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YOĞUN BAKIM ÜNİTESİ HEMŞİRELERİNDE İŞLE İLİŞKİLİ KAS- İSKELET HASTALIKLARI VE RAHATSIZLIKLARININ BELİRLENMESİ

A STUDY OF MUSCULOSKELETAL DISORDERS AND DISCOMFORTS, WORK- RELATED IN INTENSIVE CARE UNIT NURSES

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Özet

Yoğun bakım ünitelerinde çalışan hemşirelerde kas- iskelet rahatsızlıkları, tanı konulmuş kas- iskelet hastalıklarını ve işle ilişkisini belirlemektir. Batı Anadoludaki bir büyükşehrin iki üniversite hastanesinde (A, B) gerçekleştirildi. Bu hastanelerdeki 12 YBÜ'nde çalışan 201 hemşireye ulaşıldı. Hemşirelerde tanılanmış kas-iskelet hastalıkları tanımlandı ve kas- iskelet rahatsızlıklarının incelenmesinde Cornell Kas-İskelet Rahatsızlık Skalası kullanıldı.Hemşirelerin tanı konmuş kas iskelet sistem hastalığı prevalansının %19.9 olduğu, %80.1'inde ise tanısı konmuş bir kas- iskelet hastalığının olmadığı belirlendi. Hemşirelerin %6.96'sının kas- iskelet hastalığı nedeniyle rapor, izin..vb nedenlerle işten ayrıldığı ve bunun sonucunda %2.45 iş günü kaybı oluştuğu saptandı.Yoğun bakım ünitesi hemşirelerinde tanı konmuş kas iskelet sistem hastalığının yüksek olduğu, kas iskelet sistemi rahatsızlıklarının ise çalışma gücünü etkilediği ve iş günü kaybına neden olduğu belirlendi. Hemşirelerden yardım almadan çalışanlarda ve daha çok ayakta çalışdığını belirtenlerde kas- iskelet hastalığı görülme arasında istatistiksel olarak anlamlı fark olduğu($p<0,05$) bulundu.

Anahtar Kelimeler: işle ilişkili kas- İskelet hastalıkları, kas- iskelet rahatsızlıkları, yoğun bakım ünitesi, hemşirelik, ergonomi

Abstract

To determine the musculoskeletal discomforts and the diagnosed musculoskeletal disorders in nurses working in the intensive care units (ICUs) and the workdays lost. The study was realized at two metropolitan university hospitals (A, B) in Western Anatolia. A total of 201 nurses working in 12 ICUs at these hospitals were contacted. The musculoskeletal disorders diagnosed in the nurses were defined and the Cornell Musculoskeletal Discomfort Questionnaire (CMDQ) was used in studying the musculoskeletal discomforts. . It was determined that the prevalence of a diagnosed musculoskeletal system disorder in the nurses was 19.9%, whereas, in 80.1% of the nurses there was not a diagnosed musculoskeletal disorder. It was found that 6.96% of the nurses who were diagnosed with musculoskeletal disorders were on leave of absence and/or on sick leave, and that the loss was 2.45 %. It was determined that the diagnosed musculoskeletal system disorders in the ICU nurses was high, that the musculoskeletal system discomforts affected working strength and caused workday losses. A linear relationship ($p<0.05$) was found between having a diagnosis of musculoskeletal disorder as the period of working in the profession increased and as the period of working in the ICU increased.

Keywords: work-related musculoskeletal disorders, musculoskeletal discomfort, intensive care unit, nursing, ergonomics

INTRODUCTION

For many years, the relationships between work life and human health were only treated as problems of those employed in the industrial branches of work. Whereas, there are risks created for the professional members of every branch of activity and every branch of production.[1] The health sector is in second place in the listing of sectors determined to have the most frequent on-the-job accidents.[2] While the incidence of musculoskeletal disorders is stated to be 5.7% for industry in general, this rate is 8.8% for the hospital industry.[3]

Health personnel are confronted with various risks, such as physical, chemical and biological, in the hospital environment.[4,5] Nurses are one of the most important human resources of the health system.[6]The health of nurses influences not only their job satisfaction, quality of life and desire to change careers, but also quality of care and patient safety.[7] The rate of observing risks in nurses in a hospital environment can change according to the clinic where the nurses work, the patient potential, working environment, the use of auxiliary equipment-materials and the duties carried out.

