

Research Article

INVESTIGATION OF WORK-RELATED MUSCULOSKELETAL PAIN IN PHYSIOTHERAPISTS: A CROSS-SECTIONAL STUDY

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Abstract

Aim: Musculoskeletal pain (MSP) can be defined as a feeling of discomfort arising from bones, tendons, ligaments or muscles. MSP is more common in some healthcare professionals. Among healthcare professionals, physiotherapists are also at a higher risk for MSP. The aim of this study is to compare the MSPs of physiotherapists working with different patient types.

Method: We recruited 110 physiotherapists who met the inclusion and exclusion criteria. Physiotherapists with rheumatic disease-causing MSP were excluded. Participants were contacted online between June-August 2020. MSP of the participants was evaluated with the Cornell Musculoskeletal Disorder Questionnaire. The statistical significance level was set as $p < 0.05$.

Findings: We recruited a total of 110 physiotherapists (26.2±3.1 age). While physiotherapists recruiting pediatric patients work in private institutions, orthopedic and neurological patients work in public institutions ($p < 0.001$). Job satisfaction ($p = 0.011$), neck area score ($p = 0.002$), right wrist score ($p = 0.016$), back score ($p = 0.011$), low back score ($p = 0.014$), right upper leg score ($p = 0.034$) among physiotherapists who received different patient types scores were different.

Results: Physiotherapists recruiting pediatric patient groups work in the private sector. Physiotherapists receiving orthopedic patient group have higher job satisfaction levels. Physiotherapists in the neurological patient group had higher scores on the right wrist, back, lower back and right upper leg in work-related MSP.

Keywords: Job satisfaction; Musculoskeletal pain; Neurological; Orthopedic; Physiotherapist.

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Fizyoterapistlerde İşe Bağlı Kas İskelet Sistemi Ağrılarının Araştırılması:

Kesitsel Çalışma

Öz

Amaç: Kas-iskelet sistemi ağrısı (KİSA), kemikler, tendonlar, bağlar veya kaslardan kaynaklanan bir rahatsızlık hissi olarak tanımlanabilir. KİSA, bazı sağlık profesyonellerinde daha yaygın gözükmetedir. Sağlık profesyonelleri arasında fizyoterapistler de KİSA bakımından yüksek risk altındadır. Bu çalışmanın amacı, farklı hasta tipleri ile çalışan fizyoterapistlerin KİSA karşılaştırmaktır.

Yöntem: Dahil edilme ve dışlama kriterlerini karşılayan 110 fizyoterapist çalışmaya dahil edildi. Romatizmal hastalığa neden olan KİSA'lı fizyoterapistler çalışma dışı bırakıldı. Katılımcılarla Haziran-Ağustos 2020 tarihleri arasında online olarak iletişime geçildi. Katılımcıların KİSA'ları Cornell Kas-iskelet Bozuklukları Anketi ile değerlendirildi. İstatistiksel anlamlılık düzeyi $p<0,05$ olarak belirlendi.

Bulgular: Toplam 110 fizyoterapist (26.2 ± 3.1 yıl) dahil edildi. Pediatrik hasta alan fizyoterapistler özel kurumlarda çalışırken, ortopedik ve nörolojik hasta alanlar kamu kurumlarında çalışmaktadır ($p<0,001$). İş doyumu ($p=0,011$), boyun bölgesi skoru ($p=0,002$), sağ bilek skoru ($p=0,016$), sırt skoru ($p=0,011$), bel skoru ($p=0,014$), sağ üst bacak skoru ($p=0,034$) farklı hasta tipi ile çalışan fizyoterapistler arasında farklılık saptanmıştır. merkezi ve kesinlik alt boyutları ile arasında negatif, sağlığın önemi ve öz farkındalık alt boyutlarıyla ise pozitif yönlü ve anlamlı ilişkinin mevcut olduğu görülmektedir ($p<0,05$).

Sonuç: Pediatrik hasta grupları ile çalışan fizyoterapistler özel sektörde çalışmaktadır. Ortopedik hasta grubu ile çalışan fizyoterapistlerin iş doyum düzeyleri daha yüksektir. Nörolojik hasta grubundaki fizyoterapistlerin işle ilgili KİSA sağ bilek, sırt, bel ve sağ üst bacak puanları daha yüksek saptanmıştır.

