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Exploring the Relationships Between Musculoskeletal Problems and Job Satisfaction, Quality of Life, and Sleep in Physiotherapists

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Abstract

Aim: The aim of our study was to explore the relationship between musculoskeletal problems and job satisfaction, quality of life and sleep in physiotherapists.

Method: Eighty-six actively working physiotherapists (63 female, 23 male) participated in our study. Sociodemographic Information Form, Nordic Musculoskeletal Questionnaire (NMSQ), Minnesota Job Satisfaction Scale (MJSS), Pittsburg Sleep Quality Index (PSQI) and Short Form-36 Quality of Life Scale (SF-36) were delivered to the participants via Google Forms. Data were evaluated using SPSS-20.0 statistical program.

Results: In our study, there was no significant correlation between the NMSQ global score and MJSS general satisfaction and intrinsic-extrinsic satisfaction parameters for nine regions. There was a negative correlation between the questionnaire and the sub-parameters of the SF-36 except for the wrist parameter, and a positive correlation between the total score of the PSQI and the elbow ($p=0.004$; $r=0.306$), lower back ($p=0.011$; $r=0.272$), knee ($p=0.049$; $r=0.213$) and ankle ($p=0.029$; $r=0.235$) parameters of the questionnaire. The overall satisfaction score of the physiotherapists who participated in our study was 45.01.

Conclusion: Based on the classification of the scores obtained from the job satisfaction scale as moderate (60 points and below), moderate to completely dissatisfied (61-79 points) and satisfied (80 points and above) in previous studies, we can say that the satisfaction levels of the physiotherapists participating in our study are low. Although musculoskeletal system problems affect sleep and quality of life in physiotherapists, the results of the effect on job satisfaction should be supported by more studies.

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ABSTRACT

Aim: The aim of our study was to explore the relationship between musculoskeletal problems and job satisfaction, quality of life and sleep in physiotherapists. **Method:** Eighty-six actively working physiotherapists (63 female, 23 male) participated in our study. Sociodemographic Information Form, Nordic Musculoskeletal Questionnaire (NMSQ), Minnesota Job Satisfaction Scale (MJSS), Pittsburg Sleep Quality Index (PSQI) and Short Form-36 Quality of Life Scale (SF-36) were delivered to the participants via Google Forms. Data were evaluated using SPSS-20.0 statistical program. **Results:** In our study, there was no significant correlation between the NMSQ global score and MJSS general satisfaction and intrinsic-extrinsic satisfaction parameters for nine regions. There was a negative correlation between the questionnaire and the sub-parameters of the SF-36 except for the wrist parameter, and a positive correlation between the total score of the PSQI and the elbow (p=0.004; r=0.306), lower back (p=0.011; r=0.272), knee (p=0.049; r=0.213) and ankle (p=0.029; r=0.235) parameters of the questionnaire. The overall satisfaction score of the physiotherapists who participated in our study was 45.01.**Conclusion:** Based on the classification of the scores obtained from the job satisfaction scale as moderate (60 points and below), moderate to completely dissatisfied (61-79 points) and satisfied (80 points and above) in previous studies, we can say that the satisfaction levels of the physiotherapists participating in our study are low. Although musculoskeletal system problems affect sleep and quality of life in physiotherapists, the results of the effect on job satisfaction should be supported by more studies.

Key Words: Job satisfaction, musculoskeletal system, physical therapists, quality of life, sleep

INTRODUCTION

A physiotherapist is a health professional in a modern, multidisciplinary health care team that contributes significantly to the health economy in health institutions providing acute/chronic care and rehabilitation services, primary health care, and public health with preventive rehabilitation approaches.[1] According to data from 2010, there are 1016 physiotherapists in the private sector, 702 in the Ministry of Health, and 304 in academic staff in universities in Turkey. As of 2015, the number of physiotherapists actively working in our country has been reported to be approximately 9000.[2]

In their routine clinical practice, physiotherapists encounter various physical and psychological stresses. They may be confronted with risk factors such as repetitive overstrain on the spine, prolonged poor static postures, poor posture, repetitive flexion/abduction movements of the neck and shoulder, continuous manual force, inadequate work breaks, coping with patient concerns, mental stress, genetic predisposition, age, time pressure, high demands, and poor social support.[3] Musculoskeletal disorders are a significant burden for physiotherapists due to loss of productivity, poor performance and time loss.[4] Approximately one third to one half of physiotherapists who experience work-related musculoskeletal disorders report that the pain they experience affects their work.[5]

Job satisfaction is an individual's response to certain aspects of their job and is influenced by a variety of factors. Healthcare worker's job satisfaction is highly important as it directly affects patient safety and the quality of healthcare.[6] Decreased job satisfaction can lead to reduced quality of patient care and manifest itself as burnout, anxiety and depression. Due to the nature of the job, physiotherapists are exposed to a high risk of burnout, which is highly correlated with reduced job satisfaction and errors in the workplace.[7] Intrinsic factors, such as the working environment, are the dominant determinants for physiotherapists' professional satisfaction. Extrinsic factors such as salary, promotion, and opportunity for professional development are thought to have less influence on job satisfaction.[8]

