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Original Research

The Relationship Between Musculoskeletal Discomfort and Professional Quality of Life Among Nurses

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ABSTRACT

Background: Harsh working conditions lead nurses to experience musculoskeletal discomfort and impair their professional quality of life.
Aims: The aim was to determine musculoskeletal discomfort of nurses and to compare its relationship with their professional quality of life in terms of their socio-demographic characteristics.
Design: It is a cross-sectional, descriptive, and correlative study.
Settings: Different units of a public hospital.
Participants: 333 nurses working at different units.
Methods: The data were collected from 333 nurses working at different units in a public hospital between July and December 2018. The data collection tools include an 8-question participant information form, Cornell Musculoskeletal Discomfort Questionnaire, and Professional Quality of Life Scale.
Results: The nurses suffered mostly from lower back pain (90.4%) and their pain slightly interfered with their works (49.8%). There was a weak positive but significant correlation between musculoskeletal discomfort and professional quality of life of the nurses ($r = 0.215$; $p < .001$). The nurses, who were younger, were male, were working in executive positions, had less institutional and professional experience, and had higher mean score of musculoskeletal discomfort ($p < .05$).
Conclusions: The professional quality of life of the nurses experiencing musculoskeletal discomfort in their bodies was negatively affected. For example, as the musculoskeletal disorders increase, the levels of burnout and compassion fatigue, which constitute the quality of life, also increase.
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Being an important and indispensable component of the health system, nursing is considered one of the professions having intensive workload (Jaradat et al., 2016). Besides, factors such as lack of sufficient support regarding the working conditions, working in shifts, long working hours (Castilho et al., 2015), heavy workload, inadequate equipment and personnel (Drury et al., 2014; Rees et al., 2015), chaotic working conditions, interventions requiring continuous attention, and continuous communication with patients and their relatives (Freimann & Merisalu, 2015; Jaradat et al., 2016) negatively affect the professional quality of life of nurses. Unfavorable working conditions lead to increased work accidents, absenteeism, coming to the job late (Amin et al., 2015), decreased employee productivity, and impaired quality of patient care provided (Lindegård et al., 2014).

Along with unfavorable working conditions, nurses feel many negative emotions such as burnout, anxiety (Tuvesson & Eklund, 2014), depression and compassion fatigue (Hegney et al., 2015; Rees et al., 2015), thus affecting their professional quality of life adversely. Compassion fatigue, which is only one of the negative conditions that can be experienced as a result of unfavorable working conditions, occurs as a result of traumatic working conditions experienced by the individual in working life (Drury et al., 2014). Thus, individuals may have difficulty sleeping and suffer from psychologic and physical disorders (Craigie et al., 2016; Hegney et al., 2015; Ray et al., 2013). Another cause of compassion fatigue is burnout, which means emotional exhaustion, depersonalization, and decreased personal accomplishment. Compas-

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sion fatigue is the state of burnout experienced when care giving and compassionate practices are habitually repeated in working conditions (Craigie et al., 2016; Hegney et al., 2015).

Contrary to harsh working conditions, nurses who are satisfied and happy with their job have less burnout and depression (Hegney et al., 2015), and those who enjoy their work are affected less by the workload (Ray et al., 2013). As a result, the professional quality of life, and gaining more autonomy and professional status within the organization are associated with increased job satisfaction (Hegney et al., 2015). Employee physical health is closely related to professional quality of life, as well. Some studies have reported a relationship between adverse working conditions and musculoskeletal discomfort (Jaradat et al., 2016; Rahman & Abdul-Mumin, 2017).

Musculoskeletal disorders, also known as recurrent disorders or physical trauma disorders, are among the most common health problems experienced by nurses in their work life (Freimann & Merisalu, 2015). Musculoskeletal discomfort can affect employees for days, months, or years (Amin et al., 2014). If this is not controlled, nurses' health problems will increase, resulting in both loss of labor in health institutions and impaired quality of patient care (Duarte et al., 2016; Freimann & Merisalu, 2015).

Methods

Aims

The aim was to determine musculoskeletal discomfort of nurses and to compare its relationship with their professional quality of life in terms of their socio-demographic characteristics. In the study, answers to the following questions were sought by measuring the musculoskeletal discomfort and professional quality of life of the nurses.