Anahtar Kelimeler: İş doyumu; Kas-iskelet ağrısı; Nörolojik; Ortopedik; Fizyoterapist.

1.INTRODUCTION

Musculoskeletal pain (MSP); It can be defined as a feeling of discomfort arising from bones, tendons, ligaments or muscles (Gómez-Rodríguez et al., 2020). his type of pain not only diminishes an individual's quality of life but also has negative effects on their overall well-being from a biopsychosocial perspective. While MSP typically becomes more common with age as a natural consequence of aging, it can also affect younger individuals due to factors such as repetitive movements, traumas, or occupations involving heavy physical work (Silva Guerrero et al., 2018).

Various factors contribute to the development of musculoskeletal pain (MSP) in the workplace, including biomechanical errors, inadequate equipment to support proper biomechanics, repetitive movements, prolonged static posture, excessive use, and long working hours (Duray & Yağci, 2017). MSP is particularly prevalent in certain occupational groups, with healthcare workers being among the most affected. Within the healthcare profession, physiotherapists, occupational therapists, and nurses are at a higher risk of experiencing musculoskeletal problems (Atlı et al., 2020). Physiotherapy, as one of these professions, involves treatment approaches such as manual therapy, electrophysical agents, and exercise training, which can lead to physical strain and demanding postures. Physiotherapists are particularly susceptible to MSP due to the inherent conditions of their job. Studies have reported a high incidence of MSP, especially among physiotherapists working with severe neurological and orthopedic patient groups (Nordin et al., 2011).

In a study investigating the occurrence of musculoskeletal pain (MSP) among physiotherapists based on their employment status in public or private institutions, it was found that the prevalence of MSP was lower among those working in public institutions compared to those in private institutions. This difference was attributed to variations in working hours and conditions(Korkulu & Kolçak, 2019). In a study examining the occurrence of musculoskeletal pain (MSP) among physiotherapists based on their employment status in public or private institutions, it was found that the prevalence of MSP was lower among those working in public institutions compared to those in private institutions. This difference was attributed to variations in working hours and conditions. In the picture that emerges, Taken together, MSP causes both tangible and intangible challenges for physiotherapists, including reduced quality of life, decreased workforce efficiency, and increased healthcare expenses(Iqbal & Alghadir, 2015).

In the literature, there are many studies investigating MSP in different health professions. However, the number of studies investigating MSP in physiotherapists is quite limited. Therefore, the aim of this study is to examine the presence of MSP in physiotherapists working in different patient groups. The hypothesis of this study is that the musculoskeletal pain of physiotherapists working in different patient groups is different.

2. METHODS

2.1 Study design and setting

This study was planned as a cross-sectional study. Study data were collected online from June to August 2020. This study was approved by the Non-Interventional Ethics Committee of Kütahya Health Sciences University with the decision numbered 2020/05. Physiotherapists actively working in Turkey the sample of the study. Social media tools were used to reach the sample.

2.2 Procedure

The forms to be used in the study were transferred to electronic media. Physiotherapists who were interested in participating in the study accessed the study forms through Google Forms, which were promoted via announcements on social media platforms and messaging applications commonly used by physiotherapists. The first page of the form provided detailed information about the study. Participants were directed to the section containing the scales after indicating their agreement to participate by checking the corresponding box. Physiotherapists who chose not to participate were directed to a thank last page, and their data was not recorded. The first section of the questionnaire focused on gathering sociodemographic information from the participants. Subsequently, the Cornell Musculoskeletal Discomfort Questionnaires and questions related to working conditions were presented.

2.3 Participants

The study included participants who had graduated from the physiotherapy and rehabilitation department, were actively working in their job, and volunteered to participate. Individuals with rheumatic diseases such as ankylosing spondylitis or rheumatoid arthritis, which could potentially contribute to musculoskeletal pain, were excluded from the study. (Khan & Fasih, 2017).

2.4 Outcome

2.4.1 Sociodemographic Information

In the sociodemographic information of the participants; age (in years), gender, height (in centimeters), body weight (in kilograms), regular exercise habit (at least 3 days a week at least 30 minutes of exercise) (answered as yes or no), information about the institution, professional experience (years), smoking and alcohol use (answered as yes or no). Additionally, participants were asked about the type of patients they treat (Fuat & Seda, 2021).