A majority of the patients receiving treatment in the ICUs are bedridden and/or unconscious patients. Most of the daily life activities of these patients, such

as change in position, dressing, undressing, bathing and toilet needs are carried out by nurses. Consequently, the probability of the prevalence of biomechanical risks and musculoskeletal disorders/discomforts in nurses at the ICUs is higg.[8,9] The concepts of musculoskeletal disorders and musculoskeletal discomforts can be confused with each other. While diagnoses, such as disk hernias, myalgia, carpal tunnel syndrome, kyphosis and scoliosis, which are defined by doctors, such as orthopedists and physiotherapists, are studied within musculoskeletal disorders, whereas, discomforts, such as pain and aches, are studied within the discomforts of musculoskeletal disorders. If they both formed due to strains stemming from the work environment and conditions, then they can be defined as work-related musculoskeletal disorders (WRMDs).

Aim

The aim of this study is to determine the musculoskeletal disorders and discomforts of nurses working in the intensive care units, to set forth their work- related.

METHODS

Study design

This study, which was planned in descriptive medicine, was realized at two metropolitan university hospitals (A, B) in Western Anatolia. Of the 13 ICUs providing patient care for 10 or more beds at these hospitals, the study was realized at 12 ICUs, which gave permission for the study. It included a sampling environment. The study environment was composed of 245 nurses working in the ICUs, but 201 nurses were covered in the study.

Data Collection

The nurse data gathering form, composed by the researcher by studying the literature related to the subject, was answered by the nurses. The Cornell Musculoskeletal Discomfort Questionnaire (CMDQ) was used for the determination of the musculoskeletal discomforts, pain, strength of pain and 7-day prevalence. The CMDQ is a 54-item questionnaire containing a body map diagram and questions about the prevalence of musculoskeletal aches, pains, or discomforts in 18 regions of the body during the previous week. Respondents indicate frequency of discomfort on an ordinal scale from 0 (none) to 4 (daily) and severity of discomfort from 1 (slightly uncomfortable) to 3 (very uncomfortable). A pain level of at least ‘‘moderately uncomfortable’ was selected as a severity threshold for determining prevalence and frequency. Written permission by e-mail was obtained from Alan Hedge (Ph.D., CPE), Director of the Cornell University, Human Factors and Ergonomy Laboratory, who developed the CMDQ Due to the fact that this questionnaire contains a scale with an anatomic diagram, it was used without the necessity of validation and reliability conformation according to the Turkish language.

Data analysis

The data codes of the study were made with the Statistical Programme for Social Sciences (SPSS) 11.0 program and were evaluated statistically with numbers, percentages, averages, correlation coefficients and the Pearson Chi-Square tests.

Ethical considerations

Prior to starting the study, written and verbal permission was obtained from the Ethics Committee of the A University within the scope of the study, the Offices of the Chiefs of Staff of the Hospitals, the Nursing Services Directorates and from the nurses participating in the study.

RESULTS

It was observed that of the nurses working in the ICUs, 73.6% (n: 148) were in the 20-29 years of age, 25.9% (n: 52) were in the 30-39 years of age group and the average age was 27.39 ± 4.2 (minimum: 21 - maximum: 43). It was determined that 60.7% (n: 122) of the nurses were single, 37.8% (n: 76) were married, 26.9% (n: 54) had children and 2.5% (n: 5) were pregnant. When the nurses were studied from the aspect of educational status, it was determined that 82.6% (n: 166) of the nurses had a bachelor’s degree, 11.4% (n: 23) had a two-year degree, 3.5% (n: 7) were graduates of a health vocational high school and only 2.5% (n: 5) were graduates of postgraduate education (Table 1).