- What are the nurses' frequency of experiencing musculoskeletal discomfort according to body parts, their pain intensity, and its level of preventing them from working?
- Is there a relationship between musculoskeletal discomfort and professional quality of life among nurses?
- What are the socio-demographic characteristics of the nurses creating a statistically significant difference on their status of having musculoskeletal discomfort?

Design

This study is a descriptive, correlational, and cross-sectional study. Correlational studies aim to reveal the relationship between two or more variables (Quaranta, 2017).

Sample and procedure

A survey was conducted with a convenience sample of 400 nurses working for at least one year in a public hospital in Istanbul. The survey was conducted between July and December 2018. The survey response rate was 83.25% (n = 333). The nurses were ≥30 years of age(60.4%), female (88.6%), and single (53.5%). The majority worked in staff position (91.0%), in specialized units (such as intensive care emergency and operating room) (78.1%), and in shifts (78.4%). While the tenure of participants in the profession was ≥8 years (41.7%), their tenure in the organization was <3 years (36.9%) (Table 1).

Table 1
Socio-demographic characteristics of the participants (N = 333).

		n	%
Age groups	≤30 years	201	60.4
	≥31 years	132	39.6
Sex	Female	295	88.6
	Male	38	11.4
Marital status	Married	155	46.5
	Single	178	53.5
Position	Staff nurse	303	91.0
	Executive nurse	30	9.0
Tenure in profession	≤3 years	107	32.1
	4-7 years	87	26.1
	≥8 years	139	41.7
Tenure in organization	≤3 years	123	36.9
	4-7 years	117	35.1
	≥8 years	93	27.9
Unit	Special units	260	78.1
	Others	73	21.9
Working shift	Only day	72	21.6
	Night and day shift	261	78.4

Measures

The survey contained eight questions about descriptive characteristics of the nurses and two scales on musculoskeletal problems and professional quality of life were used.

Participant information form

It is a form with eight questions about descriptive characteristics of the nurses (age, gender, marital status, position, tenure in profession, tenure in organization, unit, and working shift).

Cornell Musculoskeletal Discomfort Questionnaire (CMDQ)

The questionnaire was developed by Hedge, Morimoto, and McCrobie (1999) and Erdinc, Hot, and Ozkaya (2011) conducted its Turkish adaptation, validity, and reliability study. The questionnaire consists of three parts. The first part examines whether or not the respondents have pain in 20 body parts (neck, lower back, back, etc.) and the responses are rated from "Never = 0 point" to "Several times every day = 4 points". Those who choose "never" in this section do not fill the other sections. The second part examines the intensity of pain of the respondents and the responses are rated from "Slightly = 1 point" to "Very = 3 points". The third part examines whether or not the pain prevents them from doing their work and the responses are rated between "Not at all = 0 point" and "Very = 2 points". High scores signify that discomfort frequency, severity, and working ability interference are high. In the comparison made with Visual Analog Scale (VAS) measurements to test the criterion validity of the questionnaire, Spearman's correlation coefficients varied between 0.46 and 0.83 for all body parts (Erdinç et al. 2011). In this study, internal consistency coefficient of the questionnaire and its subscales was found to be between 0.85-0.92 (Table 3).

Professional Quality of Life Scale (ProQOL Scale)

The scale was developed by Stamm (2005) and adapted into Turkish by Yeşil et al., (2010). The scale is composed of 3 subscales including 10 items in each (Compassion satisfaction $\alpha = 0.87$, Burnout $\alpha = 0.72$, and Compassion fatigue $\alpha = 0.80$). Total internal consistency coefficient of the scale is $\alpha = 0.85$. The items are rated from "Never-0 Point" to "Very often-5 Points". Higher scores signify that respondents perceive a higher level of compassion satisfaction, burnout, and compassion fatigue (Yeşil et al., 2010). In this study, internal consistency coefficient of the scale and its subscales was found to be between 0.62-0.88 (Table 3).

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Data analysis

The data of the study were analyzed in IBM SPSS 21 (XXX University licensed) program. Descriptive statistics (number, frequency, minimum-maximum-mean, and standard deviations) as well as correlative (scatter plots and Pearson moment product correlation), comparative (independent samples *t*-test, Mann Whitney U, one-way ANOVA), and psychometric (Cronbach's Alpha) analyses were used to analyze the data (Quaranta, 2017).

Ethical consideration

Permissions from the authors who developed or adapted the original versions of the scales used in the study were received via e-mail. Before collecting the data, ethics committee approval was received (Decision No: 2018/05/05, Date: 12.03.2018) and institutional permissions were obtained. In the study, participants were informed of the study verbally and in writing and their signed consents were obtained.