2.4.2 Job related questions

In addition to the previous sociodemographic information, the participants were asked about their work schedule, including the number of days worked per week and the number of hours worked per day. The number of patients they treated was also queried. Participants were asked about the general patient group they typically treated (Fuat & Seda, 2021). Furthermore, the participants were asked to assess whether

they found the working conditions in their institutions to be ergonomic. If they responded negatively, they were asked to provide the reason for their response. Lastly, participants were asked to rate their job satisfaction on a scale from 0 to 10, with "0" indicating no satisfaction at all and "10" indicating complete satisfaction with their job (Yakut & Yakut, 2011).

2.4.3 Cornell Musculoskeletal Discomfort Questionnaires

Musculoskeletal pain of the individuals participating in the study was evaluated with the Cornell Musculoskeletal Discomfort Questionnaire. The questionnaire questions the frequency and severity of pain in various body parts and whether it interferes with the ability to do work. Participants are asked to mark different pain areas or regions on the scale. While the scale is transferred to Google Forms, there are questions about different body parts on each page. In the scale, how often he felt pain in the last week, using a 5-point Likert scale (1-never, 2- one-two times/week, 3- three-four times/week, 4-once every day, 5-several times every day) pain intensity on a 3-point Likert scale (1- Slightly, 2-Moderately, 3-Very uncomfortable) and whether or not the pain interfered with the work on a 3-point Likert scale (1-Not at all, 2-slightly, 3-substantially interference) are being investigated. The score of the scale was obtained by multiplying the frequency of pain, the severity of pain and the level of disability (Erdinc et al., 2011). The scale score can be 0-90 points for each region according to the scoring system. A high score indicates a high disability level for the relevant region. Erdinç et al. Turkish validity and reliability study of the scale was conducted in 2011 (Erdinc et al., 2011). The Cronbach Alpha value of the three sub-headings of the questionnaire, namely frequency of pain, severity and disability, was 0.88, respectively; 0.89 and 0.88 (Fuat & Seda, 2021).

2.5 Sample size

G*PowerSoftware (ver. 3.1.9.2, Düsseldorf, Germany) program was used to calculate the number of samples to participate in our study. In an article using Cornell Musculoskeletal System scoring in physiotherapists, the mean and standard deviations of the back scores between male and female genders were taken as reference and analyzed using t tests. The analysis was performed at 80% power, 0.50 margin of error and 0.5 effect size. As a result of the analysis, a total of 86 people were planned to participate in the study (Fuat & Seda, 2021). Considering that missing data will emerge during the evaluation, it was planned to include 104 people in the study by giving a 20% reduction margin.

2.6 Statistical analysis

SPSS® (ver. 22.0; IBM Corp., NY, USA) was used for data analysis. Variables were analyzed using visual (probability plots, histograms) and analytical methods Kolmogorov-Smirnov to distinguish whether the data were normally distributed. Relationships between categorical variables were compared with Chi-square or Fisher Exact test comparison test. Parametric tests were used for normal distribution

data and non-parametric tests were used for non-normally distributed data. Values for continuous variables were expressed in terms of mean \pm standard deviation (mean \pm SD), standard mean error (SEM), and confidence intervals (95% CI). Values for categorical variables were expressed as proportional (%). The Spearman correlation analysis was used to correlate the data between the variables examined. Kruskal Wallis Test and Bonferoni post-hoc test were used to compare 3 or more groups. Statistical significance level was set as $p < 0.05$ (Songül et al., 2021).

3. RESULT

A total of 136 individuals participated in the study, consisting of 80 women and 56 men. However, 26 participants were excluded from the analysis due to missing data. The data from 110 participants were included and analyzed in our study. Table 1 presents the descriptive characteristics of the participating physiotherapists. Among the participants, 46 (41.8%) were male and 64 (58.2%) were female. In terms of patient groups, 23 (20.9%) physiotherapists treated orthopedic patients, 24 (21.8%) treated neurological patients, 25 (22.7%) treated pediatric patients, and 38 (34.5%) treated a mixed patient population.