It was determined that the prevalence of the nurses who had a musculoskeletal system disorder diagnosed by a doctor was 19.9% (n: 40) and that 80.1% (n: 161) did not have a diagnosed musculoskeletal system disorder. Accordingly, it was determined that out of approximately every 5 nurses working in the ICUs, 1 nurse had at least one musculoskeletal system disorder diagnosed by a doctor (Table 1).

Table 1. Distribution of the Nurses According to Some Sociodemographic Characteristics

Sociodemographic Characteristics		
Age	No.	%
20-29 Years of Age Group	148	73.6
30-39 Years of Age Group	52	25.9
40 Years of Age and Above	1	0.5
Marital Status	No.	%
Single	122	60.7
Married	76	37.8
Widowed	3	1.5
Children	No.	%
No	142	70.6
Yes	54	26.9
Pregnant	5	2.5
No. of Children	No.	%
1 Child	42	77.8
2 Children	12	22.2
Last School Graduated from	No.	%
Bachelor’s Degree	166	82.6
Two-year degree	23	11.4
Health Vocational High School	7	3.5
Postgraduate Education	5	2.5
Total	201	100

When the diagnosed musculoskeletal system disorders in nurses was examined in Table 2, it was determined that 28.0% (n: 14) had a diagnosis of lumbar disk hernias, 12.0% (n: 6) myalgia + sciatalgia, 12.0% (n: 6) cervical disk hernia, 8.0% (n: 4), kyphosis + scoliosis, 8.0% (n: 4), tenosynovitis + tendinitis + tennis elbow, 8.0% (n: 4) lower back

trauma + spinal weakness (lumbago) + cervical flattening and 6.0% (n: 3) meniscal tears. If the diagnoses up until here are taken into account, then it is observed that in general, disorders mostly in the forefront are due to individual behaviors or environmental factors, such as mechanical stress or wrong position and not conforming to body mechanics. Rheumatoid arthritis + osteoporosis + osteopenia in which genetic roles and environmental factors are in the forefront were observed at the rate of 6.0% (n: 3). Furthermore, carpal tunnel syndrome was observed at the rate of 4.0% (n: 2) and thoracic disk hernia at the rate of 4.0% (n: 2) and it was determined that there was breakage, which was treated at the rate of 4.0% (n: 2).

It was found that there was a statistically significant difference in the nurses between musculoskeletal disorders and age (X^2: 9,666, SD: 12, p: 0.05) and that as age increased, the musculoskeletal disorders also increased. It was found that there was a statistically significant difference in the nurses between musculoskeletal disorders and not receiving assistance from the personnel when transporting patients (X^2: 17,912, SD: 7, p: 0.02) and those who stated that they mostly worked standing up (X^2: 36,051, SD: 23, p: 0.04). In our study, it was observed that there was a positive linear relationship between the period of nurses working in the profession and having a diagnosis of musculoskeletal disorders (r: 0.251, p<0.01) and the period of working in the ICUs and having a diagnosis of musculoskeletal disorders (r: 0.237, p<0.01); between the period the nurses working in the profession and having a diagnosis of disk hernia (r: 0.263, p<0.01) and the period worked in the ICUs and having a diagnosis of disk hernia (r: 0.300, p<0.01).

It was observed in the study that 6.96% (14/201) of the nurses experiencing a diagnosed musculoskeletal disorder used a leave of absence and/or sick leave. A total of 1,280 workdays were lost by those using leave of absence and/or sick leave.

$$\text{Workdays lost (201 nurses)} = \frac{\text{Total days of leave of absence + sick leave used}}{\text{Annual working days of a nurse (5 days * 52 weeks * 201 nurses)}} \times 100$$

$$= \frac{1{,}280 \text{ days}}{52{,}260 \text{ days}} \times 100$$

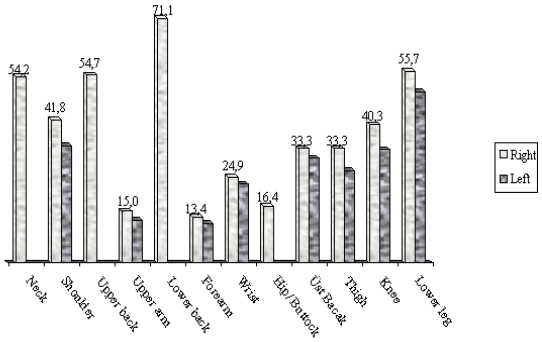
$$= 2.45\ \%$$

Of all the nurses within the scope of the study, it was determined that for the annual number of days worked, the workday loss during the past year was calculated to be 2.45% days.