Results

Musculoskeletal Discomfort Frequencies, Severities, and Working Ability Interference

The participants who stated that they had no pain were excluded from the analysis of severity and working ability interference (Table 2).

The nurses who participated in the study had mostly lower back pain (90.4%) which was mostly moderately severe (55.2%) and slightly interfered (49.8%). Lower back pain was followed by upper back (frequency = 85.6%; moderately severe = 63.5%; slightly interfered = 52.2%) and neck (total frequency = 266, 79.9%; moderately severe = 59.8%; slightly interfered = 59.0%). The body parts where the nurses felt the least pain were left forearms and wrists (both left and right) (Table 2).

The Correlations Between Musculoskeletal Discomfort and Professional Quality of Life

There was a weak positive but significant correlation between CMDQ and ProQOL total scores (r = 0.215; $p < .001$). The ProQOL subscale having the highest level of correlation with CMDQ total score was "Burnout (r = 0.220; $p < .001$)". The CMDQ subscale having the highest level of correlation with ProQOL total score was "Working Ability Interference (r = 0.353; $p < .001$)". The highest correlation between the subscales of both scales was observed between CMDQ-Working Ability Interference and ProQOL-Compassion Fatigue (r = 0.399; $p < .001$; Table 3).

Comparisons of the Musculoskeletal Discomfort in Terms of the Socio-Demographic Characteristics

The variables causing a significant difference on CMDQ scores of the nurses were focused in the study. It was found that the marital status and working types (shifts) of the nurses did not cause a significant difference in the overall CMDQ and its subscales. Additionally, the nurses who were younger, were male, were working in executive positions, and had less tenure in the organization and profession had higher total scores in CMDQ ($p < .05$). On the other hand, it was also determined that socio-demographic characteristics did not cause a significant difference in CMDQ-Severity scores ($p > .05$). Although the nurses working in specialized units had lower scores in overall CMDQ and its subscales than those working in other units, the difference between the groups was statistically

Table 2
CMDQ measurements (N = 333).