Table 1. Descriptive characteristics of physiotherapists (N=110)

	X \pm SD/n(%)
Sex	
Male	46 (41.8)
Female	64 (58.2)
Age (years)	26.2 \pm 3.1
BMI (kg/m²)	22.32 \pm 2.96
Type of institution	
Public (University Hospital- State Hospital)	45 (40.9)
Private (Special Education Center- Private Hospital)	65 (59.1)
Type of Patient Received	
Orthopedic Patient	23 (20.9)
Neurological Patient	24 (21.8)
Pediatric Patient	25 (22.7)
Mixed Patient	38 (34.5)
Finding Working Conditions Ergonomic	
Yes	28 (25.5)
No	82 (74.5)
Reasons for Not Finding the Working Conditions Ergonomic	
Bed-Chair Lengths Fixed	31 (28.2)
Working in the Wrong Posture	7 (6.4)
Difficulty of Patient Type	10 (9.1)
Equipment-Device Lack- Physical Conditions of Working Condition	25 (22.7)
Others	37 (33.6)
Smoking	
Yes	26 (23.6)
No	84 (76.4)
Alcohol Use	
Yes	17 (15.5)

No	93 (84.5)
Regular Exercise Habit	
Yes	22 (20.0)
No	88 (80.0)
Presence of Neck Pain	
Yes	84 (76.4)
No	26 (23.6)
Presence of Right Shoulder Pain	
Yes	49 (44.5)
No	61 (55.5)
Presence of Left Shoulder Pain	
Yes	44 (40.0)
No	66 (60.0)
Presence of Right Upper Arm Pain	
Yes	31 (28.2)
No	79 (71.8)
Presence of Left Upper Arm Pain	
Yes	18 (16.4)
No	92 (83.6)
Presence of Right Forearm Pain	
Yes	39 (35.5)
No	71 (64.5)
Presence of Left Forearm Pain	
Yes	23 (20.9)
No	87 (79.1)
Presence of Right Wrist Pain	
Yes	54 (49.1)
No	56 (50.9)
Presence of Left Wrist Pain	
Yes	33 (30.0)
No	77 (70.0)
Presence of Back Pain	
Yes	88 (80.0)
No	22 (20.0)
Presence of Low Back Pain	
Yes	83 (75.5)
No	27 (24.5)
Presence of Hip Pain	
Yes	33 (30.0)
No	77 (70.0)
Presence of Right Upper Leg Pain	
Yes	19 (17.3)
No	91 (82.7)
Presence of Left Upper Leg Pain	
Yes	19 (17.3)
No	91 (82.7)
Presence of Right Knee Pain	
Yes	32 (29.1)
No	78 (70.9)
Presence of Left Knee Pain	
Yes	32 (29.1)
No	78 (70.9)
Presence of Right Lower Leg Pain	

Yes	18 (16.4)
No	92 (83.6)
Presence of Left Lower Leg Pain	
Yes	19 (17.3)
No	91 (82.7)
Presence of Right Foot Pain	
Yes	22 (20.0)
No	88 (80.0)
Presence of Left Foot Pain	
Yes	17 (15.5)
No	93 (84.5)
Average Number of Patients Taken per Week	26.61±16.30
Job Experience (Year)	3.24±2.93
Number of Days Worked per Week	5.07±0.63
Hours Worked Per Day	7.99±0.69
Job Satisfaction	5.04±2.51

The most commonly reported areas of pain experienced by physiotherapists are as follows: 80% in the back, 76.4% in the neck, and 75.5% in the low back. The region-specific scores for musculoskeletal pain reported by the participants are provided in Table 2.

Table 2. Region-specific score of musculoskeletal pain

Region	X±SD
Neck	7.02±9.96
Right Shoulder	3.87±8.10
Left Shoulder	3.30±7.18
Right Upper Arm	1.47±4.41
Left Upper Arm	1.10±4.41
Right Wrist	6.71±17.87
Left Wrist	2.25±6.36
Back	11.89±17.23
Low back	11.21±19.46
Hip	1.95±7.21
Right Upper Leg	1.39±6.33
Left Upper Leg	1.47±6.36
Right Knee	2.13±5.95
Left Knee	2.22±7.06
Right Lower Leg	1.71±6.91
Left Lower Leg	1.79±6.89
Right Foot	1.75±7.57
Left Foot	1.38±5.81
Total	64.69±96.36

The comparison specific to the type of patient taken is given in Table 3.

