

The Prevalence of Work-Related Musculoskeletal Disorders among the Nurses in Dubai: Occupational Health Study

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ABSTRACT

The purpose of this research is to explore the risk factors and prevalence of musculoskeletal disorders (MSDs) among nurses in Dubai. The research was done among nurses in Dubai's two famous hospitals – Iranian Hospital and Burjeel Hospital for Advanced Surgery. After approvals were obtained, questionnaires with attached consent forms were randomly distributed among nurses from different wards according to their availability. In this study, a total of 100 responses from nurses working in Dubai were analyzed using validated questionnaire forms. Questions focused on the percentage of nurses suffering from MSDs, risk factors perceived by nurses, and whether medical attention was sought following the development of MSDs. The results of our study showed that female nurses were more affected than male nurses. Most nurses were young (between 28 and 35 years of age) with few years of work experience. Positive responses of having developed MSDs were largely from nurses in the surgical ward. The body sites most affected were found to be the back (~44%), feet (~18%), neck and shoulder (~18%). In addition, the majority of nurses reported physical ergonomic factors as the main cause for their MSDs. These findings are especially important in the region, as very few studies have been published in this field. They also give a new perspective to the work handled by nurses and help 'voice' their problems as a call for action to nurses, hospitals, and the government itself.

Keywords: MSDs, nurse's health, hospitals, Occupational Health

INTRODUCTION

Musculoskeletal disorders refer to injuries or disorders of the musculoskeletal system that occur as a result of excessive exposure to hazards and/or risk factor in the work environment ⁽¹⁾. However, MSDs can be defined in a variety of ways based on duration, frequency and intensity of pain ⁽²⁾ or the existence of pain that affects daily normal functioning⁽³⁾.

Although studies regarding the subject have increased dramatically, the relation between MSDs and occupations remains debatable. In a survey done by Baldwin *et al* (2004), he found that work-related

MSDs are the leading cause of absenteeism and low productivity ⁽⁴⁾.

According to the Bureau of Labor Statistic (BLS), nurses and attendants had the highest rates of MSDs in 2007, which led to a high absenteeism rate, which resulted from the nature of their jobs. It is worthy to mention that nurses are indispensable in healthcare environment, so that the ergonomic risk they are exposed should not be not negligible ⁽⁵⁾⁽⁶⁾.

Shortage of staff is another risk factor contributing to the high rates of MSDs among nurses. Due to this, nurses often have to do strenuous work alone and over long periods. Lack of advanced nursing equipment also adds to this issue. Long working hours were reported in areas with staff shortage. This resulted in increased exposure to physical demands and therefore, limited recovery time between work shifts, which in turn led to increased rates of injuries ⁽⁷⁾. A recent qualitative study of Canadian critical care nurses highlights the effects of overtime and increasingly heavier patients on

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nurses – leading to exhaustion, poor body mechanics and subsequent injury⁽⁸⁾. MSDs in nurses is an issue that is frequently overlooked not only the UAE, but in many parts of the world⁽⁹⁾. Therefore, our study was conducted in two of Dubai's well-recognized hospitals. This study focuses on the association of tasks involved in the nursing profession to the prevalence of MSDs among nurses. It also assesses the relationship between the current nursing ergonomics and MSDs in nurses, particularly in the UAE. Results derived will be relevant for planning, developing and implementing an ergonomic program to improve the health of nurses. Through the concept of ergonomics in workplaces can be remodeled or redesigned to suit human features and capabilities.

MATERIALS AND METHOD

The nursing population at two licensed hospitals in Dubai – the Iranian Hospital (IHD) and Burjeel Hospital of Advanced Surgery (BHAS) – was taken as the target population for the current occupational health study.