		CMDQ-F					CMDQ-S*			CMDQ-WAI*			
		Never	1-2 times last week	3-4 times last week	Once every day	Several times every day	Slightly	Moderately	Very	Not at all	Slightly	Moderately	Substantially
		n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Neck		67 (20.1)	153 (45.9)	51 (15.3)	29 (8.7)	33 (9.9)	86 (33.9)	152 (59.8)	16 (6.3)	94 (37.8)	147 (59.0)	8 (3.2)	
Shoulder	R	153 (45.9)	71 (21.3)	66 (19.8)	31 (9.3)	12 (3.6)	69 (41.1)	91 (54.2)	8 (4.8)	75 (44.6)	92 (54.8)	1 (0.6)	
	L	169 (50.8)	62 (18.6)	63 (18.9)	28 (8.4)	11 (3.3)	72 (47.7)	71 (47.0)	8 (5.3)	78 (51.7)	72 (47.7)	1 (0.7)	
Upper back		48 (14.4)	68 (20.4)	89 (26.7)	57 (17.1)	71 (21.3)	31 (11.9)	165 (63.5)	64 (24.6)	64 (25.1)	133 (52.2)	58 (22.7)	
Upper arm	R	208 (62.5)	76 (22.8)	37 (11.1)	11 (3.3)	1 (0.3)	75 (54.0)	63 (45.3)	1 (0.7)	105 (70.9)	43 (29.1)	-	
	L	218 (65.5)	68 (20.4)	36 (10.8)	9 (2.7)	2 (0.6)	71 (55.0)	57 (44.2)	1 (0.8)	97 (74.6)	33 (25.4)	-	
Lower back		32 (9.6)	68 (20.4)	79 (23.7)	50 (15.0)	104 (31.2)	45 (15.5)	160 (55.2)	85 (29.3)	73 (25.1)	145 (49.8)	73 (25.1)	
Forearm	R	217 (65.2)	70 (21.0)	20 (6.0)	25 (7.5)	1 (0.3)	69 (53.9)	53 (41.4)	6 (4.7)	82 (60.7)	53 (39.3)	-	
	L	233 (70.0)	60 (18.0)	21 (6.3)	18 (5.4)	1 (0.3)	74 (63.2)	43 (36.8)	-	87 (66.9)	43 (33.1)	-	
Wrist	R	223 (67.0)	32 (9.6)	43 (12.9)	8 (2.4)	27 (8.1)	67 (49.3)	59 (43.4)	10 (7.4)	64 (44.8)	64 (44.8)	15 (10.5)	
	L	218 (65.5)	37 (11.1)	37 (11.1)	13 (3.9)	28 (8.4)	67 (48.6)	63 (45.7)	8 (5.8)	70 (50.4)	55 (39.6)	14 (10.1)	
Hip/Buttocks		165 (49.5)	62 (18.6)	50 (15.0)	23 (6.9)	33 (9.9)	59 (32.8)	96 (53.3)	25 (13.9)	67 (35.8)	95 (50.8)	25 (13.4)	
Thigh	R	169 (50.8)	51 (15.3)	40 (12.0)	28 (8.4)	45 (13.5)	51 (30.0)	83 (48.8)	36 (21.2)	68 (38.4)	82 (46.3)	27 (15.3)	
	L	181 (54.4)	50 (15.0)	34 (10.2)	24 (7.2)	44 (13.2)	52 (34.2)	64 (42.1)	36 (23.7)	63 (38.2)	75 (45.5)	27 (16.4)	
Knee	R	181 (54.4)	57 (17.1)	44 (13.2)	26 (7.8)	25 (7.5)	61 (38.4)	74 (46.5)	24 (15.1)	77 (48.4)	54 (34.0)	28 (17.6)	
	L	199 (59.8)	54 (16.2)	32 (9.6)	23 (6.9)	25 (7.5)	57 (39.0)	65 (44.5)	24 (16.4)	72 (49.3)	47 (32.2)	27 (18.5)	
Lower leg	R	153 (45.9)	29 (8.7)	58 (17.4)	43 (12.9)	50 (15.0)	40 (21.3)	101 (53.7)	47 (25.0)	76 (39.2)	92 (47.4)	26 (13.4)	
	L	150 (45.0)	29 (8.7)	52 (15.6)	43 (12.9)	59 (17.7)	40 (21.1)	95 (50.0)	55 (28.9)	75 (38.3)	87 (44.4)	34 (17.3)	
Foot	R	113 (33.9)	34 (10.2)	86 (25.8)	26 (7.8)	74 (22.2)	46 (21.4)	102 (47.4)	67 (31.2)	63 (28.5)	111 (50.2)	47 (21.3)	
	L	121 (36.3)	33 (9.9)	72 (21.6)	26 (7.8)	81 (24.3)	44 (20.7)	96 (45.1)	73 (34.3)	62 (28.3)	110 (50.2)	47 (21.5)	

* The participants who stated that they had no pain were excluded from the analysis and the remaining sample size and percentages were calculated.CMDQ = Cornell Musculoskeletal Discomfort Questionnaire; F = frequency; S = severity; WAI =working ability interference.

Table 3
Correlations between CMDQ and ProQOL measurements.

		Range	M (SD)	1	2	3	4	5	6	7	8
1	CMDQ	1.00-2-75	1.80 (0.44)	α = .85							
2	CMDQ-F	1.00-4.00	2.19 (0.82)	0.916** .000	α = 0.92						
3	CMDQ-S	1.00-2.75	1.85 (0.43)	0.810** 0.000	0.647 0.000	α = 0.92					
4	CMDQ-WAI	1.00-2.00	1.16 (0.24)	0.563** 0.000	0.392 0.000	0.412 0.000	α = 0.91				
5	ProQOL	1.23-2.97	2.05 (0.38)	0.215** 0.000	0.209** 0.000	0.199** 0.000	0.353** 0.000	α = 0.86			
6	ProQOL-CS	1.00-4.90	2.78 (0.76)	0.007 0.896	-0.047 0.397	0.185** 0.001	0.140* 0.026	0.578** 0.000	α = 0.88		
7	ProQOL-B	0.60-.360	1.98 (0.51)	0.220** 0.000	0.284** 0.000	-0.020 0.718	0.111 0.079	0.353** 0.000	-0.451** 0.000	α = 0.62	
8	ProQOL-CF	0.00-3.30	1.40 (0.62)	0.207** 0.000	0.212** 0.000	0.167** 0.003	0.399** 0.000	0.855** 0.000	0.210** 0.000	0.395** 0.000	α = 0.72

*p < .05; **p < .001
Range = minimum and maximum scores of the participants; M = mean; SD = standart deviation; α = Cronbach's alpha internal consistency coefficient; CMDQ = Cornell Musculoskeletal Discomfort Questionnaire; F = frequency; S = severity; WAI = working ability interference; ProQOL = Professional Quality of Life Scale; CS = compassion satisfaction; B = burnout; CF = compassion fatigue.