Table 3. Comparison of qualitative data specific to the type of patient received

	According to the Patient Group Received				p
	Orthopedic Patient (n=23) n(%)	Neurological Patient (n=24) n(%)	Pediatric Patient (n=25) n(%)	Mixed Patient (n=38) n(%)	
Sex					
Male	15 (65.2)	8 (33.3)	8 (32.0)	15 (39.5)	0.073
Female	8 (34.8)	16 (66.7)	17 (68.0)	23 (60.5)	
Type of institution					
Public	17 (73.9)	18 (75.0)	0 (0)	10 (26.3)	<0.001
Private	6 (26.1)	6 (25.0)	25 (100)	28 (73.7)	
Finding Working Conditions Ergonomic					
Yes	9 (39.1)	8 (33.3)	4 (16.0)	7 (18.4)	0.156
No	14 (60.9)	16 (66.7)	21 (84.0)	31 (81.6)	
Presence of Neck Pain					
Yes	18 (78.3)	20 (83.3)	14 (56.0)	32 (84.2)	0.052
No	5 (21.7)	4 (16.7)	11 (44.0)	6 (15.8)	
Presence of Right Shoulder Pain					
Yes	9 (39.1)	14 (58.3)	9 (36.0)	17 (44.7)	0.414
No	14 (60.9)	10 (41.7)	16 (64.0)	21 (55.3)	
Presence of Left Shoulder Pain					
Yes	9 (39.1)	11 (45.8)	7 (28.0)	17 (44.7)	0.531
No	14 (60.9)	13 (54.2)	18 (72.0)	21 (55.3)	
Presence of Right Upper Arm Pain					
Yes	3 (13.0)	10 (41.7)	6 (24.0)	12 (31.6)	0.158
No	20 (87.0)	14 (58.3)	19 (76.0)	26 (68.4)	
Presence of Left Upper Arm Pain					
Yes	3 (13.0)	6 (25.0)	4 (16.0)	5 (13.2)	0.619
No	20 (87.0)	18 (75.0)	21 (84.0)	33 (86.8)	
Presence of Right Forearm Pain					
Yes	5 (21.7)	13 (54.2)	8 (32.0)	13 (34.2)	0.126
No	18 (78.3)	11 (45.8)	17 (68.0)	25 (65.8)	
Presence of Left Forearm Pain					
Yes	2 (8.7)	8 (33.3)	6 (24.0)	7 (18.4)	0.203
No	21 (91.3)	16 (66.7)	19 (76.0)	31 (81.6)	
Presence of Right Wrist Pain					
Yes	6 (26.1)	15 (62.5)	14 (56.0)	19 (50.0)	0.069
No	17 (73.9)	9 (37.5)	11 (44.0)	19 (50.0)	
Presence of Left Wrist Pain					
Yes	2 (8.7)	8 (33.3)	10 (40.0)	13 (34.2)	0.085
No	21 (91.3)	16 (66.7)	15 (60.0)	25 (65.8)	
Presence of Back Pain					
Yes	18 (78.3)	22 (91.7)	16 (64.0)	32 (84.2)	0.089

