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The Prevalence of Work Related Musculoskeletal Disorders Among Female Nurses

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Abstract:
Introduction: Work related musculoskeletal disorders are major job related health problems among healthcare workers. Nurses are the most significant part of multi-disciplinary team in hospitals. Aim of the study: The aim of the study was to assess the prevalence of work-related musculoskeletal disorders among female nurses. **Methodology:** The cross-sectional, quantitative study design was done on 100 female nurses of The Children Hospital, Lahore. A modified and adopted, self-administered questionnaire was used to collect the data. **Results:** This study results shows a high prevalence rate (71%) of WRMSDs in nursing population in the last 12 months. According to the body site, the prevalence was in the lower back (52%), neck (26%), in shoulders (24%), knees (25%), ankles (23%), hands/wrists (19%), upper back (17%), hips/thighs (10%) and in elbows (7%). **Conclusion:** This study concludes that WRMSDs are common occupational health problems among female nurses.
Keywords: work-related musculoskeletal disorders (WRMSDS), musculoskeletal disorders (MSD)
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Introduction

A work related musculoskeletal disorder (WRMSD) can be defined as "a health disorder that is the consequence of a work-related event"(Attar 2014) .WRMSDs are defined as the health problems caused or intensified by long term exposure to certain workplace hazards. The body structures that can be affected includes muscles, joints, bones, tendons, ligaments, spinal disc, nerves and supporting blood vessels (Bernal, Campos-Serna et al. 2015). The symptoms may be single or multiple includes pain, numbness, swelling, tingling, stiffness or burning, discomfort and fatigue (Munabi, Buwembo et al. 2014).

Work related musculoskeletal are major occupational problems among healthcare workers. Work place hazards are common in health workers and present as a significant cause of morbidity in them (Munabi, Buwembo et al. 2014). Nurses are the most significant part of multi-disciplinary team in hospitals and other medical centers (Ribeiro, Serranheira et al. 2017). Nursing profession is considered the most physically demanding profession in health care setting, because of which nurses are more prone to develop musculoskeletal disorders (Kee and Seo 2007, Nur Azma, Rusli et al. 2016). Female nurses are considered to be more liable to endure WRMSDs due to after-work responsibilities including parenting, undertaking domestic works, insufficient rest time and lack of exercise. Because of the overwhelming burden, nurses are more prone to develop WRMSDs (Nur Azma, Rusli et al. 2016). Nursing population constitutes about one-third of the hospital staff. They report 60% of workplace injuries (Tinubu, Mbada et al. 2010). About 40-90% of nurses have prevalence of work related musculoskeletal disorders worldwide (Anap, Iyer et al. 2013).

In Pakistan, the present nurse-patient ratio is approximately 1:50, whereas the recommended ratio by the Pakistan nursing Council in general departments is 1:10 and in specialized departments is 1:2 (Journal of Pioneering Medical). As nurses are already in danger of developing WRMSD, Inadequate staffing with long working hours create burden on nurses' health and increasing further chance of developing musculoskeletal disorders.

Work-related musculoskeletal disorders are the health issues that individuals face due to some event during work. Nurses provide care to patients on continuous basis and have highest rates of musculoskeletal disorders at workplace. The results of these disorders in nurses are increased number of sick days per year, premature retirement and poor health. This study can cause increase understanding of the MSD pain and suffering faced by

the nurses during their job. This study will also provide a better understanding about the current issue and it will also give such suggestions and ideas which will help the further researchers to adopt such preventive measures which in future will help to decrease the risk of MSDs.

Nurses are the backbone of the health care system. Musculoskeletal disorders are most frequent occurring health problems among nurses due to the nature of their work. WRMSDs mostly occur in developing countries with poor working conditions. Pakistan is a developing country; occupational health sector is still not fully developed. So there is no any exact data of prevalence among nurses about work related musculoskeletal disorders.

Future studies are required to observe the associated potential precipitating factors and the prevention strategy programs. This will provide sufficient information to the nurses to minimize the risk of developing WRMSDs. The purpose of current document is to determine the prevalence of work related musculoskeletal disorders among female nursing staff member of the Children Hospital Lahore, Pakistan.

