International Journal of Current Advanced Research
ISSN: O: 2319-6475, ISSN: P: 2319-6505, Impact Factor: 6.614
Available Online at www.journalijcar.org
Volume 8; Issue 03 (E); March 2019; Page No.17869-17872
DOI: http://dx.doi.org/10.24327/ijcar.2019.17872.3405

Research Article

SURVEY ASSESSMENT OF WORKPLACE-RELATED MUSCULOSKELETAL INJURY FOR HEALTH CARE PROVIDERS AT KING ABDUL-AZIZ MEDICAL CITY (KAMC)

Fayz Alshahry, Abeer Al Akeely, Halah Al Harbi, Layla Al Mssaed, Abdulaziz O.Al-Harbi , Jayachandran Vetrayan and Hind K. Al Enazi

[1] Assistant Prof CAMS, KSAU-HS, Neurorehabilitation Consultant at KAMC
[2]Undergraduate Occupation Therapy Student, OT. CAMS, KSAU-HS
[3] Rehabilitation Supervisors, KASCH
[4]Lecturer of Occupational Therapy at KSAU-HS
[5] Research fellows, Physiotherapist at KAMC

A R T I C L E I N F O

Article History:
Received 06th December, 2018
Received in revised form 14th January, 2019
Accepted 23rd February, 2019
Published online 28th March, 2019

Key words:

Work-related Musculoskeletal Disorders, WRMSDs, Nurses, Physiotherapists, Back Pain.

A B S T R A C T

Introduction: Patient safety is a primary concern in health care, but it should not overshadow the healthcare provider's safety. Many studies on different professions indicate that nurses, physical therapists, and dentists are at high risk for Work-Related Musculoskeletal Disorders (WRMSDs)

Objective: To find the factors related to musculoskeletal injuries at work areas among health care providers in KAMC.

Materials and Methods: Randomized, stratified sampling with 127 participants from nurses and physiotherapists departments in KAMC, using an interview with a questionnaire that was made specifically for this study.

Results: The main findings were that there is a high prevalence of WRMSDs among nurse 59.6% and physiotherapist 72.2%, and the leading cause of these injuries was the high workload. Low back pain was the major problem followed by shoulder and neck pain.

Conclusion: Nurse and physiotherapist are more prone to the WRMSD'S in King Abdul Aziz medical city, and the solution for recover from the injuries are also obtained. Further analysis of the factors mentioned in this study needs to be done.

INTRODUCTION

Patient safety is a primary concern in health care, but it should not overshadow the healthcare provider's safety. The OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION defines work-related injuries (occupational injuries) as any chronic or traumatic injury incurred by employees at their worksites.[1]A great shortage in the number of healthcare workers exists as a direct result of early retirement due to a work-related injury.[2] Also, $20 billion are spent annually because of work-related injuries.[3]

Work-related musculoskeletal disorders (WRMSDs) have a considerable impact on healthcare workers and are a dominant reason for morbidity in the healthcare industry. The Canadian Centre for Occupational Health and Safety describes musculoskeletal disorders (MSDs) as: "a group of painful disorders of muscles, tendons, and nerves."[4] A statistic by Yasobant and Rajkumar states that "about one-third of sick leave requested by healthcare workers was due to WRMSDs."[5].

Corresponding author:* **Fayz Alshahry
Assistant Prof CAMS, KSAU-HS, Neurorehabilitation Consultant at KAMC

Many studies on different professions indicate that nurses, physical therapists, and dentists are at high risk for WRMSDs.

The Study aims to find the factors related to musculoskeletal injuries at work areas among health care providers in King Abdulaziz Medical City (KAMC). Specifically, to find the prevalence of workplace-related musculoskeletal injuries, and studying all possible factors that contribute to musculoskeletal injuries in workplaces and also to find if there are any ergonomic factors can lead to workplace musculoskeletal injuries and the effect of work-related injury on the health care provider performance.