No	5 (21.7)	2 (8.3)	9 (36.0)	6 (15.8)	
Presence of Low Back Pain					
Yes	13 (56.5)	20 (83.3)	20 (80.0)	30 (78.9)	0.123
No	10 (43.5)	4 (16.7)	5 (20.0)	8 (21.1)	
Presence of Hip Pain					
Yes	6 (26.1)	12 (50.0)	4 (16.0)	11 (28.9)	0.069
No	17 (73.9)	12 (50.0)	21 (84.0)	27 (71.1)	
Presence of Right Upper Leg Pain					
Yes	5 (21.7)	8 (33.3)	2 (8.0)	4 (10.5)	0.061
No	18 (78.3)	16 (66.7)	23 (92.0)	34 (89.5)	
Presence of Left Upper Leg Pain					
Yes	5 (21.7)	7 (29.2)	2 (8.0)	5 (13.2)	0.199
No	18 (78.3)	17 (70.8)	23 (92.0)	33 (86.8)	
Presence of Right Knee Pain					
Yes	5 (21.7)	10 (41.7)	5 (20.0)	12 (31.6)	0.313
No	18 (78.3)	14 (58.3)	20 (80.0)	26 (68.4)	
Presence of Left Knee Pain					
Yes	4 (17.4)	9 (37.5)	8 (32.0)	11 (28.9)	0.484
No	19 (82.6)	15 (62.5)	17 (68.0)	27 (71.1)	
Presence of Right Lower Leg Pain					
Yes	2 (8.7)	7 (29.2)	4 (16.0)	5 (13.2)	0.246
No	21 (91.3)	17 (70.8)	21 (84.0)	33 (86.8)	
Presence of Left Lower Leg Pain					
Yes	2 (8.7)	7 (29.2)	4 (16.0)	6 (15.8)	0.302
No	21 (91.3)	17 (70.8)	21 (84.0)	32 (84.2)	
Presence of Right Foot Pain					
Yes	4 (17.4)	8 (33.3)	3 (12.0)	7 (18.4)	0.281
No	19 (82.6)	16 (66.7)	22 (88.0)	31 (81.6)	
Presence of Left Foot Pain					
Yes	2 (8.7)	6 (25.0)	4 (16.0)	5 (13.2)	0.451
No	21 (91.3)	18 (75.0)	21 (84.0)	33 (86.8)	

Physiotherapists working in different patient types; job satisfaction($p=0.011$), neck region MSP ($p=0.002$), right wrist region MSP ($p=0.016$), back region MSP ($p=0.011$), low back region MSP ($p=0.014$), and right upper leg region statistically significant difference was found between MSP ($p=0.034$) (Table 4). Finally, a low negative correlation was found between the job satisfaction of the physiotherapists and the total MSP scores ($r= -0.232$, $p=0.015$). (Table 4). Finally, a low negative correlation was found between the job satisfaction of the physiotherapists and the total MSP scores ($r= -0.232$, $p=0.015$).

Table 4. Comparison of qualitative data by type of patient received

	According to the Patient Group Received				p
	Orthopedic Patient (n=23)	Neurological Patient (n=24)	Pediatric Patient (n=25)	Mixed Patient (n=38)	
	X±SD	X±SD	X±SD	X±SD	
Age (years)	26.52±3.87	27.25±3.74	26.20±3.20	25.34±1.58	0.256
BMI (kg/m ²)	23.69±3.27	22.38±2.61	21.65±2.30	21.90±3.18	0.091
Average Number of Patients Received per Week	21.17±16.87	24.25±17.16	26.32±11.08	31.60±17.4	0.072
Job Experience (Year)	3.69±3.70	4.37±3.82	3.32±2.46	2.21±1.49	0.062
Number of Days Worked per Week	5.26±0.54	4.95±0.62	4.88±0.66	5.15±0.63	0.082
Hours Worked Per Day	8.13±0.75	7.87±0.89	8.00±0.28	7.97±0.71	0.855
Job Satisfaction	6.34±2.55	5.45±2.53	4.16±2.17	4.57±2.41	0.011*
Neck	3.10±3.74	12.27±13.88	2.66±4.08	8.96±10.44	0.002*
Right Shoulder	1.04±1.77	7.89±12.41	3.90±8.82	3.02±5.40	0.127
Left Shoulder	1.39±3.08	4.37±9.27	1.26±2.36	5.14±8.94	0.347
Right Upper Arm	0.34±0.97	3.93±8.52	0.74±1.54	1.07±2.21	0.075
Left Upper Arm	0.58±1.73	3.31±8.81	0.42±1.26	0.46±1.50	0.494
Right Wrist	0.45±0.83	13.00±26.81	3.78±8.21	8.47±19.76	0.016*
Left Wrist	0.86±3.12	3.18±8.88	1.28±2.03	3.14±7.66	0.145
Back	5.21±8.74	14.54±16.27	7.88±13.07	16.89±22.02	0.011*
Low back	3.06±4.41	15.08±17.29	7.88±17.95	15.89±25.06	0.014*
Hip	1.02±2.17	5.83±14.43	0.42±1.26	1.07±2.67	0.062
Right Upper Leg	0.95±2.17	5.00±12.92	0.12±0.41	0.21±0.68	0.034*
Left Upper Leg	1.36±3.36	4.83±12.79	0.12±0.41	0.30±0.86	0.106
Right Knee	0.67±1.52	6.02±10.77	0.86±2.83	1.39±3.56	0.148
Left Knee	2.41±6.26	5.52±13.07	1.04±2.82	0.81±1.55	0.487
Right Lower Leg	0.41±1.41	3.39±9.17	0.30±0.75	2.36±9.06	0.256
Left Lower Leg	0.67±2.92	3.27±8.79	0.42±1.26	2.44±9.05	0.291
Right Foot	0.26±0.58	5.45±13.57	0.24±0.70	1.32±6.47	0.166
Left Foot	0.28±1.07	3.25±8.82	0.74±2.80	1.30±6.49	0.399
Total	24.15±24.87	120.18±156.72	34.06±33.69	74.32±85.07	0.005