Literature review:

The WRMSDs are most important health issues among nurses. They occur in nurses due to nature of their job. The major body sites that are mostly affected includes; shoulder, neck, upper and lower back and the least affected sites are the hands/wrists, arms, knee, thighs and feet.

In Uganda, Work-related MSD are relatively common in nursing profession. The African nurses are arguably most important health care employees, where they perform a wide range of job tasks, where other health workers are not present. The study shows the high prevalence of musculoskeletal disorders (80%) that affect nursing population (Munabi, Buwembo et al. 2014).

Nurses in Uganda are highly exposed to musculoskeletal disorders. MSDs are serious health problems that affect productivity and work performance of nurses. The overall prevalence of musculoskeletal disorders at anybody site was 75% among Mulago Hospital nurses. The hospital base study reported that all nurses who are performing night duties (more than 12 hours per shift, more than 56 weekly hours) have an increased exposure to development of musculoskeletal disorders (Mutanda, Mwaka et al. 2017).

A study conducted in Malaysia reported that workplace hazards had become an occupational health problem internationally. Female nurses perceived these MSDs as common illness due to the nature of their job and household work. The study shows that nurses have 88.6% prevalence of WRMSD in their life time (88.6%). Less than 25% of the nurses reported that WRMSDs affected on the quality of their lives (Nur Azma, Rusli et al. 2016).

The prevalence rate in Nigerian nurses due to WRMSDs was seen 84.4% in their life (Tinubu, Mbada et al. 2010). (Maria, Andrianna et al. 2017) reported that nurses are those health professionals, who are more prone to develop WMSDs especially in the lower area of back. The prevalence of WMSDs was high among Greece nursing personnel. WMSDs affect eight out of ten nurses (84%) at least once in their lives.

A study conducted in Saudi Arabia find that WMSDs are common among Saudi nurses. Approximately, 85% of the nurses are possessing at least one of the musculoskeletal symptom in their professional life. The most common musculoskeletal symptom was the lower back pain (65.7%) (Attar 2014).

The Egyptian nurses have 83.7% prevalence of WRMSD in their lifetime. Nurses in inpatients and ICU departments were more affected than outpatients. In the study, the most common concerned anatomical body areas were the low back (67.41%), next knee (60.74%), hand (51.11%), shoulder (47.4%), neck 43.7% (Amer 2018).

(Ribeiro, Serranheira et al. 2017) detected that Portuguese nurses have 89% prevalence of WRMSDs in previous 12 months of the study. The authors divided the anatomical site in regions and the results findings suggest that most affected site with high prevalence rate was the lower back (63.1%), cervical (50.1%) and the dorsal region (40.9%).

Like other developing countries, the nurses of Vietnam are also suffering from job related health problems. The study indicates that a very high prevalence (74.7%) of MSDs in the previous 12 months. The study conclude that two common body regions found most affected was the lower back 44.4% and the neck 44.1%. The women were seen 2.1 times more for the development of MSDs than men (Luan, Hai et al. 2018).

India is a poor economic country and the Indian nurses are also facing the health occupational problems due to the high burden of patient and different other factors. The most affected body sites seen in this study was the shoulders, low back, neck and knees. The highest prevalence of symptoms was found 89.1% in their occupational life in the last 12 months period. The highest prevalence was found in the following most affected areas; the low back, shoulders, neck and knee was respectively 48.2%, 34.6%, 33.1% and 29% (Anap, Iyer et al. 2013).

The little attention was given to professional health problems in medical profession. Nurses, physiotherapist, surgeons are those professionals among health profession, whose work demands physical activity and they are mostly affected by the MSDs in their life due to their nature of job. Nurses are considered as a bridge between doctors and patients, who fill the gap between them and promote the hospital health care delivery system. So they have an important role in health industry. In Pakistan, nurses work on shift basis six to eight hours of day. The highest prevalence seen in Pakistani nurses was 31.6% in the last 12 months due to Musculoskeletal disorders (Rathore and Rayan Attique 2017).

The study conducted in Mansoura Children hospital, Egypt indicate that the nurses who work in shift work have greater chance of developing musculoskeletal disorders than others who do not. The study shows high prevalence 85.9% of complaints of MSD among nurses of Egypt (Elsherbeny and Elhadidy 2018).