Table 4
Comparisons of CMDQ measurements according to the socio-demographics.

		CMDQ M (SD)	CMDQ-F M (SD)	CMDQ-S M (SD)	CMDQ-WAI M (SD)
Age groups	≤30 years	1.86 (0.42)	2.33 (0.81)	1.87 (0.45)	1.21 (0.25)
	≥31 years	1.70 (0.45)	1.97 (0.80)	1.82 (0.39)	1.08 (0.17)
test and significance		t = 3.321	t = 4.004	t = 1.102	t = 4.428
		p = .001**	p < .001***	p = .271	p < .001***
Gender	Female	1.79 (0.42)	2.17 (0.80)	1.86 (0.44)	1.18 (0.24)
	Male	1.84 (0.53)	2.31 (0.99)	1.80 (0.35)	1.05 (0.09)
test and significance		z = -0.123	z = 0.424	z = -0.611	z = -2.390
		p = .902	p = .672	p = .541	p = .017*
Position	Staff nurse	1.77 (0.43)	2.26 (0.83)	1.84 (0.44)	1.16 (0.24)
	Executive	2.02 (0.45)	2.47 (0.75)	1.94 (0.33)	1.17 (0.24)
test and significance		z = 2.897	z = 1.910	z = 1.426	z = 0.21
		p = .004**	p = .056	p = .154	p = .825
Tenure in Profession	≤3 years[a]	1.83 (0.41)	2.28 (0.84)	1.91 (0.42)	1.13 (0.20)
	4-7 years[b]	1.90 (0.43)	2.43 (0.78)	1.81 (0.50)	1.29 (0.29)
	≥8 years[c]	1.70 (0.44)	1.97 (0.79)	1.82 (0.39)	1.11 (0.21)
test and significance		F = 6.114	F = 9.805	F = 1.679	F = 12.895
		p = .002**	p < .001***	p = .188	p < .001***
		b>c	a,b>c		b>a,c
Tenure in Organization	≤3 years[a]	1.80 (0.42)	2.24 (0.85)	1.88 (0.44)	1.13 (0.20)
	4-7 years[b]	1.87 (0.42)	2.29 (0.81)	1.88 (0.42)	1.26 (0.27)
	≥8 years[c]	1.70 (0.47)	1.98 (0.77)	1.77 (0.42)	1.08 (0.18)
test and significance		F = 3.935	F = 4.324	F = 2.303	F = 14.171
		p = .020*	p = .014*	p = .102	p < .001***
		b>c	a,b>c		b>a,c
Unit	Special units	1.78 (0.44)	2.18 (0.83)	1.83 (0.44)	1.14 (0.22)
	Others	1.86 (0.43)	2.23 (0.82)	1.91 (0.36)	1.23 (0.27)
test and significance		t = -1.431	t = -0.528	t = -1.487	t = -2.503
		p = .153	p = .598	p = .138	p = .014*

*p < .05; **p < .01; ***p < .001
t = independent sample t-test; z = Mann Whitney U tests; F = one-way ANOVA; CMDQ = Cornell Musculoskeletal Discomfort Questionnaire; F = frequency; S = severity; WAI = working ability interference.

significant only in CMDQ-Working Ability Interference subscale (p < .05) (Table 4).

Discussion

It is stated that nursing is one of the leading professions (Master et al., 2017) that cause musculoskeletal disorders at high rates and these rates have been reported to vary between 76.2% and 89.0% (Wang et al., 2015). The studies have reported that the most common pain is observed in the lower back; the other body parts suffering from pain are shoulder, neck, hands, and legs, respectively (Freimann et al., 2013; Wang et al., 2015), as seen in the present study. In another study, nurses had pain mostly in their lower backs (62.71%), necks (59.77%), and shoulders (49.66%), respectively (Yan et al., 2017).