A cross sectional study was conducted in the period between February 07, 2018 to March 26, 2018 in which a sample of 120 nurses was taken at a single point in time that consisted of 57 nurses from IHD and 63 nurses from BHAS. The questionnaire was prepared by Mugga and then adopted and customized to our needs and requirements⁽¹⁰⁾. The number of questionnaires distributed differed between the two hospitals as per availability of nurses. Results were collected based on questionnaires to assess them against a set of standards provided by the OSHA. Qualitative (such as the type of MSDs in nurses, factors contributing to these MSDs) as well as quantitative data (including, percentage of nurses suffering from MSDs etc.) were also gathered and analyzed. The study focused on analyzing the MSDs in the nurses at the chosen hospitals as a sample with respect to the entire population of nurses in Dubai.

DATA ANALYSIS

The data collected was analyzed and categorized according to the questions asked, using both quantitative and qualitative methods. Risk factors were identified following the responses of the nurses. These risk factors were then categorized by frequencies. The study also looked into the relationship between demographic

and employment characteristics with the prevalence of MSDs in the nurses. The information obtained was illustrated using descriptive statistics. The presence of pain and its duration was recorded according to nurses' declaration of pain. These were then compared to their effect on work, and whether they took leave or sought medical attention. Nurses were asked about body sites that were frequently injured and possible causes.

FINDINGS

MSDs were more prevalent among females than males for two reasons. Firstly, females dominated the nursing profession and therefore were more exposed to the risks of MSDs than males. Secondly, males have more physical strength than females making it easier for them to handle heavy tasks as compared to females.

Nurses in the surgical ward were the most affected by MSDs (Refer to table 3). Body sites most frequently affected were the back, feet, neck and shoulders which can be attributed to lifting and supporting partially or non-weight bearing patients, especially after their surgeries. (Refer to table 5 and 6)

Only a few nurses sought any kind of medical attention for the pain they suffered (refer to table 4) and even fewer nurses took sick leaves for the same. From the response rates (83.3%) attained from various treatment sites studied, nevertheless, most reported 'physical ergonomic factors' as the main risk contributor to their development of MSDs. (Refer to Table 3). This includes the tasks handles by nurses, equipment used, position of materials used, and so on.

The response rates obtained from different treatment sites, as shown in table 3 indicate that the surgical department was the highest among female (26.98 %) and male (47.4 %) nurses followed closely by ICU/NICU and other departments (which includes OBG, physiotherapy & clinics collectively). On the other hand, due to the very high influx of patients, it was very difficult to get the busy nurses to complete the surveys, which is also why the ambulatory department scored the lowest (0% response rate).

The demographic and employment characteristics of the nurses indicate that the majority of respondents were between the ages of 28 and 35 years old (49%), and 18-27 years old (33%) (Refer to table 1). This shows that

most nurses are quite young. Finally, the majority of the nurses' height lies between 5'1" to 5'5", (57%), (Refer to table 1). Weight 55-64kg (36%), (Refer to table 1). and the majority of participants (82%) had between 3-12 years of clinical experience which can also be concluded from their age range. (Refer to table 2). The lesser work experience and therefore, may be less familiar with the best possible way of handling Patients that is 'safest' for the nurses would be a reason for MSD's.

Overall, the values are quite different for workplaces between male and female nurses, as can be seen in table 3. Surgical unit the most among male and female nurses, 47.4% and 26.9% respectively. Pediatrics units had the least for female (1.59%) MSDs followed by emergency and ICU/NICU. For males, ICU/NICU had the least MSDs while emergency was among the highest. There were more affected male nurses in the emergency department than females (Refer to table 5 and 6).

As a result of our data analysis, we inferred the following

Table 1: Relationship between MSDs with age, Height and Weight amongst female and male nurses

Female Nurse Data	Age bracket (yrs)	Female Nurse Response Rate %	Height range (ft)	Female Nurse Response Rate %	Weight (Kg)	Female Response rate (%)
	18-27	20.6%	< 4.5	1.59%	45-54	31.7%
	28-35	68.2%	4.6-5.0	15.9%	55-64	38.0%
	36-44	7.93%	5.1-5.5	73.0%	65-74	23.8%
	45-50	3.17%	5.6-6.0	9.52%	75-84	4.76%
	51 and above	0%	6.1 and above	0%	85 and above	1.58%
Male Nurse Data	Age bracket (yrs)	Male Response rate (%)	Height range (ft)	Male Response rate (%)	Weight (Kg)	Male Response rate (%)
	18-27	21.0%	< 4.5	0%	45-54	0%
	28-35	63.1%	4.6-5.0	0%	55-64	26.3%
	36-44	10.5%	5.1-5.5	26.3%	65-74	26.3%
	45-50	0%	5.6-6.0	68.4%	75-90	31.6%
	51 and above	5.26%	6.1 and above	5.26%	90 and above	15.8%