Methodology

This study is conducted to examine the prevalence of Work related Musculoskeletal Disorders among female nurses of The Children hospital and The Child health, Lahore. A quantitative, cross-sectional study design of descriptive nature was adopted. The Children Hospital, Lahore was selected for the conduct of study setting. The target population was the female nurses of general wards and intensive care units of The Children Hospital, Lahore. The study was consisted of two to three month time period that was started from January to March, 2019. Data was collected from the participants via self-administered questionnaire and the participants were selected through convenient sampling method. The participants were allowed free to complete the questionnaire and to return it. Data analysis was done by SPSS version 21.Statistical computer software for data analysis. This is a descriptive study and all the descriptive statistics were obtained through the SPSS software. The sample size for the study was 100, which was calculated from the Slovin's method.

An adopted questionnaire of modified version was taken from articles (Kuorinka, Jonsson et al. 1987, Nur Azma, Rusli et al. 2016). The questionnaire was comprised of two portions, the one contain information about socio-demographics of the participants which includes: name (optional), gender, marital status, age group, BMI, designation, organization, qualification and stay in organization. The second portion contains 10 questions regarding work related musculoskeletal disorders in any anatomical site adopted from article (Nur Azma, Rusli et al. 2016). All the participants can respond to by choosing option of Nominal scale (Yes/ No). The intensity of the pain was also measured by using a four point Likert Scale of "No pain to severe pain". Likewise, the frequency of symptoms was also be assessed by using the four point Likert Scale of "Never to very often".

The study was conducted on female pediatric nurses who aged 20 and above of The Children hospital, Lahore. The willing participants who can understand English were included in the study. On the other hand, Respondents who aged below 20 were excluded from the study. Male nurses, nurses other than The Children hospital Lahore, nurses who were pregnant or at post-menopausal stage and nurses with history of related musculoskeletal symptoms prior to the study were also excluded from the study.

The sufficient information was provided to the involved participants in the study conducted. The consent form will be provided to the participants to get their willingness. The participants were assured for maintaining confidentiality. The rights of the participants were also respected.

Results:

Demographic and occupational features:

The study involved one hundred female nurses of The Children hospital and The Institute of Child Health, Lahore. The data was collected from the intensive care units and general wards.

Table No. 1: Socio-Demographic Characteristics

	N	%
	100	100
GENDER		
Female	100	100
AGE GROUP		
20-25	33	33
26-30	53	53
31-35	13	13
Above 35	1	1
MARITAL STATUS		
Single	69	69
Married	31	31
BMI		
Underweight <18.5	1	1
Normal 18.5-22.9	85	85
Overweight 23-24.9	11	11
Obese ≥ 25	3	3
LEVEL OF EDUCATION		
General nursing	36	36
Diploma and specialize in nursing	45	45
Post RN degree	19	19
EXPERIENCE OF JOB AT CURRENT HOSPITAL		
1-5 Years	69	69
5-10 years	20	20
10-15 years	10	10
Above 15 years	1	1
EXPERIENCE OF JOB AT CURRENT UNIT		
1-5 years	85	85
5-10 years	10	10
10-15 years	4	4
Above 15 years	1	1
DEPARTMENT		
Intensive care units	45	45
General wards	55	55

Table No. 1 Majority of the nurses were unmarried (69%) and more than half (53%) of the nurses were belong to age group 26-30. The BMI of most of the studied population was seen normal as 85%. The 45% of the nurses were holding diploma in specialized nursing and 19% nurses were degree holder. More than half of the nurses (69%) were working in the hospital for less than 5 years. The 85% of the nurses have experience of working for less than 5 years at the current unit. The

Table No. 2: Prevalence of WMSDs by anatomical sites

	During the last 12 months	
ANATOMICAL SITES	**Yes**	**No**
Neck	26(26%)	74(74%)
Shoulders	24(24%)	76(76%)
Elbows	7(7%)	93(93%)
Wrist/ hands	19(19%)	81(81%)
Upper back	17(17)	83(83%)
Lower back	52(52%)	48(48%)
One or both hips / thighs	10(10%)	90(90%)
One or both knees	25(25%)	75(75%)
One or both ankles / feet	23(23%)	77(77%)

Table No. 2 shows the annual prevalence rate of Work-related Musculoskeletal Disorder during the last 12 months in nine different anatomical sites. In the present study, majority (52%) of nurses reported the lower back as the most common site for complaints, neck (26%), knees (25%), shoulders (24%), ankles/feet (23%) and the least affected sites were the wrist/hands (19%), upper back (17%), hips/thighs (10%) and elbows (7%).

