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Research Article

**EVALUATION OF MUSCULOSKELETAL INJURIES IN
INTENSIVE CARE UNITS NURSES**Ali Afshari¹, Arash Khalili², Saeedeh Almasi³, Neda Ali Mohammadi⁴, Nastaran Pourkhorshidi⁵,
Leila Bozorgiyan⁶, Maryam Malmir^{7*}¹ Ph.D. Student in Nursing, School of Nursing and midwifery, Hamadan University of Medical Sciences, Hamadan, Iran.² Mother and Child Care Research Center, Hamadan University of Medical Sciences, Hamadan, Iran.³ Instructor, Department of Nursing, School of Pediatrics, Hamadan University of Medical Sciences, Hamadan, Iran.⁴ Instructor, Department of Nursing, School of Medical Surgical, Hamadan University of Medical Sciences, Hamadan, Iran.⁵ Instructor, Master of Psychiatric Nursing, Besat Hospital, Hamadan University of Medical Sciences, Hamadan, Iran.⁶ Midwife, Yasuj University of Medical Sciences, Yasuj, Iran.⁷ Instructor, Master of Nursing, Hamadan University of Medical Sciences, Hamadan, Iran.**Abstract:**

Musculoskeletal injuries are major part of occupational injuries in various nursing workforce is allocated. This study aimed to investigate the prevalence of occupational injuries among nurses in intensive care unit in health education hospitals of Hamadan. In this cross-sectional study, nordic standard questionnaire to all nurses in the intensive care unit in Hamadan city were distributed. The collected data analyzed by SPSS version 16 to compare the statistics of occupational injuries and chi-square test and Fisher's exact test was used. 94 of nurses working in intensive care units, 57.1 percent of the participants were between 30 and 40 years of age and 80% were female. There is no significant relationship between workers and the number of sites with skeletal problems in areas shoulders, wrists, hands and fingers, elbow and arm and leg was found ($P < 0.05$). The most frequent injury of the neck, spine and legs. Greater awareness of risk factors and how to adjust them to the nurses should be given to healthy and non-injured personnel is better this training before the arrival of medical personnel to be available to this group.

Key words: Occupational Injuries, Injury, Nurse**Corresponding Author:**

Maryam Malmir,
Master of Nursing,
Hamadan University of Medical Sciences,
Hamadan, Iran.

QR code



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INTRODUCTION:

Humans usually physically or psychologically with the type of work or equipment used or do not fit in the environment in which they live. Lack of physical fitness causes physical discomfort such that it can be musculoskeletal discomfort is one of the most frequent complications of labor in modern societies are cited [1]. In other words, occupational accidents and injuries are handicaps [2] that these accidents can lead to disability or sick leave for a certain period of time is relative [3]. Health personnel are also not exempt from this rule because of the nature of the job and take care of patients as well as work at different hours of the day and especially night work shifts jobs than any other occupational hazards will be involved [4]. In fact, occupational injury is the physical damage to body tissues due to an occupational accident or exposure to stressful environmental factors [5]. The risk factors associated with individual factors include poor physical fitness, weight, poor nutrition, lifestyle false and the risk factors associated with psychosocial factors such as stress, job insecurity and lack of support from colleagues involved [6]. Studies indicate that health care personnel more than other jobs have psychological risks and high rates of depression and anxiety caused by stress have a job. Of the workplace stressor can be an insufficient number of staff, particularly in clinical departments, shifts compulsory, shift work, role ambiguity, and contact with infectious and hazardous materials, management support and relationships between staff pointed out [7]. Nurses in the intensive care unit because of the characteristics of the relevant section as well as the high workload of care for critically ill patient are exposure to occupational hazards of working in this sector. Nurses in this section with more time on direct nursing care are the patient's bedside and since most of these patients had ventilator-associated or loss of consciousness with all care and procedures performed for the patients sole responsibility of the nurse and the patient did not work for them [8, 9]. These factors reduce the motivation, the employee and the number of personnel has been disabled, this study aimed to investigate occupational injuries among nurses in intensive care teaching hospitals of Hamadan.