The CMDQ was used to determine in the ICU nurses the musculoskeletal discomforts, which had not yet been diagnosed or had not yet reached the stage of diagnosis and to determine the musculoskeletal discomforts, which had occurred in the last working week. According to the questionnaire, the “medium degree discomfort” from the degree of pain column was accepted to be the threshold value in the determination of the prevalence of musculoskeletal pain (Table 3).

When the 7-day frequency of having pain in the nurses was examined with the musculoskeletal discomfort questionnaire in Figure 1, it was observed that the most frequent complaint of pain was 71.1% (n: 143) for lower back pain, followed by 55.7% (n: 112) for lower limb (right) pain, 54.7% (n: 110) for upper back pain, 54.2% (n: 109) for neck pain and 41.8% (n: 84) for shoulder pain.

Figure 1. The Seven-Day Frequency of Pain with the Cornell Musculoskeletal Discomfort Questionnaire



When the daily pain status of the ICU nurses was evaluated according to the CMDQ, it was observed that throughout the last working week, 37.3% (n: 75) had lower back pain every day (once + many times), 32.8% (n: 66) had upper back pain every day (once + many times), 30.4% (n: 61) had lower limb (right) pain every day (once + many times) and 24.4% (n: 49) had neck pain every day (once + many times) (Table 4).

In Table 3, the nurses feeling pains, aches or discomforts throughout the last working week were studied with the CMDQ for the degree of discomfort and situation of affecting their working capacity. The nurses who had pain throughout the last working week stated that they experienced pain causing discomfort at a medium degree in all the regions of their bodies and that it affected their working capacity slightly.

DISCUSSION

The musculoskeletal disorders constitute over one-third of the work-related injuries and are the cause of absence from work (Malone 2000). Under the name of occupational musculoskeletal disorders, the terms “Repetitive Strain Injury” (RSI), “Cumulative Trauma Disorders” (CTs) and “Work-related Musculoskeletal Disorders” (WMSDs) are used. The WMSDs are composed of repetitive physical activities and poor ergonomy, such as working with a bad posture that would damage tendons, nerves, muscles and other soft tissues, rigorous activities and working for a long period without a break.[10] They are closely related to vigorous activities and especially bending, turning and lifting heavy objects.[11]

In the study made, it was determined that the prevalence of musculoskeletal system disorders diagnosed by a doctor in the nurses working in the

ICUs was 19.9% (n: 40) and that they were present in one out of five nurses. Generally, the prevalence of musculoskeletal symptoms is high in those working in health care.[12] It was stated in the Self-reporting Work Illness Survey of 1995 that the risk of musculoskeletal disorders in nurses was the highest.[13]

It was found in the ICU nurses, who had musculoskeletal disorders, that disk hernias (lumbar, cervical, thoracic) were the most at 44% (n: 22) and this was followed by various musculoskeletal system pains at 12% (n: 6), various tendon discomforts at 8% (n: 4) and carpal tunnel syndrome at 4% (n: 2) and it was observed that a majority of 68% were WMSDs (Table 2). It was observed that as age increased, musculoskeletal disorders also increased.

Table 2. Distribution of the Musculoskeletal System Disorders of the Nurses Diagnosed by a Doctor

Musculoskeletal System Disorders	No.	%
Lumbar Disk Hernia	14	28.0
Myalgia+ Sciatalgia + Neck Pain	6	12.0
Cervical Disk Hernia	6	12.0
Kyphosis + Scoliosis	4	8.0
Tenosynovitis + Tendinitis + Tennis Elbow	4	8.0
Injury in Lower Back + Spine Weakness (Lower Back) + Cervical Flattening	3	6.0
Meniscal Tear	3	6.0
Rheumatoid	2	4.0
Arthritis+Osteoporosis+ Osteopenia	2	4.0
Carpal Tunnel Syndrome		
Thoracic Disk Hernia		
Treated Fractures (Fractured Metatarsus)		
Total	50*	100

* More than one answer was given.