Table No. 3 Intensity of pain

	No pain	**Mild pain**	**Moderate pain**	**Severe pain**
Intensity of pain	29(29%)	48(48%)	20(20%)	3(3%)

Table No 3. Of the studied population, 29% of the respondents reported that no pain, 48% of the respondents have mild pain, 20% moderate pain and 3% of the respondents reported severe pain. So, the present study indicates that 71% of the respondents had experienced work-related musculoskeletal pain or discomfort at some time in their professional lives.

Table No. 4 Frequency of Pain

	Never	**Rarely**	**Sometimes**	**Very often**
Frequency of pain	29(29%)	36(36%)	28(28%)	7(7%)

Table No. 4 shows the response of respondents regarding frequency of symptoms. The results show that 29% of the respondents answer no pain, 36% rarely, 28% sometime and 7% of the respondents answer very often.

Discussion:-

The present study examines the prevalence of the work related musculoskeletal disorders in female nurses. All of the participants were female and majority of them were unmarried. The 55% of the participants were working in

general medical wards and 45% of the participants were working in intensive care units. This study results in the last 12 months shows that there was a high prevalence rate of WRMSDs in nursing population (71%). A study conducted in Nigeria reported the last 12 months prevalence at anybody region was 78% (Tinubu, Mbada et al. 2010). The current prevalence is consistent with a study conducted in China 70% (Smith, Wei et al. 2004), in Vietnam 74.7% (Luan, Hai et al. 2018).

But this current study results are higher than the study conducted in Pakistan previously. In 2017 Rathore and his fellow studied on Pakistani nurses working in six different public hospitals. They collect the data from 117 nurses who were working in territory hospitals where the adult male and female patients are treated. They did not transfer the heavy patients, or do not change the heavy patient posture, less physical work load, cultural factors are all the factors that can be cause of this low prevalence rate (Rathore and Rayan Attique 2017). On the contrast, In this study data is collected from only one hospital and one hundred nurses participate in the study, which is greater figure than the previous study. Mostly 45% of the nurses were working in intensive care units on pediatrics patients, where handling of patients, bedding, lifting and transferring the patient, working in bad postures and long standing can be the precipitating factors of developing WRMSDs.

In this current study, the participants sustained WRMSDs symptoms during the last 12 months according to body site was in the lower back (52%), neck (26%), in shoulders (24%), knees (25%), ankles (23%), hands/wrists (19%), upper back (17%), thighs/hips (10%) and in elbows (7%). The highest prevalence rate according to body anatomical site was seen in lower back, neck, shoulder and knees, whereas the least affected sites are the arms, upper back, ankles and hips. The results of this study also match with the study conducted in India at different anatomical sites are low back 48.2%, neck 34.6%, knees 29%, ankle 7.6%,elbow 1.88% and hip 1.6%.

Nur et al reported that Thighs and arms seen least painful and discomforting body areas. (Heiden, Weigl et al. 2013) and (Mehrdad, Dennerlein et al. 2010) conclude that the most common complaints sites are the low back, neck, knee and shoulders that the nurses confront in their professional life. The results of this study also match with study conducted in India

Lower back was the most common site for developing musculoskeletal disorders in nursing professionals with 12 month prevalence rate of 52% in this study. In various populations, different researchers have documented various rates of work related low back pain in nurses for a 12 month period: (Tinubu, Mbada et al. 2010) 44.1% in Ibadan , (Munabi, Buwembo et al. 2014) 61.9% in Uganda, (Amer 2018) 79.3% in Egypt, (Luan, Hai et al. 2018) 44.4% in Vietnam.