Table 2: Relationship between work experience and MSDs in female and male nurses

Experience (yrs)	Female Nurse Response rate (%)	Male nurse Response rate (%)
3-12	88.8%	84.2%
13-22	9.52%	10.5%
23-32	1.59%	5.56%
33 and above	0%	0%
Total	100%	100%

Table 3: Relationship between the workplace and MSDs in female and male nurses

Workplace	Female nurse response rate (%)	Male nurse response rate (%)
Medical	12.7%	0%
Surgical	26.98%	47.4%
Pediatrics	1.59%	0%
Emergency	4.76%	31.6%

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ICU/NICU	7.93%	15.8%
Others (clinics, physio therapy, OBG)	34.92%	5.26%
OR/OT	11.1%	0%

Table 4: Nurses with MSDs that sought medical attention

Nurses	No. respondents	Response rate (%)
Sought medical attention	32	34.4%
No medical attention	61	65.6%

Table 5: Nurses’ response rate about suffering from MSDs based on various body parts

Injured body parts	No. of respondents	Response rate
Back	65	43.6%
Neck and shoulder	26	17.4%
Feet	27	18.1%
Knees	15	10.0%
Head	8	5.36%
Hands	7	4.69%
Total	149	100%

Table 6: Percentage of nurses on body parts affected by MSDs in comparison to age, sex, department and work experience

Category	head	Neck and shoulders	Hands	Back	Knees	Feet
Age						
18-27	0	4	2	13	3	6
28-35	7	22	5	44	10	17
36-44	0	3	0	6	2	1
45-50	1	0	0	1	0	1
51 and above	0	0	0	1	0	0
Gender						
Male	1	4	0	17	1	4
Female	7	25	7	48	14	21
Workplace						
Medical	2	3	1	8	3	4
Surgical	2	11	1	19	3	5
Pediatrics	0	1	0	1	0	0
Emergency	1	5	1	7	0	3
ICU	1	0	0	5	2	4
OR/OT	0	1	0	4	1	3
Others (OBG, physiotherapy)	1	8	5	21	6	6
Experience						
3-12	7	26	7	56	13	23
13-22	1	3	0	7	2	2
23-32	0	0	0	2	0	0
33 and above	0	0	0	0	0	0

CONCLUSIONS

Cumulative evidence refers to the continuous problems related to MSDs in healthcare sector^(2, 11, 12). In the UAE, nurses are struggling to correct the nursing shortage while working hard and maintaining standards in the absence of adequate personnel. The challenge has taken a physical toll, causing nurses to develop chronic back pain⁽¹³⁾. Our results clearly prove that there is an issue that is receiving insufficient attention from hospital management and nurses alike. Nursing is a very important profession, yet a demanding one as well. It requires physical, as well as mental strength to perform it well without risking the health of the nurses. Most nurses in Dubai hail from selected (younger) demographics⁽⁹⁾ and are usually smaller in height, weight, and physical strength as compared to the patients they receive. This increases their risk of developing MSDs over long-term work exposure. Additionally, these nurses are young with low work experience due to which their knowledge on proper patient handling and other nursing tasks may be less than more experienced staff. Owing to their experience, older nurses may be more adept at recognizing their need for time off to recuperate, and knowing their own physical limits⁽⁸⁾. Therefore, proper training of novice nurses, working shifts and ergonomic factors, should all be considered and implemented in a way that aids the nurses in their daily activities, reducing the chances of developing MSDs, and thus, enabling them to perform their tasks in a healthy manner.

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