of kinesiophobia was evaluated with the Tampa Kinesiophobia Scale (TKS). The TKS is a questionnaire consisting of 17 questions developed for musculoskeletal pain and has validity and reliability in Turkish. The scale uses a 4-point Likert scoring system (1=Strongly disagree, 2=Agree, 3=Disagree, 4=Strongly agree) for each question. The scores range between 17-68. A high score indicates a high level of kinesiophobia (11, 12).

The quality of life of the patients was evaluated with the short form-12 (SF-12) quality of life scale. The SF-12 questionnaire consists of 8 subscales and 12 items with Turkish validity and reliability studies. The physical component summary (PCS)-12 score is obtained from general health, physical functioning, role physical, and bodily pain subscales, while the mental component summary (MCS)-12 score is obtained from social functioning, emotional role, mental health, and vitality subscales. PCS-12 and MCS-12 scores range from 0 to 100, with higher scores indicating a better health status (13).

Oswestry Disability Index was used to assess the functional disability of the patients with LBP. This index assesses activities of daily living such as pain, self-care, lifting, walking, sitting, standing, sleeping, sex life, social life, and traveling. This form has 10 questions with a maximum score of 50. A score of 31-50 points is considered severe, 11-30 points is considered

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moderate and 1-10 points is considered mild disability. Turkish validity and reliability studies have been conducted in patients with chronic LBP (14, 15).

Approval for our study was obtained from the Ethics Committee of Ankara Bilkent City Hospital (date: 10.01.2024, number no: E2-24-6083). Informed consent forms were obtained from all participants who agreed to participate in the study.

Statistical Analysis

Data were analyzed using the Statistical Package for Social Sciences, version 25.0 (SPSS Inc., Armonk, NY). The normality of the numerical data distribution was examined using the Kolmogorov-Smirnov and Shapiro-Wilk normality tests. Continuous variables with normal distribution are presented as standard deviation, while those without normal distribution are presented as median and interquartile range (IQR; 25th-75th percentile); qualitative data are expressed as frequency and percentage. Pearson or Spearman correlation analysis was performed to identify variables associated with the TKS score with other variables. A confidence interval of 95%, an accepted margin of error of 5%, and a value of $p<0.05$ were considered statistically significant.

RESULTS

Demographic features of the patients are given in Table 1. Most of the patients are married housewives. The mean BMI of the patients was 29.85 ± 5.97.

The clinical characteristics and scores of the assessment scales are presented in Table 2. The median VAS score was 7, and the median pain duration was 48.0 months. Age, gender, and BMI were not correlated with the TKS score. There was a moderate negative correlation between the TKS score and PCS-12 and MCS-12 (r=-0.372, $p<0.001$; r=-0.324, $p<0.001$), a moderate positive correlation between the TKS score and ODI

Table 1. Demographic features of the patients (n=89)

	N/%
Age (median, IQR)	52.0 (21.0)
Gender	
Female	64 (71.9)
Male	25 (28.1)
Marital status	
Married	72 (80.9)
Single	9 (10.1)
Widow	8 (9.0)
Occupation	
Housewife	56 (62.9)
Officer	6 (6.7)
Worker	5 (5.6)
Retired	12 (13.5)
Self-employment	7 (7.9)
Student	3 (3.4)
Educational status	
Illiterate	10 (11.2)
Literate	1 (1.1)
Primary school	41 (46.1)
Secondary school	9 (10.1)
Highschool	19 (21.3)
University	9 (10.1)
BMI	29.85±5.97

BMI: Body mass index, IQR: Interquartile range

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(r=0.530, p <0.01), a weak positive correlation between the TKS score and the VAS score (r=0.261, p=0.013), and between the TKS score and pain duration (r=0.230, p=0.030). The correlation analysis of TKS score and other variables is shown in Table 3.

DISCUSSION

Chronic LBP is a common health problem that affects many individuals at some point in their lives (1). Although it is seen in all decades of life, its prevalence increases gradually from the 3rd decade to age 60, according to current studies. A review of 28 studies investigating the prevalence of chronic LBP concluded that the prevalence of chronic LBP was 3-4 times higher in the 50s than in the 18-30s, that it was more common in women than in men, and that it was more common in people with lower levels of education (16). It was reported that the median age of the patients was 54 years, and 67% were female in a study that investigated the relationship between age, gender, and BMI with chronic LBP (17). Many studies in the literature have shown that advanced age, female gender, and low socioeconomic status are associated with chronic LBP (18). In our study, the median age of the patients was 52 years, and 71.9% were female. Most of the patients had low educational levels and were not working. BMI values were above average. In our study, a correlation was observed between patients' pain levels, pain duration, and kinesiophobia. Similarly, a study evaluating 132 patients with chronic low back pain reported a positive correlation between pain level and kinesiophobia (19). Pain is a subjective sensation, and kinesiophobia may lead to a lower pain threshold and an increased perception of pain intensity. We believe that as the duration of pain increases, kinesiophobia may become a behavioral pattern, creating a cycle in which fear of pain and movement perpetuate each other.

