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**Evaluation of Kinesiophobia and Physical Activity Levels in Patients with Fibromyalgia Syndrome and Chronic Neck Pain**

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### **ABSTRACT**

**Introduction:** Kinesiophobia which is described as fear of movement reduces physical activity levels and increases the risk of chronic pain. Kinesiophobia has not been studied in detail in patients with fibromyalgia syndrome and chronic neck pain.

**Objective:** To evaluate pain, kinesiophobia, physical activity, depression, disease severity, and fatigue in patients with fibromyalgia syndrome or chronic neck pain and healthy controls.

**Design:** Cross-sectional study. Setting: Tertiary Health Care Center, Aksaray, Turkey  
Participants: 30 patients with fibromyalgia syndrome (Group 1), 30 patients with chronic neck pain (Group 2), and 30 healthy individuals (Group 3) were included.

**Main Outcome Measures:** Outcome measures were Visual Analogue Scale (VAS)-pain and fatigue, Tampa Scale of Kinesiophobia (TSK), Beck Depression Inventory (BDI), International Physical Activity Questionnaire (IPAQ) Short Form, Fibromyalgia Impact Questionnaire (FIQ), Neck Pain Disability Index (NPDI).

## INTRODUCTION

Fibromyalgia syndrome (FS) is a condition that generally affects young adult women aged 20 to 55 years, with a prevalence of 2-3% in the general population and unknown etiology. In addition to the widespread pain in the body, FS has a wide range of other symptoms, including sleep disorder, fatigue, depression, anxiety, cognitive impairment, headache, and gastrointestinal complaints (1). Almost all patients with FS complain of fatigue and report difficulty even performing daily tasks due to this complaint (2). Although exercise has an important role in the treatment of FS, the level of physical activity is reported to be lower in patients with FS than in healthy controls. It is considered that physical inactivity is caused by several factors, including fatigue, pain, and kinesiophobia. In addition to fatigue, FS patients with low levels of physical activity have been shown to have reduced pain threshold and pain inhibition, depression, pain catastrophizing, and fear of movement (3, 4). Described as fear of movement, kinesiophobia refers to avoidance of physical activity due to excessive fear and anxiety concerning pain, which reduces mobility and muscle strength and triggers more fear of movement, and this vicious circle increases the risk of chronic pain (5). In a study evaluating the fear of movement in FS cases, patients with a high level of fear and anxiety were found to have more insomnia, catastrophic thoughts, disability, negative emotions, depression, high pain intensity, lower physical performance, reduced cognitive performance, and a lower quality of life (6, 7). Thirty to fifty percent of the general population experience neck pain, one of the most common musculoskeletal complaints, in their lifetime. Neck pain is a common symptom among office workers, of whom 50% associated this pain with their occupation and 14% stated that it restricted their daily life activities (8, 9). In general, it has been shown that the frequency and severity of neck pain are reduced in office workers who exercise or engage in sportive activities and that the risk of chronic pain increases in those that are physically inactive (10, 11). In patients with neck pain, fear of movement caused by fear avoidance beliefs and behaviors results in restriction of physical activity and development of chronic pain, leading to depression, disability, and reduced job performance and quality of life (12, 13). In this study, we evaluated pain, kinesiophobia, physical activity, depression, disease severity, and fatigue in patients with FS and chronic neck pain (CNP), and healthy controls. We aimed to identify the factors related to kinesiophobia and restricted physical activity to take the necessary measures to prevent these behaviors.

## METHODS

### Study Design

We assessed pain intensity, kinesiophobia, fatigue, depression, physical activity level and disability in patients with FS and CNP, and healthy individuals in this cross-sectional study. The patients were recruited from a physical medicine and rehabilitation outpatients clinic of Aksaray University Training and Research Hospital, Aksaray, Turkey. The healthy control group was consisting of doctors, nurses, medical secretaries who work in Aksaray University Training and Research Hospital, and patient care providers that have no pain and additional diseases. Following the Helsinki Declaration, our study was approved by the Ethics Committee of Aksaray University Training and Research Hospital

(26.9.18, reference number: 2018/155) and written informed consent was obtained from all the participants.