Health psychology has identified a strong relationship between job satisfaction and mental or psychological problems. Employees with low levels of job satisfaction tend to experience emotional burnout, poor quality of life, increased levels of anxiety and depression.[9] High levels of workplace stress can take a toll on the body and mind, resulting in laziness, exhaustion, frequent leave use, and job transfers. In addition, stress caused by musculoskeletal pain can change the mental state of the person and affect the quality of life of employees.[10] Research has shown that there is an inverse relationship between job stress and job satisfaction, and an inverse relationship between life satisfaction and quality of life.[11]

Occupation-related musculoskeletal problems and severe sleep disturbances are thought to be one of the biggest health problems that can arise from the conditions and stress of the work environment.[12] Sleep problems often precede new or repeated episodes of severe depressive illness. Therefore, it is important to investigate the impact of job satisfaction and sleep quality in mediating the relationship between job stress and depression. There are indications that the relationship between job stress and depression may be influenced by job satisfaction and sleep quality.[13]

The job satisfaction and well-being of physiotherapists are crucial for effective healthcare delivery. Robust data on musculoskeletal problems among physiotherapists are essential for developing health policies that mitigate these issues and promote protective regulations. Occupational health programs should implement preventive measures such as ergonomics training, proper posture techniques, and regular breaks, alongside rehabilitation and mental health support for affected physiotherapists. High level job satisfaction and quality of life among physiotherapists lead to better patient care and more efficient treatment management. Conversely, low level of job satisfaction can lead to burnout and mental health problems, which will reduce the efficiency of professional practices of physical therapists. This, in turn, can affect patient safety and care quality.

Understanding the impact of musculoskeletal problems on job satisfaction, quality of life, and sleep can drive comprehensive improvements at both individual and institutional levels. Physiotherapists have a higher prevalence of work-related musculoskeletal problems. This condition could result fromnon-ergonomic work environments or exposure to strain during functional activities. These problems can have an adverse effect on both job satisfaction and quality of life. However, there is a lack of research on the sleep quality of physical therapists in the literature. Therefore, there is a need for more comprehensive studies to better comprehend the effects of musculoskeletal problems on job satisfaction, quality of life, and sleep quality in physiotherapists. Understanding and recognizing this by health policies and occupational health programs may help to improve the health and wellbeing of physiotherapists, which in turn will lead to improved patient care. Little is known about the relationship between musculoskeletal problems and job satisfaction, quality of life, and sleep in physiotherapists.Therefore, this study was aimed to explore the effects of musculoskeletal problems on job satisfaction, quality of life, and sleep quality among physiotherapists in Turkey.

METHODS

Our study was conducted with the participation of 86 actively working physiotherapists (63 female, 23 male). Permission to conduct the study was obtained from the Non-Interventional Ethics Committee of Bezmiâlem Vakif University with 04/01/2023 date and 91173 decision number. The consent of the physiotherapists was obtained before the study and the study was conducted in accordance with the Declaration of Helsinki.

The inclusion criteria were to maintain an active working life as a physiotherapist, to volunteer to participate in the study, to be between the ages of 20 and 50, and to be able to log in and use the Google Forms account. Physiotherapists who did not volunteer to participate in the study after the aims and procedures of the study were explained, as well as the presence of known serious musculoskeletal/rheumatological diseases, the presence of serious neurological, psychiatric and cognitive disorders were excluded from the study. Forms consisting of the Sociodemographic Information Form, Nordic Musculoskeletal System Questionnaire (NMSQ), Minnesota Job Satisfaction Scale (MJSS), Short Form-36 Quality of Life Scale (SF-36) and Pittsburg Sleep Quality Index (PSQI) were entered into Google Forms. The Google Forms link was sent via e-mail to physiotherapists actively working in various health institutions/rehabilitation centers in our country. Physiotherapists read the information about the purpose of the study, the forms to be used and the duration of the application before they started to fill in the scales.

Before providing their sociodemographic information and submitting their responses to the forms, the participants were informed via the Google Forms link and approved the consent forms. Then, taking into account the confidentiality of the data, the obtained data provided by all participants were stored in the system where only the researchers could access the password.

Sociodemographic Information Form

In this section, the data prepared by the researchers on the general characteristics of physiotherapists, their professional position, their post-graduation education status and their institutions were questioned.

Nordic Musculoskeletal Questionnaire

It was first used by Kuorinka et al[14] in 1987 to assess musculoskeletal disorders and has continued to be widely used to assess musculoskeletal disorders. The cultural adaptation of the questionnaire was conducted by Kahraman et al.[15] In the questionnaire, participants were asked to indicate whether they had experienced a problem in nine parts of the body (neck, shoulders, upper back, elbow, lower back, wrist, hip, knee and ankle) at any time in the last 12 months, and if so, they were asked to rate the severity of pain on a 10-point scale according to the Visual Analog Scale. There is no study showing that the questionnaire is valid and reliable among physiotherapists. However, the Nordic Musculoskeletal Questionnaire has been frequently used in the literature to determine the presence, severity and localisation of musculoskeletal problems in physiotherapists.