MATERIALS AND METHODS:

This study was a cross-sectional descriptive study. The study population included all nurses working in intensive care units are teaching hospitals of Hamedan. By census sampling method and include all health care workers and nurses working in critical care units of Hamadan (Besat, Farshchian, Ekbatan and Shahid Beheshti hospitals) who were willing to participate in this study. Inclusion criteria included

having at least one years 'experience in the unit, bachelor of nursing, lack of chronic diseases and musculoskeletal injuries due to lack of factors outside of the workplace. Exclusion criteria included having a physical disability, the following year relevant work experience in the sector and employment to another job or employment in the same job in other medical centers. The instrument used in this study included demographic information, including age and gender check lists, education, work history, medical history of working hours as well as a standard questionnaire Norodik the research is used both inside and outside [10]. To determine the symptoms of musculoskeletal disorders Norodik questionnaire will be used. The questionnaire consists of two parts: general and specific. The purpose of the review is public and the whole body symptoms arise but in the questionnaire dedicated to the analysis of signals generated in different areas of the body such as the hands, waist and deals. The questionnaire body movement system into 9 areas, including the neck, shoulders, elbows, wrists/hands, waist, hips/thighs, knees and ankles/legs divides and using questions, history of pain in these areas is examined. This questionnaire can be used in epidemiologic surveys in musculoskeletal disorders, but it cannot be used for clinical diagnosis [11]. In an Iranian study in 2015 by Mokhtarinia et al as localization, validity and reproducibility NMQ, inter correlation coefficient and SEM Persian version questionnaire developed by Nordic at an acceptable level (ICC>0.70, (SEM=0.56-1.76), respectively. The kappa coefficient ranges between 0.78-1 respectively [12]. Researcher after approval, presenting an introduction letter from the Department of Emergency Medicine study management referred hospitals and coordination with respected managers in different shifts visit in teaching hospitals of Hamadan medical intensive care units. The aim of this study was to describe and respectful staff and then from the staff working in these units received written consent to participate in research and the questionnaire available to all personnel who gave their willingness to participate in research. If you require those questions were answered and to avoid the bias of the subjects will be asked the questionnaire at the right time so that fatigue and excitement are complete as possible. After data collection to analysis, descriptive and inferential statistical methods were used. The analysis of demographic data, descriptive statistics (such as the relative frequency and average) was used to compare occupational injuries and inferential statistics and chi-square test and Fisher's exact test by software SPSS version 16 was used. Ethical considerations, including obtaining permission from

the Ethics Committee of the University of Medical Sciences, receiving a written notice from the School of Nursing and Midwifery University of Medical Sciences to provide the management of hospitals, informed consent to participate in research of samples, ensure the confidentiality of the information received, the confidentiality of information received and used only for research purposes were fully met.

57.1 percent of the participants between 30 and 40 years of age and 80% were female. 57.1 percent were between 4 and 10 years of work experience. 22.3 percent of Shahid Beheshti hospital personnel, 28.7 percent of the Besat hospitals, 21% of Ekbatan hospitals and 28.7 percent of the personnel Sina Hospital Complex participated in this study. P-value less than 0.05 relationship between workers is the number of sites with skeletal problems (table 1-4).

FINDINGS:

Table 1: The relationship between the number of injuries by gender, age and work experience based on the type of job

Variable		No pain number (percent)	An area number (percent)	Two areas number (percent)	Three regions and more number (percent)	Total (percent)	P-value
Sex	Male	0	1(4.2)	1(5.3)	6(13)	8(8.5)	0.090
	Female	5(100)	23(95.8)	18(94.7)	40(94.7)	86(91.5)	
	Total	5(100)	24(100)	19(100)	46(100)	46(100)	
Age	20-30	3(60)	11(45.8)	7(36.8)	12(26.1)	33(35.1)	0.001
	31-40	2(40)	12(50)	12(63.2)	24(52.2)	50(53.2)	
	41-50	0	1(4.2)	0	10(21.7)	11(11.7)	
	Total	5(100)	24(100)	19(100)	46(100)	94(100)	
Work Experience	<3	1(20)	5(20.8)	2(10.5)	4(8.7)	12(12.8)	0.374
	3-6 year	2(40)	9(37.5)	6(31.6)	11(23.9)	28(29.8)	
	7-10 year	2(40)	9(37.5)	7(36.8)	16(34.8)	34(36.2)	
	>10	0	0	4(21.1)	15(32.6)	20(21.3)	
	total	5(100)	24(100)	19(100)	46(100)	94(100)	

Table 2: The relationship between the type of job and the subjects in the injured area