A nurse is exposed to the risk of work-related back injury between 35% and 80% of the time during their career.[6] The risk was attributed to high workloads combined with long shifts and no compliance with proper body mechanics. An article emphasizes that nurses and therapists working in the surgical department were the most prone to injuries with low back pain.[7]

WRMSDs are also a significant problem affecting physiotherapists in their professional career due to the nature of their work. The sudden use of force, abnormal repetitive movements, and incorrect lifting mechanics are the main

contributors of WRMSDs in a physiotherapist. Physiotherapists who routinely practice manual therapy are 3.5 times more likely to have wrist and hand WRMSDs than those who do not practice manual therapy.[8] The high incidence rate was found in pediatrics physiotherapists compared to other sections, especially knee pain.[9]

Nowadays, many healthcare institutions are aware that work-related musculoskeletal injuries are causing a medical staff shortage in healthcare industries. From the literature, it was clear that work-related musculoskeletal injuries are a serious issue that healthcare workers face in their careers. For this reason, this research will study those areas with potentially high incidences of workplace injuries at King Abdul-Aziz Medical City (KAMC).

MATERIALS AND METHODS

This study type is a cross-sectional study, and it was conducted in King Abdul-Aziz Medical City in Riyadh. The area\department to be collecting the information including the surgical tower nurse clinic from ward 36 to 40, and the physical therapy rehab clinic including both in-patient and out-patient — the data collected from both males and females by interview method to complete the survey about work-related musculoskeletal disorders. For the sampling technique, stratified sampling was used to select the subjects. The nurses and physiotherapists form the two strata. From each stratum samples selected randomly. The population size of nurses = 210 where the population size of physiotherapist = 55 based on the calculation the minimum number of nurses and physiotherapist to participate in the study will be 127 and 33 respectively. A sample size of each stratum was calculated by using the following formula Sample size from each stratum = (sample size population size) × population size of each stratum). There are a total number of 265 nurses and physiotherapist are working in KAMC and King Abdulaziz Specialized Children Hospital (KASCH). After fixing a margin of error of 5% and confidence level of 95% of the total calculated sample size of the study by using RAO soft online software is 160. For the inclusion criteria, it consists of both male and female employee currently in duty, has at least two years of experience, and working in King Abdu-Aziz Medical City for the last two years. When applying the inclusion criteria, the sample size for the nurses was reduced to 94. Ethical approval was got from Institutional Review board, King Abdullah International Medical Research Center (KAIMRC). Data were collected using the interview the participants face to face by using the questionnaire specially designed for this study with the informed consent form the participants.

RESULTS

Table 1 Demographic characteristics of respondents

Demographic characteristics	Details of respondents (n= 127)	
	N (%)	
Gender		
Male	20	(15.7)
Female	107	(84.3)
Marital status		
Married	63	(49,6)
Single	59	(46.5)
Divorced	5	(3.9)
Department		
Nurse	94	(74)
Physiotherapists	33	(26)
Working experience (years)		
2	33	(26)
3-5	36	(28.3)
More than 5	58	(45.7)

The mean of the age of the participants is ±34.5 years old with a minimum of 20, and a maximum of 60 and most of the sample were females (84.3%). Nurse participants are more 94(74%) then the physiotherapist 33 (26%) and most of the participants are having five years of experience with 45.7%.

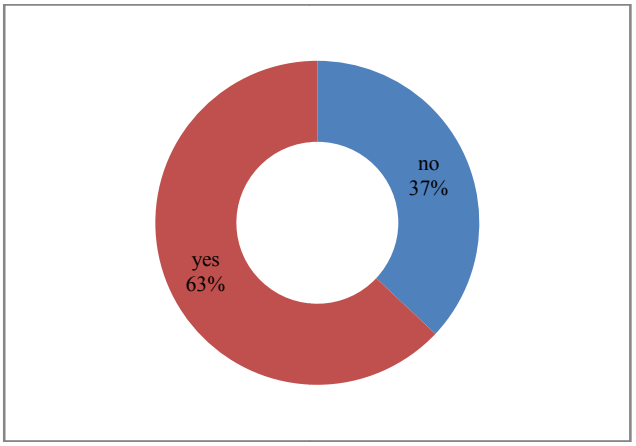

Figure 1 Prevalence of work-related injuries of respondents

From Figure 1, It represents that 63% of the participants stated they had WRMSDs and 37% mention there is no WRMSDs.