Minnesota Job Satisfaction Scale

The scale was developed by Weiss et al in 1967.[16] The scale consists of questions questioning intrinsic, extrinsic and general satisfaction levels. Its Turkish validity and reliability was performed by Baycan et al.[17] Scoring of the scale : not satisfied at all 1 point, not satisfied 2 points, undecided 3 points, satisfied 4 points, very satisfied 5 points.[18] The total score of the scale varies between 20-100. The sum of the 20 question's scores is divided by 20 to obtain the global satisfaction score. The total scores of questions 1, 2, 3, 4, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, and 20 are divided by 12 to obtain an internal satisfaction score. The external satisfaction score is obtained by dividing the total scores of questions 5, 6, 12, 13, 14, 17, 18, 19 by 8. Three represents a neutral satisfaction score. A score lower than three indicates low job satisfaction, while a score higher than three indicates high job satisfaction. There is no study showing that the questionnaire is valid and reliable among physiotherapists. However, there are studies in the literature showing the applicability of the Minnesota Job Satisfaction Scale in people working in various sectors, especially in health workers.

Short Form-36 Quality of Life Scale

The questionnaire used for the assessment of general health consists of 36 items and its Turkish validity and reliability have been established. The questionnaire, which provides data on both physical and mental dimensions of quality of life, evaluates 8 dimensions under the titles of physical function, social function, physical role, emotional role, mental health, energy-vitality, pain, general health perception. The score of each dimension varies between 0 and 100. High scores on the scale indicate good quality of life. [19]

Pittsburg Sleep Quality Index

The scale developed by Buysse et al[20] in 1989 and adapted into Turkish by Ağargün et al[21] was used to assess sleep quality and sleep disturbance. The scale consists of 24 questions in total. The 19th question about the presence of a roommate or bed partner

and the last five questions to be completed by the roommate or bed partner are not included in the scoring. It consists of seven subcomponents: sleep duration, subjective sleep quality, time to fall asleep, effectiveness of habitual sleep, presence of sleep disturbance, use of medication to fall asleep and daytime sleep dysfunction. Each item of the scale is evaluated between 0-3 points; the sum of the scores of the seven subcomponents gives the total score of the scale. The lowest score that can be obtained from the scale is 0 and the highest score is 21. A total score greater than 5 indicates that the sleep quality of the individual is not good. There is no study showing that the questionnaire is valid and reliable among physiotherapists. However, the application of the Pittsburg Sleep Quality Index was found to be effective in determining sleep quality in healthcare workers.

Statistical analysis

G-Power 3.1 (Universitat Kiel, Germany) was used to calculate the sample size.[22] Since the sample size is expected to be determined with a 95% confidence interval, with a 5% margin of error and at least a moderate correlation (r=0.40) between the variables, the number of physiotherapists to be included in the study was calculated as 75. Considering possible data losses, this number was increased by 10% and it was calculated that 83 physiotherapists should be included in the study.

The statistical analyses was performed using SPSS 20.0 (IBM SPSS Statistics for Windows, Version 20.0. IBM. Corp, Armonk, NY, USA). The Kolmogorov-Smirnov test was used for analyzing the normality of the distribution of data. In evaluating the data, number, percentage, mean and standard deviation were given in descriptive statistics. Pearson correlation analysis and Spearman correlation analysis for evaluating the relationships between variables, Independent samples t-test or Mann Whitney U test t-test for the difference between two groups, and oneway ANOVA test or Kruskal-Wallis test were used to compare the parameters between groups in case of more than two groups depending on the distribution properties of the data. For identifying the cause of the difference in ANOVA and Kruskal-Wallis tests, post hoc comparison tests with Tukey or Bonferroni correction were used. Significance was evaluated at $p<0.05$.

RESULTS

Demographic information of the participants is shown in Table 1. When questioned about their general job satisfaction, 47 (55%) of the participants reported that they were somewhat satisfied, while 20 (23%) reported that they were quite satisfied. 41 (48%) reported that their work pace was quite intense, while 24 (28%) reported it as somewhat intense and 18 (21%) as extremely intense. 47 (55%) were not at all satisfied with their salary, while 32 (37%) were somewhat satisfied. 24 (28%) reported that the friend-manager relationship was somewhat good, 45 (52%) reported that it was quite good. 24 (28%) rarely, 22 (26%) occasionally, 21 (25%) frequently, and 15 (17%) most of the time experienced pressure-stress at work.

Table 1. Sociodemographic Data of Participants'

Variable	(n=86)
Age (Years)	
20-30	66 (77%)
31-50	20 (19%)
Gender	
Female	63 (73%)
Male	23 (27%)
BMI (kg/m^2)	23.21 ± 3.92
Marital Status	
Single	62 (72%)
Married	21 (25%)
Divorced	3 (3%)
Education Level	
Graduate	58 (67%)
Post-graduate	28 (33%)
Working Organization	
Public Hospital	24 (28%)
University Hospital	18 (21%)
Private Hospital	13 (15%)
Private Branch Center	12 (14%)
Rehabilitation Center	19 (22%)
Duration of Employment (months	33.55 ± 43.73

Data are given as n(%) and mean±ss. BMI: Body Mass Indeks

Only 3 physiotherapists exercised every day, 13 physiotherapists exercised 3 times a week, 24 physiotherapists exercised at least once a month, and 15 physiotherapists did not exercise at all. When we questioned the general health status of 86 physiotherapists who participated in the study, 5 (6%) reported their general health status as very good, 2 (2%) as poor, 24 (28%) as moderate and 55 (64%) as good.