The Injured Area		Nurses	P-value
Neck	Yes (percent)	39(41.5)	0.174
	No(percent)	55(58.5)	
Shoulder	Yes (percent)	23(24.5)	0.001
	No(percent)	71(71.5)	
Spinal Cord	Yes (percent)	67(71.3)	0.508
	No(percent)	27(28.7)	
Wrists, Hands and Fingers	Yes (percent)	34(36.2)	0.007
	No(percent)	60(63.8)	
Elbow and Arm	Yes (percent)	22(23.4)	0.001
	No(percent)	72(76.6)	
Hip	Yes (percent)	16(17)	0.019
	No(percent)	78(83)	
Foot	Yes (percent)	68(72.3)	0.001
	No(percent)	26(27.7)	

Table 3: The relationship between the type of job and type of damage in subjects

The Injured Area		Nurses	P-value
Strain	Frequency	47	0.626
	% Of column	52.8	
Sprain or Dislocation	Frequency	3	
	% Of column	3.4	
Laceration	Frequency	2	
	% Of column	2.2	
other	Frequency	34	
	% Of column	38.2	
Two Cases	Frequency	3	
	% Of column	3.4	
Total	Frequency	89	
	% Of column	66.4	

Table 4: The relationship between the hospital and the injured area in subjects

The Injured Area		Beheshti	Besat	Ecbatan	Sina	P-value
Neck	Yes (percent)	13(61.9)	8(29.6)	9(45)	9(33.3)	0.102
	No(percent)	8(38.1)	19(70.4)	11(55)	18(66.7)	
Shoulder	Yes (percent)	10(47.6)	3(11.1)	4(20)	6(22.2)	0.001
	No(percent)	11(52.4)	24(83.9)	16(80)	21(77.8)	
Spinal Cord	Yes (percent)	19(90.5)	13(48.1)	4(20)	19(70.4)	0.023
	No(percent)	2(9.5)	14(51.9)	16(80)	8(29.6)	
Wrists, Hands and Fingers	Yes (percent)	10(47.6)	7(25.9)	16(80)	11(40.7)	0.037
	No(percent)	11(52.4)	20(74.1)	4(20)	16(59.3)	
Elbow and Arm	Yes (percent)	8(38.1)	3(11.1)	6(30)	5(18.5)	0.001
	No(percent)	13(61.9)	24(88.9)	14(70)	22(81.5)	
Hip	Yes (percent)	6(28.6)	3(11.1)	5(25)	2(7.4)	0.012
	No(percent)	15(71.4)	24(88.9)	15(75)	25(92.6)	
Foot	Yes (percent)	18(85.7)	15(55.6)	19(95)	17(63)	0.001
	No(percent)	3(14.3)	12(44.4)	1(5)	10(37)	

DISCUSSION:

Compare the frequency and musculoskeletal injuries associated with demographic characteristics (age, sex, etc.) in critical care nurses working in Hamadan University of Medical Sciences showed 94 nurses 94.7% of people were hurt and study Chubineh [13], Maguire [14] and Shafi Zhade et al gained [15]. The comparison of the type of job and the number of vulnerable region in subjects and the results obtained showed that many nurses have experienced musculoskeletal problems with a study by Pompey et al [16], where the injuries were consistent nursing staff was evaluated by Emergency Medical Technicians. The type of job and type of injury in nurses in this study revealed this finding was most prevalent type of damage stretching of the study Salem [17] and Mahmudi et al is match [18]. But

Chubineh et al [13] does not match the reason for this discrepancy may be due to the work of nurses, neck and spine injuries, most damage to the study Chubineh [13], Salem [17] and Aghli Nezhad [19] was dedicated. It can be stated that due to lack of nursing staff to patient ratio, lack of Assistance Force nurse, the patient needs care, intensive work shifts and ultimately burnout due to work pressure gradually increases physical and mental injury is in the intensive care unit staff.

CONCLUSION:

Since the compression rate shifts, heavy workload, the need for great care and finally the shortage of working staff in the intensive care unit damaged. It increasing the amount of damage caused by the work of nurses in intensive care units, you can portray

these injuries, as well as teaching how to prevent and reduce work-related injuries. The burnout of health care workers and health institutions reduce personnel costs and in this regard, science such as ergonomics and even put this knowledge as basic courses in nursing, an important step taken in this direction.

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