A statistically significant difference ($p<0.05$) was found between nurses who work without assistance and those who stated that they mostly work standing up and the frequency of musculoskeletal disorders.

In our study, there was a statistically significant difference ($p<0.05$) between nurses who had a diagnosis of disk hernia and those who had lower back pain during the last working week. In a study by Karahan *et al.* it was stated that 87.5% of nurses had lower back pain. Consequently, 50% of the nurses who went to a doctor were diagnosed as having “disk hernia” and 45% had sick leave due to lower back pain.[14] In our study, it was observed that there was a linear relationship between an increase in the period of working in the profession and as the period of working in the ICU increased, the diagnosis of musculoskeletal disorders also increased ($p<0.05$).

Muscle tension, tendinitis and carpal tunnel syndrome are work-related musculoskeletal injuries. Among those working in the United States, 70% of carpal tunnel syndrome and 62% of tendinitis cases are observed in women.[15] Furthermore, women are also at risk for carpal tunnel syndrome during pregnancy. It this study, it was determined that among the diagnosed musculoskeletal disorders, tendon disorder occurred in 8% and carpal tunnel syndrome occurred in 4% of the nurses (Table 2). It was found that musculoskeletal system disorders are increased in females and age and working conditions contribute to this.

A majority of the patients receiving treatment in the ICUs are bedridden and/or unconscious patients. Most of the daily life activities of these patients, such as change in position, dressing, undressing, bathing and toilet needs are carried out by nurses. Consequently, the probability of the prevalence of biomechanical risks and musculoskeletal disorders/discomforts in nurses at the ICUs is high.[7, 8, 9]

In the study made, when the prevalence of pain was examined in nurses working in the ICUs with the CMDQ (figure), it was determined that lower back pain was the most frequent complaint at 71.1%. It was determined that this was followed by right lower limb (right) pain at 55.7%, upper back pain at 54.7%, neck pain at 54.2% and shoulder pain at 41.8%. Of the nurses who stated that they had pain throughout the last working week, it was determined that they experienced discomforting pain at a medium degree in all regions of their bodies. Nurses have been at a higher risk of back pain than other workers for several decades, due to exposure to work-related health hazards.[7]

Our study was in conformance with the literature from the aspect of musculoskeletal discomforts, lower back pain and shoulder pain. It was determined that the rates of upper back pain and neck pain were somewhat more prevalent compared to the literature. Work-related lower back disorders include both pain and injuries. The total cost of work-related lower-upper back pains is large. The compensations for employees for lower-upper back pains in the United States is increasing. It has been determined in the United States that 12.5% of the total sick days are related to lower back pain. Similarly, the rate in Switzerland was found to be 13.5%. It has been stated that it formed 4% of all the work strains in Germany and that the direct cost was 5 million euros per annum and the indirect cost was 13 million euros per annum.[16]

Lower back pain in employees is among the highest cost disorders, due to high workday losses and insurance compensations. It is stated that the annual expenditures for lower back pain in the United States exceeds US$100 billion. The treatment of a chronic lower back pain patient costs between US$5,000 - US$8,000. It is claimed that lower back pain disability will collapse the social state structure in the Scandinavian countries. Due to the frequency of lower back pain in employees and its high cost, lower back protection and ergonomy training, which have been shown to be both effective and cost effective, are used extensively in developed countries.[17]

It was determined in our study that 6.96% (14/201) of the nurses who experienced musculoskeletal disorders within the last year have used leave of absence and/or sick leave. It was calculated that the number of workdays lost by those using leave of absence and/or sick leave within the last year was 1,280 days and there was an 2.45% workday loss. Since there is no study in Turkey related to the treatment costs of musculoskeletal disorders/discomforts, the cost of the workdays lost could not be calculated.