According to gender, there was a statistically significant difference in favor of men in physical role difficulty (p=0.015), emotional role difficulty (p=0.024), energy vitality (p=0.030) scores among the sub-parameters of SF-36, and according to education level, there was a statistically significant difference between the groups only in intrinsic satisfaction compared to the postgraduate group (p=0.037).

Table 2 shows the pain scores of the participants according to the NMSQ results for the past 12 months.
A statistically significant difference was found between the mean NMSQ general score and the age of the participants. The level of pain in musculoskeletal problems seen in physiotherapists aged 20-30 years was found to be significantly lower than physiotherapists aged 31-50 years (p=0.030). Participants with moderate, good and very good general health perception had significantly lower musculoskeletal pain than physiotherapists with poor general health perception (p<0.01).

Table 2. Participants' Musculoskeletal Problems, Job Satisfaction, Quality-of-Life, and Sleep Scores

Variable	(n=86)
Minnesota Job Satisfaction Scale	45.01 ± 13.85
Global satisfaction score	2.25 ± 0.69
Intrinsic satisfaction score	2.36 ± 0.70
Extrinsic satisfaction score	2.08 ± 0.75
Pittsburg Sleep Quality Index	8.51 ± 2.86
Nordic Musculoskeletal Questionnaire	
Neck	4.06 ± 2.90
Shoulder	3.52 ± 2.89
Upper back	4.55 ± 3.17
Elbow	1.47 ± 1.82
Low back	3.77 ± 2.92
Wrist	2.63 ± 2.44
Hip	2.33 ± 2.53
Knee	2.60 ± 2.41
Ankle	1.28 ± 1.39
Short Form-36 Quality of Life Scale	
Physical function	89.77 ± 13.55
Physical role difficulties	59.98 ± 41.42
Emotional role difficulties	45.01 ± 45.92
Energy-vitality	45.29 ± 20.63
Mental health	56.09 ± 18.50
Social function	62.94 ± 24.06
Pain	61.19 ± 23.57
General health perception	61.28 ± 17.15

Data are provided as n(%) and mean + ss

Table 3 shows the correlation between the NMSQ global score and the scores obtained for nine regions (neck, shoulders, elbows, wrists/hands, back, waist, hips/thighs, knees, ankles/feet) and MJSS, SF-36 and PSQI scores. There was no correlation between MJSS global satisfaction, intrinsic satisfaction and extrinsic satisfaction scores for all nine NMSQ regions. There was a negative correlation with some sub-parameters of the SF-36 except for the wrist parameter of the questionnaire, and a positive correlation between the PSQI global score and the elbow, lower back, knee and ankle parameters of the questionnaire.

Table 3. The Relationship Between Musculoskeletal Problems and Job Satisfacition, Quality of Life, and Sleep Score

(n=86)			Neck	Shoulder	Upper back	Elbow	Lower back	Wrist	Hip	Knee	Ankle
Minnesota Job Satisfaction Scale	Global satisfacition score	P	0.485	0.861	0.725	0.386	0.947	0.476	0.530	0.328	0.321
		r	-0.076	-0.019	-0.078	0.095	0.007	-0.078	0.138	-0.107	0.108
	Intrinsic satisfacition score	P	0.745	0.934	0.225	0.118	0.877	0.984	0.539	0.467	0.267
		r	-0.036	-0.009	-0.132	0.279	0.017	0.002	-0.067	-0.079	0.121
	Extrinsic satisfacition score	P	0.249	0.774	0.161	0.616	0.951	0.093	0.479	0.215	0.452
		r	-0.126	-0.034	-0.152	0.055	-0.007	-0.182	-0.077	-0.135	0.082
Short Form-36	Physical function	P	0.970	0.084	**0.003**	0.219	0.101	0.864	**0.032**	**0.002**	0.243
		r	-0.004	-0.187	-0.320**	-0.134	-0.178	-0.019	-0.231*	-0.331**	-0.127
	Physical role difficulties	P	0.161	0.058	**0.017**	0.060	**0.025**	0.407	**0.009**	**0.021**	0.383
		r	-0.152	-0.205	-0.258*	-0.204	-0.242*	-0.091	-0.281**	-0.249*	-0.095
	Emotaniol role difficulties	P	0.317	**0.014**	0.140	0.349	**0.005**	0.992	**0.006**	**0.043**	0.168
		r	-0.110	-0.267*	-0.161	-0.103	-0.301**	0.001	-0.298**	-0.220*	-0.151
	Energy-vitalite	P	**0.038**	**0.003**	**0.001**	0.190	**0.000**	0.232	**0.003**	**0.014**	0.112
		r	-0.224*	-0.314**	-0.356**	-0.079	-0.477**	-0.130	-0.318**	-0.264*	-0.173
	Mental health	P	**0.047**	**0.021**	**0.001**	**0.035**	**0.000**	0.081	**0.007**	**0.013**	0.427
		r	-0.214*	-0.249*	-0.340**	-0.228*	-0.441**	-0.189	-0.287**	-0.268*	-0.087
	Social function	P	**0.001**	**0.000**	**0.000**	**0.026**	**0.000**	0.584	**0.000**	**0.004**	**0.021**
		r	-0.351**	-0.460**	-0.487**	-0.240*	-0.538**	-0.060	-0.372**	-0.309**	-0.249*
	Pain	P	**0.000**	**0.000**	**0.000**	**0.002**	**0.000**	0.052	**0.000**	**0.000**	**0.001**
		r	-0.496**	-0.564**	-0.612**	-0.327**	-0.485**	-0.210	-0.452**	-0.432**	-0.362**
	General health perception	P	0.220	**0.015**	0.172	0.477	**0.037**	0.188	**0.001**	**0.000**	0.080
		r	-0.134	-0.263*	-0.113	-0.078	-0.225*	-0.143	-0.336**	-0.379**	-0.190
Pittsburg Sleep Quality Index	General score	P	0.309	0.142	0.077	**0.004**	**0.011**	0.375	0.053	**0.049**	**0.029**
		r	0.111	0.192	0.192	0.306**	0.272*	0.097	0.210	0.213*	0.235*