Neck was the second most common site for developing WMSD with a prevalence of 26% which was almost similar to a study conducted in Africa 28% (Tinubu, Mbada et al. 2010), but was lower than the study conducted in Egypt 43.7% (Amer 2018), in Vietnam 44.1% (Luan, Hai et al. 2018). Shoulder was the third most commonly reported site of developing WMSD in nurses with a prevalence rate of 24%, which was lower than the Saudi Arabia 29% (Attar 2014), Australia 31% (Nur Azma, Rusli et al. 2016), Egypt 47.4% (Amer 2018).

Conclusion:

The study was conducted for the purpose to find out the prevalence of work-related musculoskeletal disorders in female nurses. The present study result shows that WRMSDs were common occupational health problems among Pakistani nurses. Nurses endure theses health problems due to the nature of their job. The researcher in future should emphasize to identify the associated potential risk factors, which will provide the sufficient knowledge regarding risk factors of WMSD, which in turn help the Pakistani nurses to reduce the risk.

References

Amer, S. (2018). "Work-related musculoskeletal symptoms among nurse staff in Ismailia, Egypt." Egyptian Journal of Occupational Medicine **42**(1): 61-78.

Anap, D., et al. (2013). "Work related musculoskeletal disorders among hospital nurses in rural Maharashtra, India: a multi centre survey." Int J Med Sci **1**(2): 101.

Attar, S. M. (2014). "Frequency and risk factors of musculoskeletal pain in nurses at a tertiary centre in Jeddah, Saudi Arabia: a cross sectional study." BMC research notes **7**(1): 61.

Bernal, D., et al. (2015). "Work-related psychosocial risk factors and musculoskeletal disorders in hospital nurses and nursing aides: a systematic review and meta-analysis." International journal of nursing studies **52**(2): 635-648.

Elsherbeny, E. and S. Elhadidy (2018). "Prevalence and associated factors of musculoskeletal complaints among nurses of Mansoura University children hospital." Egyptian Journal of Occupational Medicine **42**(2): 151-166.

Heiden, B., et al. (2013). "Association of age and physical job demands with musculoskeletal disorders in nurses." Applied ergonomics **44**(4): 652-658.

Kee, D. and S. R. Seo (2007). "Musculoskeletal disorders among nursing personnel in Korea." International Journal of Industrial Ergonomics **37**(3): 207-212.

Kuorinka, I., et al. (1987). "Standardised Nordic questionnaires for the analysis of musculoskeletal symptoms." Applied ergonomics **18**(3): 233-237.

Luan, H. D., et al. (2018). "Musculoskeletal Disorders: Prevalence and Associated Factors among District Hospital Nurses in Haiphong, Vietnam." BioMed research international **2018**.

Maria, T., et al. (2017). "Work-Related Musculoskeletal Disorders Among Female And Male Nursing Personnel In Greece." World Journal of Research and Review **4**(1).

Mehrdad, R., et al. (2010). "Association between psychosocial factors and musculoskeletal symptoms among Iranian nurses." American journal of industrial medicine **53**(10): 1032-1039.

Munabi, I. G., et al. (2014). "Musculoskeletal disorder risk factors among nursing professionals in low resource settings: a cross-sectional study in Uganda." BMC nursing **13**(1): 7.

Mutanda, T., et al. (2017). "Occupation Related Musculoskeletal Disorders among Nurses at the National Referral Hospital, Mulago in Uganda." Occup Med Health Aff **5**(267): 2.

Nur Azma, B., et al. (2016). "Work related musculoskeletal disorders in female nursing personnel: prevalence and impact." International Journal of Collaborative Research on Internal Medicine and Public Health **8**(3): 294-298.

Rathore, F. A. and Y. A. Rayan Attique (2017). "Prevalence and perceptions of musculoskeletal disorders among hospital nurses in Pakistan: a cross-sectional survey." Cureus **9**(1).

Ribeiro, T., et al. (2017). "Work related musculoskeletal disorders in primary health care nurses." Applied Nursing Research **33**: 72-77.

Smith, D. R., et al. (2004). "Musculoskeletal disorders among professional nurses in mainland China." Journal of Professional Nursing **20**(6): 390-395.

Tinubu, B. M., et al. (2010). "Work-related musculoskeletal disorders among nurses in Ibadan, South-west Nigeria: a cross-sectional survey." BMC Musculoskeletal disorders **11**(1): 12.