Gül et al. (2014) stated that while 92.6% of the nurses suffered from pain in at least one body part, 7.4% had no complaint of pain. They determined the most common musculoskeletal disorder as lower back (66.4%), back (56.2%), and neck (51.6%) pain and the pain frequencies as occasional (66.8%), increasing during working (66.3%), and increasing during standing (63.9%). Kandemir et al. (2019) reported that back (56.8%), lower back (51.9%), and neck (49.4%) were the body parts that suffer the most pain, followed by shoulder (43.2%), foot/ankle (38.3%), and knee (31.5%) respectively. This result supports the result of the present study.

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According to a study by Akodu & Ashalejo (2019), 60% of nurses had musculoskeletal disorders within the last 12 months. They experienced pain most often in the lower back (43.20%) and least often in fingers and thumbs (1.20%), which is also compatible with the result of the present study. In addition, Master et al. (2017) reported that nurses experienced pain most often in the lower back region (63.1%) and least often in elbows (7.2%); moreover, almost half of them (51.4%) were off within the last year due to pain.

In their study, Gül et al. (2014) reported that the nurses were hospitalized mostly due to lower back (7.4%) and neck (3.7%) pain and 3.2% of them changed their position because of lower back pain. Their work/domestic lives were negatively affected by lower back (36.4%), neck (27.6%), and back, and foot/ankle pain (23%). In addition to seeing a doctor because of neck pain (23.5%) and lower back pain (23.3%), they took medication most frequently because of these pains and 9.7% were on sick leave due to lower back pain. In another study, Kandemir et al. (2019) reported that back pain adversely affected the domestic/work lives of 58.6% of nurses and 56.5% of them took medication; domestic/work lives of 66.6% of those with lower back pain were negatively influenced, 32.1% saw a doctor, 66.6% took drugs, and 27.3% were on sick leave because of pain in this region; 61.2% of those with neck pain had a negatively affected domestic/work life and 62.5% of them took medication. These studies, all of which support the results of the present study, showed that there was a positive, highly significant correlation between musculoskeletal disorder and the professional quality of life, especially in terms of working ability.

When musculoskeletal disorders were evaluated in terms of socio-demographic characteristics, Gül et al. (2014) reported that gender was one of the important risk factors for pain, the frequency of pain was higher in women than men, and age was not a risk factor ($p = .23$). According to a study by Master et al. (2017), female nurses experienced more pain in shoulders ($r = 0.105$; $p = .036$) and ankles/feet ($r = 0.170$; $p = .001$) compared with male nurses; the nurses aged between 41-51 years had more pain in their shoulders ($P = .032$) compared with other age groups, and younger nurses experienced more pain in their elbows ($p = .040$) and dorsal regions ($p = .040$). Akodu & Ashalejo (2019) also reported that the nurses aged between 31-40 years (76.10%) and those having a tenure of ten years or longer in profession (50.60%) experienced more pain. Additionally, no statistically significant difference was found between pain and age, gender, tenure in profession, working hours, and position ($p > .05$). Results of these studies are not compatible with the results of the present study. However, the fact that inexperienced nurses have higher expectations than experienced nurses leads them to have higher levels of compassion fatigue and burnout (Kolthoff & Hickman, 2017). As a result of the study, this may be associated with the fact that the inexperienced nurses had more musculoskeletal discomfort.

Limitations

Limitations of the study are that it could not be conducted within the scope of a larger sample and was conducted in a single institution; in addition, the majority of the sample included in the study was female nurses. The rate of male nurses remained at 11.4%.

Conclusions

The results of the study revealed that nurses experienced pain mostly in the lower back and this pain was mostly at a moderate level and slightly interfered with their working ability. Lower back was followed by upper back and neck pain. Moreover, a positive, highly significant correlation was determined between musculoskeletal discomfort and professional quality of life, between musculoskeletal discomfort and burnout, between professional quality of life and working ability interference, and between working ability interference and compassion fatigue. In addition, the nurses, who were younger, male, working in executive positions with less tenure in organization and profession, experienced more musculoskeletal disorders.

Implications for Nursing

As a result of the study, it can be recommended;

- To evaluate periodically the musculoskeletal discomforts of nurses rather than ignoring them,
- To make necessary arrangements (shortening the working time, reducing the workload, increasing the number of employees, decreasing the number of patients per person, and providing sufficient number and quality equipment) by determining the nurses suffering from musculoskeletal discomfort,
- To identify the reasons and working conditions leading nurses to experience musculoskeletal discomfort,
- To minimize the musculoskeletal disorders that negatively affect the work life of nurses, increase their absenteeism, and cause them to work inefficiently.

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