DISCUSSION

In our study, the relationship between musculoskeletal problems and job satisfaction, quality of life, and sleep in physiotherapists was explored. While no relationship was found between musculoskeletal problems and job satisfaction, statistically significant relationships were found between quality of life and sleep quality.

The majority (77%) of the physiotherapists participating in our study were between the ages of 20-30. In a similar study conducted by Nepal et al in 2023, 75% of the participants were under 30 years of age.[23] Abaraogu et al[24] reported that more than half of 126 physiotherapists were single (54.5%) and most of them (78.2%) were physiotherapists with a licence degree in their study investigating work stress and work-related musculoskeletal disorders in Nigerian physiotherapists. Similarly, in our study, 72% of the 86 physiotherapists were single and 67% were physiotherapists with a licence degree.

We observed that the physiotherapists who participated in our research frequently suffered from neck, shoulder, upper back and lower back pain. Studies have reported that musculoskeletal disorders in physiotherapists occur more frequently in areas involving the lower back, such as the lumbar spine and iliosacral joint.[25-27] In their study on ergonomic conditions and work-related musculoskeletal problems in physiotherapists, Fan et al[28] found that the neck and lower back were the most frequently affected areas with a rate of 91.3% and 56.5%, respectively. In our study, it was determined that the locations where the participants felt the

most intense pain were the neck and lower back. In this context, similar to those reported in the literature, 62.7% of the physiotherapists participating in our study reported that they had musculoskeletal problems related to the neck region and 54.6% to the lower back region. The high prevalence of pain in the neck and lower back regions can be associated with the working conditions and occupational requirements of physiotherapists. For instance, physiotherapists often have to remain in specific positions for extended periods while manipulating or treating patients, which can increase the load on the musculoskeletal system.

The interpretation of the scores obtained from the MJSS global, intrinsic and extrinsic satisfaction parameters is as follows: 1-1,79 points is very low job satisfaction, 1,80-2,59 points is low job satisfaction, 2,60-3,39 points is medium job satisfaction, 3,40-4,19 points is high job satisfaction and 4,20-5,00 points is very high job satisfaction.[17] The MJSS global, intrinsic, and extrinsic scores of the physiotherapists participating in our study were 2.25, 2.36 and 2.08, respectively, and we can say that the job satisfaction of the physiotherapists included in our study is low. Of the physiotherapists who participated in our study, 55% stated that their overall job satisfaction was somewhat satisfied. In a 2004 study by Eker et al[29] in which job satisfaction in physiotherapists was examined, more than 50% of the participants reported job dissatisfaction. In a cross-sectional study conducted in Nepal, a low and middle-income country similar to Turkey, in 2023, 41% of physiotherapists were affected by factors such as low job satisfaction, inadequate salaries and lack of recognition of their work.[23] In addition, a score of 60 indicates neutral satisfaction for this scale. Scores of 60 and below indicate low job satisfaction. The total MJSS score of the physiotherapists participating in our study is 45.01. We can say that the occupational satisfaction of the physiotherapists participating in our study is low. The result we obtained was similarly revealed in the study conducted by Yasacı et al[30] in which the training received by physiotherapists after graduation, professional satisfaction, and burnout levels were examined. In the study in which 96 physiotherapists participated, the professional satisfaction rates of physiotherapists working in the public and private sectors were evaluated by MJSS and the total scores obtained were reported as 51.1 and 58.6 respectively. By looking at this situation, which is in parallel with the study, we can say that the professional satisfaction levels of physiotherapists have decreased slightly over the years.