Lower back pain is an occupational disorder in Turkey although it is not known sufficiently from this aspect by employees, doctors and the related institutions. It was reported that employees should be made aware of occupational lower back pain, which has not received the attention it deserves in the present-day, and that with the implementation of the new Labor Law, claims of early retirement and insurance compensations connected to the disorder will come onto the agenda in the near future.[17]

In the European Nurses' Early Exit (NEXT) Study, nurses had neck and/or low back pain in the previous six months that interfered with their daily activities, social activities or ability to work.[7,18] It was found in our study that the working capacities of nurses who felt pains, aches or discomforts were minimally affected (Table 3). The complaints of pain in the extremities were determined to be mostly right side pain. Whereas, it was thought that the reason for this is stemming from the fact that most people use their right hands/right sides dominantly.

The effectiveness of ergonomy was shown in a decrease in WMSDs. The expenditures made for protection and ergonomy training, which appear to be unnecessary expenditures for business enterprises, return as a positive value with a decrease in the frequency and cost of disorders and an increase in productivity and profits. In the studies made in various work branches of industry, there was a decrease exceeding 50% in the frequency of WMSDs and costs with the implementation of the ergonomy programs and it was shown that for every dollar spent, returned as a savings reaching US$2,000 the next year.[17]

CONCLUSION

It was determined that the prevalence of musculoskeletal disorders in nurses working in the ICUs who were diagnosed by doctors was 1/5. These disorders were found to be WMSDs, such as disk hernias (lumbar, cervical, thoracic), various musculoskeletal pains (myalgia, lower back pain, etc.), various tendon discomforts (tendinitis, epicondylitis, etc.) and carpal tunnel syndrome, respectively. It was observed that in the diagnoses of musculoskeletal system disorders, individual behaviors and environmental factors, such as mechanical strains or wrong position, and not conforming to body mechanics in general, mostly came into the forefront in the disorders.

When the pains, aches or discomforts of the nurses throughout the last working week were examined, it was determined that the complaints of too much pain were for lower back pain, lower limb pain, upper back pain, neck pain and shoulder pain, respectively. It was determined that of the nurses who had pain throughout the last working week, they experienced a medium degree of discomforting pain in all regions of the body and those who felt pains, aches or discomforts, had a very minimal decrease in working capacities. It was observed that those who did not receive assistance from the personnel in the transport of patients that is required for working in the ICUs and those who worked standing up most of the time had a greater prevalence of musculoskeletal disorders and it was determined to be a statistically significant difference ($p<0.05$).

It was determined that 6.96% (14/201) of the nurses who experienced musculoskeletal discomforts diagnosed by a doctor within the past year used leave of absences and/or sick leaves. It was found that the workday loss of those using leave of absences and/or sick leaves within the past year was 1,280 days and the loss was 2.45%. Since there is no study in Turkey related to the treatment costs of musculoskeletal disorders/discomforts, the costs of the workday losses could not be calculated.

"*Work-related Musculoskeletal Disorders/Discomforts can be Prevented*"

Due to the fact that the musculoskeletal system disorders most frequently diagnosed in nurses are mainly caused by individual behaviors and environmental factors, it is proposed that ergonomic arrangements be made, that auxiliary equipment be used in the transport of patients, that electrical patient beds with adjustable heights be used and that the employees are given training on the subject of the principles of ergonomy in order for those employed in the ICUs to work more comfortably. In this manner, the WMSDs will be decreased, the health of the employees will be protected and it will provide for an increase in work productivity.

Contributions

I would like to extend my gratitude to the late Prof. Dr. Alev Dramalı for her contributions and I commemorate her with respect.

Table 3. Evaluation of the Degree of Discomfort of Nurses Who Felt Pain, Aches or Discomfort Throughout the Last Working Week with the Cornell Musculoskeletal Discomfort Questionnaire and the Effect on Working Capacity