In our study, as the level of kinesophobia increased, there was a decrease in quality of life and an increase in disability due to LBP. Previous studies have shown that the etiology of chronic LBP and associated disability is related to negative thoughts about pain, fear of movement, and re-injury (20). Fear is a factor that

Table 2. Clinical characteristics and scores of assessment scales of the patients (n=89)

VAS (median, IQR)	7.0 (3.0)
Duration of pain (month) (median, IQR)	48.0 (108.00)
Systemic diseases (n/%)	45 (50.6)
HT	13 (14.6)
DM	15 (16.9)
Hypothyroidism	3 (3.4)
Asthma	4 (4.5)
Other	20 (11.2)
PCS-12 (mean±SD)	33.62±8.05
MCS-12 (mean±SD)	39.21± 11.06
ODI (median, IQR)	35.5 (23.5)
Tampa scale of kinesiophobia (mean±SD)	42.63±6.99

VAS: Visual analog scale, IQR: Interquartile range, HT: Hypertension, DM: Diabetes mellitus, PCS-12: Physical component summary (Short form-12), MCS-12: Mental component summary (Short form-12), ODI: Oswestry disability index, SD: Standard deviation

Table 3. Correlation analysis between Tampa kinesiophobia scale and other variables

		Age	Gender	BMI	VAS	Pain duration	PCS-12	MCS-12	ODI
Tampa kinesiophobia scale score	Rho	0.066	-0.126	0.131	0.261	0.230	-0.372	-0.324	0.530
	p value	0.536	0.240	0.221	0.013*	0.030*	<0.001**	<0.001**	<0.01**

BMI: Body mass index, VAS: Visual analog scale, PCS-12: Physical component summary (Short form-12), MCS-12: Mental component summary (Short form-12), ODI: Oswestry disability index *p<0.05, **p<0.01

causes the transition from acute pain to chronic pain in some people and the persistence of pain despite the removal of the damaging factor (6, 20). Patients with kinesiophobia believe that physical movement will result in increased pain. In the long term, this leads to a decrease in physical activity levels, avoidance of physical activity, social isolation, and depression (6, 21).

In a study conducted in our country and including 80 patients who had been diagnosed with LBP for at least 6 weeks, it was found that kinesiophobia was related to age, education level, pain level and quality of life (19). We found no relationship between age and kinesiophobia in our research. Similar to this study, there was a positive correlation between VAS scores and kinesiophobia levels and a negative correlation between physical and mental components of quality of life. In another study involving 1,571 patients with chronic low back pain, no association was found between kinesiophobia and factors such as age, gender, socioeconomic status, and educational level, similar to our findings (22). Additionally, a previous study demonstrated that gender does not play a role in kinesiophobia or pain perception in chronic musculoskeletal pain (23).

In another study involving 94 patients with chronic LBP, it was concluded that kinesiophobia was higher in women and negatively affected quality of life (9). In a study that evaluated kinesiophobia in patients with chronic LBP, a statistically significant relationship was shown between kinesiophobia and pain levels, quality of life, and disability (24). All these studies, together with our research, show that the level of kinesiophobia is higher in patients with chronic LBP, and as the level of pain increases, the level of kinesiophobia increases and negatively affects the quality of life. The findings of studies in the literature concerning the relationship between kinesiophobia and age, gender, and BMI of patients are contradictory, and we believe that studies should be conducted in larger groups.

The limitations of our study include the lack of a control group, one-time assessment of kinesiophobia levels, no follow-up, lack of information about the treatment and rehabilitation processes of the patients, and no psychological evaluation of the patients.

CONCLUSION

Patients with chronic LBP have high levels of kinesiophobia, which is associated with pain severity and duration. High kinesiophobia scores are considered to potentially have a negative impact on quality of life and activities of daily living. Future studies evaluating the relationship between kinesiophobia and treatment outcomes may offer new insights into improving quality of life and effective management of chronic LBP.

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