## **Participants**

Thirty patients with a diagnosis of FS according to the 2016 revised ACR FS diagnostic criteria and a disease duration of longer than three months; 30 patients with CNP lasting for more than three months, and 30 healthy controls without pain or additional disease were included in the study that was conducted between October 2018 and December 2018. All the participants were aged 18 to 65 years. The exclusion criteria were malignancy, systemic infectious and rheumatic diseases, history of operation, having received physical therapy or intra-articular or intra-ligamentary injection within the last three months, previous diagnosis of a psychological or cognitive disorder, and history of pregnancy.

## **Main Outcome Measures**

The demographic data of the participants were recorded on a personal information form. Pain intensity and fatigue were evaluated by the Visual Analogue Scale (VAS), kinesiophobia by the Tampa Scale of Kinesiophobia (TSK), depression by the Beck Depression Inventory (BDI), physical activity level by the International Physical Activity Questionnaire (IPAQ) Short Form, functional status in patients with FS by the Fibromyalgia Impact Questionnaire (FIQ), and neck pain-related disability in the neck pain group by the Neck Pain Disability Index (NPDI). The details of the implementation of the instruments are as follows: Visual Analog Scale (VAS) for the Evaluation of Pain and Fatigue For this evaluation, the patient is asked to mark his/her severity of pain and fatigue on a horizontal 10-cm line with number 0 on one end representing “no pain or no fatigue” and number 10 on the other end indicating “very severe pain or very severe fatigue” (14, 15). Tampa Scale of Kinesiophobia (TSK) Based on a four-point Likert type, this scale contains 17 items that evaluate fear and anxiety related to physical activity. A total score of greater than 37 is accepted as statistically significant and interpreted as a high level of kinesiophobia. The validity and reliability analysis of the Turkish version of TSK was undertaken by Yilmaz et al. (16). Beck Depression Inventory (BDI) This is a 21-item questionnaire that investigates the characteristic attitudes and symptoms of depression. A score of 10 or higher indicates depression (17). International Physical Activity Questionnaire (IPAQ) Short Form IPAQ consists of seven items that measure the duration of the participants’ physical activity, walking and sitting within the last seven days in the MET-min/week unit (18). Fibromyalgia Impact Questionnaire (FIQ) FIQ aims to evaluate the arthritis symptoms and functional status of patients with FS through 21 questions that inquire about physical functions, work-related situations, depression, anxiety, waking up tired, pain, stiffness, and fatigue. The validity and reliability of the Turkish version of FIQ was tested by Ediz et al. (19). Neck Pain Disability Index (NPDI) This index consists of 20 questions that assess severity of neck pain and the extent to which the pain affects the social, professional and daily activities of patients (20).

## **Statistical Analysis**

Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) v. 15.0. Descriptive statistics were given as mean  $\pm$  standard deviation (SD) for

variables with normal distribution, and frequency tables for ordinal and categorical variables. We chose to conduct the Kolmogorov-Smirnov test for the normalization analysis. The MannWhitney U test was employed for paired comparisons of numerical sociodemographic data, chi-square test for the paired comparison of categorical sociodemographic data and the comparison of sociodemographic data (except age and disease duration) between three groups, and one-way analysis of variance (ANOVA) for the comparison of age and disease duration between the three groups. Before conducting one-way ANOVA, the Levene test was performed to test the homogeneity of variance. Since the result of this test was  $p > 0.05$  for VAS-fatigue, TSK and BDI, the Tukey test was employed for post hoc analysis. For VASpain and FIQ that produced  $p < 0.05$  in the Levene test, the Games-Howell post hoc test was preferred. Spearman's correlation analysis was undertaken individually for each group. The level of statistical significance was accepted as  $p < 0.05$