4. DISCUSSION

The aim of this study was to investigate musculoskeletal pain (MSP) in physiotherapists. The findings of the study revealed that physiotherapists working with different patient types experienced pain in various body parts, with a higher prevalence in the back, neck, and low back regions. Notably, physiotherapists working with neurological patient groups reported significantly higher scores for neck region pain compared to other groups. The study also highlighted that a majority of the participants did

not find their working conditions to be ergonomic. This was attributed to factors such as fixed bed-chair lengths, the challenging nature of patients they treated, and the lack of necessary equipment. Regarding job satisfaction, the study found that physiotherapists working with orthopedic patient groups exhibited higher levels of satisfaction, whereas those working with pediatric patient groups reported lower levels of job satisfaction. It was also observed that physiotherapists working with pediatric patients were predominantly employed in private institutions, while those working with orthopedic and mixed patient groups were more commonly employed in public institutions.

The findings of the present study align with previous research conducted by Atli et al. (Atli et al., 2020), Arslan et al. (Arslan & Atıcı, 2019), and Akbaba et al. (Akbaba et al., 2018) regarding the prevalence of musculoskeletal pain (MSP) in physiotherapists. According to these studies, physiotherapists commonly experience pain in the back, low back, neck, lower back, hand, shoulder, knee, and foot regions. The current study also reveals that physiotherapists working with neurological patient groups experience higher rates of MSP. This can be attributed to the increased exertion of muscle power and the need to support the body weight of multiple patients in this particular patient group. Additionally, the absence of ergonomic beds and chairs in the institutions where they work contributes negatively to the occurrence of MSP among these physiotherapists (Akbaba et al., 2018; Arslan & Atıcı, 2019; Atli et al., 2020). The consistency between the findings of the present study and the existing literature strengthens the validity and reliability of the results.

The studies conducted by Adegoke et al. (Adegoke et al., 2008), Abaraogu et al. (Abaraogu et al., 2017), Nordin et al. (Nordin et al., 2011), and Al-Eisa et al. (Al-Eisa et al., 2012). on physiotherapists in various countries consistently report that musculoskeletal pain (MSP) is commonly experienced in the lower back and neck regions. Adegoke et al. (Adegoke et al., 2008) found that MSP was most prevalent in the lumbar region among Nigerian physiotherapists. Similarly, Abaraogu et al. (Abaraogu et al., 2017) reported that physiotherapists frequently experienced pain in the lower back and neck regions. Nordin et al. (Nordin et al., 2011) observed that pain was most common in the lumbar region among Malaysian physiotherapists. In a study by Al-Eisa et al. (Al-Eisa et al., 2012) conducted on physiotherapists from Egypt and Saudi Arabia, it was also reported that the lower back and neck regions were the areas most affected by pain. The consistency of these findings across different countries indicates that MSP is a prevalent issue among physiotherapists worldwide. These studies provide valuable evidence supporting the notion that MSP is a common concern in the physiotherapy profession.