In our study, no relationship was found between job satisfaction and musculoskeletal disorders. However, in contrast to our study, in a study conducted among physiotherapists in Jordan in 2022 and investigating the risk factors of musculoskeletal problems, a significant correlation was found between job satisfaction and the frequency and severity of musculoskeletal disorders.[31] We think that the reason for this difference between the findings of the study and our study may be related to the different working conditions of physiotherapists working in different geographies. These findings suggest that improving the working conditions and protecting the occupational health of physiotherapists are crucial for enhancing job satisfaction and reducing musculoskeletal disorders. The inconsistencies between studies conducted in different geographical regions highlight the need for tailoring occupational health and safety policies to local contexts.

Mroczek et al[32] conducted a cross-sectional study in which the occurrence of low back pain and its effect on the quality of life of healthcare workers were examined. Involving 110 active healthcare workers (nurses, midwives, physiotherapists and paramedics), the results showed that most of the healthcare workers surveyed had a reduced quality of life and that this was associated with spinal disorders, pain and limitations. These complaints were particularly pronounced in nurses and paramedics. Of the participants who experienced severe pain in their daily lives, 49.51% reported this condition and it was determined that this was associated with longer working hours.

Some studies have reported that work-related musculoskeletal disorders pose a significant threat to the career length and health-related quality of life of physiotherapists working in clinical practice.[25,33] Some studies have reported that 80% of physiotherapists may experience symptoms of work-related musculoskeletal disorders in at least one body region within a period of one year.[3,26,34] Campo and Darragh[27] reported that work-related pain has negative effects on activities outside of work, which affects the quality of life of physiotherapists and occupational therapists. A systematic review reported that occupational therapists experience work-related pain and fatigue that affect their communication with friends and family, leisure activities, health management and ability to participate in social activities.[35] When we questioned the general health status of 86 physiotherapists who participated in our study, 5 (6%) reported their general health status as very good, 2 (2%) as poor, 24 (28%) as moderate and 55 (64%) as good. NKMSQ scores obtained for nine regions (neck, shoulders, elbows, wrists/hands, back, waist, hips/thighs, knees, ankles/feet) were negatively correlated with some sub-parameters of SF-36 except for the wrist parameter. This shows that pain negatively affects the quality of life of the physiotherapists participating in our study. Our results are in parallel with the previous studies.

In the literature, it has been reported that work-related musculoskeletal and sleep disorders are relatively common among health and hospital workers in general and nurses in particular.[36-38] It has been reported that both disorders are largely related to work and stress and are interrelated.[39,40] In our country, there is no study on sleep quality for physiotherapists. From this point of view, it is important to compare the musculoskeletal problems and pain levels of physiotherapists working in clinics with sleep quality and to

reveal the relationship between them. Our study is unique in this respect. The mean score of PSQI, the sleep scale we used in our study, was 8.51±2.86. A total score of more than 5 indicates that the sleep quality of the person is not good. Therefore, we can say that physiotherapists who participated in our study reported poor sleep quality.

Limitations and Recommendations for Future Research

This study has several limitations. First, as a cross-sectional study based on self-report, there is a possibility of selection bias. Second, the sample size calculation was based on the physiotherapist population in Turkey. However, the prevalence of musculoskeletal disorders worldwide needs to be investigated by physiotherapists. Finally, the surveys were reported online. Therefore, some doubts or procedures could have been clarified through physical examination or face-to-face interviews.

Future research should encompass diverse participant groups and geographical regions. Therefore, this study was aimed to examine the relationships between musculoskeletal problems and job satisfaction, quality of life, and sleep in physiotherapists in Turkey. The present study could serve as a significant step towards enhancing the professional practices of physical therapists in Turkey.

CONCLUSION

We did not observe a significant relationship between musculoskeletal problems and job satisfaction in physiotherapists, but there was a statistically significant relationship between quality of life and quality of sleep. We can say that job satisfaction is low among physiotherapists, quality of life and sleep quality are affected by musculoskeletal problems. In this framework, taking supportive measures to improve the quality of life of physiotherapists and improving their sleep patterns will positively affect their professional performanc. For this purpose, providing or improving ergonomic working conditions, reducing workload and, when necessary, including physiotherapists in programmes to support their physical and mental health can improve their quality of life and sleep.

The ethics committee approval of the research was obtained from Bezmiâlem Vakif University Non-Interventional Ethics Committee with 04/01/2023 date and 91173 decision number. Consents of physiotherapists were obtained before the research and the research was conducted in accordance with the Declaration of Helsinki.