Body parts		If you experienced ache, pain, discomfort, how uncomfortable						If you experienced ache, pain, discomfort, this interfere with your ability to work							
		Slightly unconfortable		Moderately unconfortable		Very unconfortable		Not at all		Slightly interfered		Very interfered		Total	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%
Neck		28	21.5	79	55.4	30	23.1	29	22.3	72	56.2	28	21.5	131	100
Shoulder	Right	12	12.5	58	60.4	26	27.1	18	18.8	54	56.3	24	25.0	96	100
	Left	10	12.7	44	55.7	25	31.6	11	13.9	48	60.8	20	25.3	79	100
Upper back		20	15.4	60	46.2	50	38.5	19	14.6	75	57.7	36	27.7	130	100
Upper arm	Right	16	34.8	25	54.3	5	10.9	15	32.6	22	47.8	9	19.6	46	100
	Left	14	35.9	22	56.4	3	7.7	15	38.5	17	43.6	7	17.9	39	100
Lower back		11	7.1	75	48.7	68	44.2	18	9.0	77	38.3	59	29.4	154	100
Forearm	Right	12	30.8	21	53.8	6	15.4	15	38.5	17	43.6	7	17.9	39	100
	Left	13	36.1	21	58.3	2	5.6	14	38.9	18	50.0	4	11.1	36	100
Wrist	Right	24	32.4	35	47.3	15	20.3	23	31.1	34	45.9	17	23	74	100
	Left	20	30.3	28	42.4	18	27.3	18	37.3	34	51.5	14	21.2	66	100
Hip/Buttocks		11	23.2	26	59.1	7	15.9	15	34.1	18	40.9	11	25.0	45	100
Thigh	Right	14	17.3	40	49.4	27	33.3	17	21.0	38	46.9	26	32.1	81	100
	Left	11	15.3	37	51.4	24	33.3	16	22.2	33	45.8	23	31.9	73	100
Knee	Right	18	21.2	28	32.9	39	45.9	15	17.6	36	42.4	34	40.0	85	100
	Left	21	28.0	24	32.0	30	40.0	17	22.7	31	41.3	27	36.0	75	100
Lower Leg	Right	16	16.5	46	47.4	35	36.1	19	19.6	47	48.5	31	32.0	97	100
	Left	11	14.3	39	50.6	27	35.1	13	16.9	40	51.9	24	31.2	77	100

Table 4. Evaluation of the Pains, Aches or Discomforts of the Nurses Throughout the Last Working Weak with the Cornell Musculoskeletal Discomfort Questionnaire

Body parts		Never		1-2 times last week		3-4 times last week		Once every day		Several times every day		Total	
		n	%	n	%	n	%	n	%	n	%	n	%
Neck		72	35.8	46	22.9	34	16.9	13	6.5	36	17.9	201	100
Shoulder	Right	105	52.2	27	13.4	23	11.4	20	10.0	26	12.9	201	100
	Left	122	60.7	18	9.0	18	9.0	18	9.0	25	12.4	201	100
Upper back		71	35.3	29	14.4	35	17.4	23	11.4	43	21.4	201	100
Upper arm	Right	155	77.1	25	12.4	11	5.5	3	1.5	7	3.5	201	100
	Left	162	80.6	20	10.0	13	6.5	3	1.5	3	1.5	201	100
Lower back		47	23.4	29	14.4	50	24.9	24	11.9	51	25.4	201	100
Forearm	Right	162	80.6	21	10.4	5	2.5	5	2.5	8	4.0	201	100
	Left	165	82.1	22	10.9	6	3.0	4	2.0	4	2.0	201	100
Wrist	Right	127	63.2	42	20.9	11	5.5	8	4.0	13	6.5	201	100
	Left	135	67.2	20	10.0	12	6.0	16	8.0	18	9.0	201	100
Hip/Buttocks		158	78.6	17	8.5	16	8.0	4	2.0	6	3.0	201	100
Thigh	Right	120	59.7	30	14.9	16	8.0	12	6.0	23	11.4	201	100
	Left	130	64.7	23	11.4	16	8.0	14	7.0	18	9.0	201	100
Knee	Right	117	58.2	22	10.9	23	11.4	13	6.5	26	12.9	201	100
	Left	127	63.2	24	11.9	18	9.0	14	7.0	18	9.0	201	100
Lower Leg	Right	104	51.7	32	15.9	24	11.9	14	7.0	27	13.4	201	100
	Left	124	61.7	26	12.9	18	9.0	12	6.0	21	10.4	201	100

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