The studies conducted by Salik and Özcan (Salik & Özcan, 2004), West and Gardner (West & Gardner, 2001), Cromie et al. (Cromie et al., 2000), Nordin et al. (Nordin et al., 2011), and Glover et al. (Glover et al., 2005) consistently report a high prevalence of musculoskeletal pain (MSP) among

physiotherapists. Salik and Özcan (Salik & Özcan, 2004) found that 85% of physiotherapists experienced MSP, while West and Gardner (West & Gardner, 2001) reported a prevalence of 55%. Cromie et al. (Cromie et al., 2000) observed a high rate of 91% MSP among physiotherapists, and Nordin et al. (Nordin et al., 2011) reported a prevalence of 71.6%. Glover et al. (Glover et al., 2005) found that 68% of physiotherapists experienced MSP. These studies in the literature highlight several common causes of MSP among physiotherapists, including excessive rotation and bending movements in the lumbar region, difficulties in carrying and transferring dependent patients, prolonged periods of working in the same position, repetitive tasks, and treating a high number of patients in a single day (Cromie et al., 2000; Glover et al., 2005; Nordin et al., 2011; Salik & Özcan, 2004; West & Gardner, 2001). The findings of our study align with the literature, also reported a high prevalence of MSP among physiotherapists, with a minimum rate of 80%. Additionally, a significant proportion of participants (82%) stated that the working conditions were not ergonomic, with fixed bed-chair lengths, difficulties in patient handling, and working in improper postures cited as reasons. These consistent findings highlight the importance of addressing the ergonomic factors and workload management in the field of physiotherapy to reduce the incidence of MSP and improve the well-being of physiotherapists.

The study conducted by Yakut et al. (Yakut & Yakut, 2011) supports our findings, indicating that physiotherapists who work with orthopedic patients experience higher job satisfaction. This is in line with the literature, as factors such as personal opportunities, working conditions, and financial gain are known to influence job satisfaction (Sur et al., 2004).

It was reported in the study conducted by Yakut et al. in Physiotherapists who work with orthopedic patient type that their job satisfaction is higher (Yakut & Yakut, 2011). Our results are consistent with the literature. Factors such as personal opportunities, working conditions and financial gain are known to affect job satisfaction (Sur et al., 2004). The presence of musculoskeletal pain (MSP) is another factor that can impact job satisfaction. In the orthopedic patient group, physiotherapists may experience shorter treatment durations, higher patient turnover, and potentially less MSP compared to other patient groups. These factors may contribute to higher job satisfaction among physiotherapists working with orthopedic patients. It is important to consider multiple factors when examining job satisfaction in physiotherapists, as it can be influenced by various aspects of their work environment, patient population, and personal experiences. By understanding these factors, interventions and improvements can be implemented to enhance job satisfaction and overall well-being of physiotherapists.

The study our conducted indeed has some limitations that should be taken into consideration. The collection of data online due to the pandemic may have limited the ability to directly interact with the participants, potentially impacting the depth and quality of the data obtained. Additionally, the sample

of participants predominantly consisting of physiotherapists with less than 5 years of experience may introduce a bias and limit the generalizability of the findings to the broader population of physiotherapists. To address these limitations and further enhance the understanding of MSP and job satisfaction among physiotherapists, future studies could be conducted in a face-to-face manner, allowing for more detailed data collection and potentially reaching a wider range of physiotherapists with varying levels of experience. It would also be beneficial to explore additional risk factors that can influence job satisfaction, such as organizational factors, interpersonal relationships, workload, and professional development opportunities. By addressing these limitations and expanding the scope of investigation, future studies can provide a more comprehensive understanding of MSP and job satisfaction among physiotherapists, leading to the development of targeted interventions and strategies to improve their well-being and overall job satisfaction.

The presence of work-related MSP is quite high in physiotherapists. MSP is common especially in the low back, back, neck, shoulder and wrist regions. Physiotherapists working in different patient groups do not find the working conditions ergonomic. MSP negatively affects job satisfaction. While job satisfaction is higher in physiotherapists working with orthopedic patient type, it is less in physiotherapists working in pediatric patient group. Physiotherapists working with the neurological patient group have MSP more in the neck region and right wrist region. Likewise, physiotherapists working in neurological and mixed patient types have more MSP in the lower back and back region. There are many factors that affect the job satisfaction of physiotherapists. It is thought that making the working environment of physiotherapists ergonomic, arranging weekly and daily working hours, optimizing the average number of patients and working in a balanced way from different patient types will reduce MSP and increase job satisfaction in physiotherapists. There is a need for cohort studies examining how and when musculoskeletal pain occurs in future studies.

Supporting Institution

“None”.

Conflict of Interest

“The authors have no conflicts of interest to declare”.

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