REFERENCES

1. Puhanić P, Erić S, Talapko J, Škrlec I. Job Satisfaction and Burnout in Croatian Physiotherapists. MDPI; 2022:905. https://doi.org/10.3390/healthcare10050905 PMID: 35628042
2. Müsteşarlığı TBDPT. Türkiye'de Sağlık Eğitimi ve Sağlık İnsan Gücü Durum Raporu. Haziran; 2010.
3. Passier L, McPhail S. Work related musculoskeletal disorders amongst therapists in physically demanding roles: qualitative analysis of risk factors and strategies for prevention. *BMC musculoskeletal disorders*. 2011;12(1):1-9. https://doi.org/10.1186/1471-2474-12-24 PMID: 21266039.
4. Van Eerd D, Irvin E, Le Pouésard M, Butt A, Nasir K. Workplace Musculoskeletal Disorder Prevention Practices and Experiences. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*. 2022;59:00469580221092132. https://doi.org/10.1177/00469580221092132 PMID: 35603566.
5. Holder NL, Clark HA, DiBlasio JM, et al. Cause, prevalence, and response to occupational musculoskeletal injuries reported by physical therapists and physical therapist assistants. *Physical therapy*. 1999;79(7):642-652. https://doi.org/10.1093/ptj/79.7.642 PMID: 10416574.
6. Rostami F, Babaei-Pouya A, Teimori-Boghsani G, Jahangirimehr A, Mehri Z, Feiz-Arefi M. Mental workload and job satisfaction in healthcare workers: the moderating role of job control. *Frontiers in public health*. 2021;9:683388. https://doi.org/10.3389/fpubh.2021.683388 PMID: 34540781
7. Kim J-H, Kim A-R, Kim M-G, et al. Burnout syndrome and work-related stress in physical and occupational therapists working in different types of hospitals: which group is the most vulnerable? *International Journal of Environmental Research and Public Health*. 2020;17(14):5001. https://doi.org/10.3390/ijerph17145001 PMID: 32664583
8. Alkassabi OY, Al-Sobayel H, Al-Eisa ES, Buragadda S, Alghadir AH, Iqbal A. Job satisfaction among physiotherapists in Saudi Arabia: does the leadership style matter? *BMC health services research*. 2018;18:1-9. https://doi.org/10.1186/s12913-018-3184-9 PMID: 29880040
9. Faragher EB, Cass M, Cooper CL. The relationship between job satisfaction and health: a meta-analysis. *Occupational and environmental medicine*. 2005;62(2):105-112. https://doi.org/10.1136/oem.2002.006734 PMID: 15657192
10. Bae Y-H, Min KS. Associations between work-related musculoskeletal disorders, quality of life, and workplace stress in physical therapists. *Industrial health*. 2016;54(4):347-353. https://doi.org/10.2486/indhealth.2015-0127 PMID: 26860785

11. Trivellas P, Reklitis P, Platis C. The effect of job related stress on employees' satisfaction: A survey in health care. *Procedia-social and behavioral sciences*. 2013;73:718-726. https://doi.org/10.1016/j.sbspro.2013.02.110
12. Hämmig O. Work-and stress-related musculoskeletal and sleep disorders among health professionals: a cross-sectional study in a hospital setting in Switzerland. *BMC musculoskeletal disorders*. 2020;21(1):1-11. https://doi.org/10.1186/s12891-020-03327-w PMID: 32438929
13. Franzen PL, Buysse DJ. Sleep disturbances and depression: risk relationships for subsequent depression and therapeutic implications. *Dialogues in clinical neuroscience*. 2022; https://doi.org/10.31887/DCNS.2008.10.4/plfranzen PMID: 19170404
14. Kuorinka I, Jonsson B, Kilbom A, et al. Standardised Nordic questionnaires for the analysis of musculoskeletal symptoms. *Applied ergonomics*. 1987;18(3):233-237. https://doi.org/10.1016/0003-6870(87)90010-x PMID: 15676628.
15. Kahraman T, Genç A, Göz E. The Nordic Musculoskeletal Questionnaire: cross-cultural adaptation into Turkish assessing its psychometric properties. *Disability and rehabilitation*. 2016;38(21):2153-2160. https://doi.org/10.3109/09638288.2015.1114034 PMID: 26726840.
16. Weiss DJ, Dawis RV, England GW. Manual for the Minnesota satisfaction questionnaire. *Minnesota studies in vocational rehabilitation*. 1967;22,120
17. Baycan A. An analysis of several job satisfaction between different occupational groups. *Boğaziçi Üniversitesi, Sosyal Bilimler Enstitüsü, Yüksek LisansTezi, İstanbul*. 1995;
18. Köroğlu Ö. İçsel ve dişsal iş tatmin düzeyleri ile genel iş tatmin düzeyi arasindaki ilişkinin belirlenmesi: turist rehberleri üzerinde bir araştirma. *Doğuş Üniversitesi Dergisi*. 2012;13(2):275-289.
19. Koçyiğit H, Aydemir O, Fişek G. Kısa form-36 (SF-36)'nın Türkçe versiyonunun güvenilirliği ve geçerliliği.[Reliability and validity of the Turkish version of short form-36 (SF-36)]. *İlaç Tedavi Derg 1999; 12: 102*. 106
20. Buysse DJ, Reynolds III CF, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. *Psychiatry research*. 1989;28(2):193-213. https://doi.org/10.1016/0165-1781(89)90047-4 PMID: 2748771.
21. Agargun M, Kara H, Anlar O. The validity and reliability of the Pittsburgh Sleep Quality Index. *Turk Psikiyatri Derg*. 1996;7(2):107-115.
22. Faul F, Erdfelder E, Lang A-G, Buchner A. G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior research methods*. 2007;39(2):175-191. https://doi.org/10.3758/bf03193146 PMID: 17695343.
23. Nepal GM, Acharya RS, Coppieters MW, et al. The physiotherapy workforce in Nepal: A national survey. *Journal of Evaluation in Clinical Practice*. 2023;29(1):69-82. https://doi.org/10.1111/jep.13729 PMID: 35822869.
24. Abaraogu UO, Ezema CI, Nwosu CK. Job stress dimension and work-related musculoskeletal disorders among southeast Nigerian physiotherapists. *International Journal of Occupational Safety and Ergonomics*. 2017;23(3):404-409. https://doi.org/10.1080/10803548.2016.1219476 PMID: 27486916.
25. Campo M, Weiser S, Koenig KL, Nordin M. Work-related musculoskeletal disorders in physical therapists: a prospective cohort study with 1-year follow-up. *Physical therapy*. 2008;88(5):608-619. https://doi.org/10.2522/ptj.20070127 PMID: 18276935.
26. Cromie JE, Robertson VJ, Best MO. Work-related musculoskeletal disorders in physical therapists: prevalence, severity, risks, and responses. *Physical therapy*. 2000;80(4):336-351. https://doi.org/10.1093/ptj/80.4.336 PMID: 10758519.
27. Campo M, Darragh AR. Impact of work-related pain on physical therapists and occupational therapists. *Physical therapy*. 2010;90(6):905-920. https://doi.org/10.2522/ptj.20090092 PMID: 20378677.
28. Fan L, Liu S, Jin T, et al. Ergonomic risk factors and work-related musculoskeletal disorders in clinical physiotherapy. *Frontiers in Public Health*. 2022;10:1083609. https://doi.org/10.3389/fpubh.2022.1083609 PMID: 36605248.
29. Eker L, Tüzün EH, Daskapan A, Sürenkök Ö. Predictors of job satisfaction among physiotherapists in Turkey. *Journal of occupational health*. 2004;46(6):500-505. https://doi.org/10.1539/joh.46.500 PMID: 15613776.
30. Yasaci Z, Mustafaoğlu R, Zirek E, Çelik D. Fizyoterapistlerin mezuniyet sonrasi aldiği eğitim, iş doyumu ve mesleki tükenmişlik düzeylerinin araştirilmasi. *Mesleki Bilimler Dergisi.* 2017.
31. Mansour ZM, Albatayneh R, Al-Sharman A. Work-related musculoskeletal disorders among jordanian physiotherapists: Prevalence and risk factors. *Work*. 2022;73(4):1433-1440. https://doi.org/10.3233/WOR-210805 PMID: 36057806.
32. Mroczek B, Łubkowska W, Jarno W, Jaraczewska E, Mierzecki A. Occurrence and impact of back pain on the quality of life of healthcare workers. *Annals of Agricultural and Environmental Medicine*. 2020;27(1):36-42. https://doi.org/10.26444/aaem/115180 PMID: 32208577.
33. Adegoke BO, Akodu AK, Oyeyemi AL. Work-related musculoskeletal disorders among Nigerian physiotherapists. *BMC musculoskeletal disorders*. 2008;9:1-9. https://doi.org/10.1186/1471-2474-9-112 PMID: 18710570.

34. Glover W, McGregor A, Sullivan C, Hague J. Work-related musculoskeletal disorders affecting members of the Chartered Society of Physiotherapy. *Physiotherapy*. 2005;91(3):138-147. https://doi.org/10.1016/j.physio.2005.06.001
35. Alnaser MZ. Occupational musculoskeletal injuries in the health care environment and its impact on occupational therapy practitioners: a systematic review. *Work*. 2007;29(2):89-100 PMID: 17726285.
36. Anderson SP, Oakman J. Allied health professionals and work-related musculoskeletal disorders: a systematic review. *Safety and health at work*. 2016;7(4):259-267. doi:10.1016/j.shaw.2016.04.001 PMID: 27924228.
37. Thinkhamrop W, Sawaengdee K, Tangcharoensathien V, et al. Burden of musculoskeletal disorders among registered nurses: evidence from the Thai nurse cohort study. *BMC nursing*. 2017;16(1):1-9. doi:10.1186/s12912-017-0263-x PMID: 29200964.
38. Dong H, Zhang Q, Sun Z, Sang F, Xu Y. Sleep problems among Chinese clinical nurses working in general hospitals. *Occupational Medicine*. 2017;67(7):534-539. doi:10.1093/occmed/kqx124 PMID: 29016953.
39. Bernal D, Campos-Serna J, Tobias A, Vargas-Prada S, Benavides FG, Serra C. Work-related psychosocial risk factors and musculoskeletal disorders in hospital nurses and nursing aides: a systematic review and meta-analysis. *International journal of nursing studies*. 2015;52(2):635-648. doi:10.1016/j.ijnurstu.2014.11.003 PMID: 25480459.
40. Linton SJ, Kecklund G, Franklin KA, et al. The effect of the work environment on future sleep disturbances: a systematic review. *Sleep medicine reviews*. 2015;23:10-19. doi:10.1016/j.smrv.2014.10.010 PMID: 25645126.