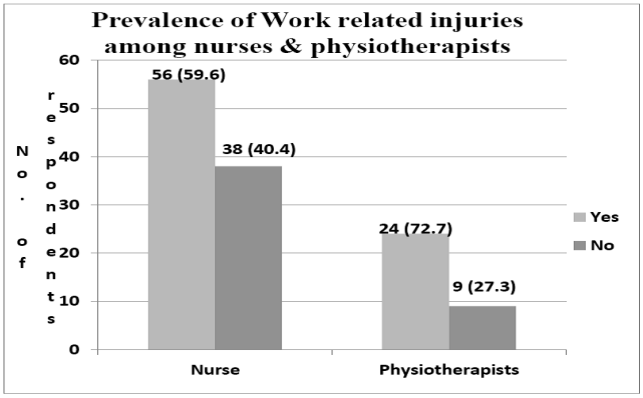

Figure 2 Bar diagram showing the prevalence of work-related injuries among nurses & physiotherapists

From Figure 2, It shows that Physiotherapist is having a high prevalence of WRMSDs (72.7%) out of 33 participants, then compares it to the Nurse practitioner (59.6%) out of 94.

Table 2 Most common types of pain experienced by both Nurse and physiotherapy practitioners

Type of pain		
	No. (%)	
Neck pain	27	(33.8)
Upper back pain	22	(27.5)
Shoulder pain	37	(46.3)
Elbow pain	8	(10)
Wrist pain	22	(27.5)
Low back pain	66	(82.5)
Hip pain	8	(10)
knee pain	23	(28.7)
Ankle-foot pain	25	(31.3)
Others	3	(3.8)
Total	80	(100)

Table 2: shows that the most common types of pain experienced by Nurse and Physiotherapy practitioners. The most frequent WRMSDs are low back pain (82.5%) followed by shoulder pain (46.3%) and neck pain (33.8%). Least pain occurs over the hip and elbow pain for about (10%).

Table 3 Response of respondents' regarding seek medical or rehab intervention after the diagnosis with injury

Did you seek medical or rehab intervention after being diagnosed for the cause of the previous reasons?	No. (%)	
Yes, and follow the intervention plan	**24**	**(30)**
Yes, but did not follow with an intervention plan	**5**	**(6.3)**
No, I treated myself	**42**	**(52.5)**
No, I did not seek intervention	**9**	**(11.3)**
Total	**80**	**(100)**

Table 3: shows that most of the nurse and physiotherapist not seeking the medical treatment and they manage the injury with self-treatment (52.5%) and (30%) of them are seeking medical treatment. (6.3%) Of them are seeking medical advice but not following the treatment. Overall (11.3%) of them are not concerning about their injury not seeking medical advice and no treatment.

Table 4 Opinion of respondents regarding the cause of problem & the solution to reduce work-related Injury
*Respondents are asked to choose more than one option

Cause of injury	Nurses	Physiotherapists	Total*
Patient weight	46 (82.14)	13 (54.16)	59 (73.75)
Ergonomic reasons and setup	7 (12.50)	4 (16.06)	11 (13.75)
Wrong posture or position.	16 (28.57)	8 (33.33)	24 (30)
Work load	47 (83.92)	15 (62.50)	62 (77.5)
Lack of training to prevent work-related injuries	3 (5.35)	4 (16.06)	7 (8.75)
Patient behaviour	19 (33.92)	8 (33.33)	17 (21.25)
Others	3 (5.35)	3 (12.50)	6 (7.5)
Solutions to reduce the injury			
Training program to educate how to avoid work related injury	31 (55.35)	11 (45.83)	42 (52.5%)
Ergonomic improvement	12 (21.42)	10 (41.66)	22 (27.5%)
Reduce patient load	45 (80.35)	12 (50)	57 (71.25%)
Posters all around the area that include the right position and body mechanics.	15 (26.78)	10 (41.66)	25 (31.25%)
Improve body fitness and physical status.	23 (41.07)	19 (79.16)	42 (52.5%)

Table 4 shows that various causes for the WRMSD among the nurse and physiotherapist practitioner and the possible solutions to recover from WRMSD. In the nurse practitioner workload was the significant causes for the WRMSD with 47 (83.92%) and followed by the patient weight with 46(82.14%) in the second place, patient behavior 19(33.92%) was in the third place. Wrong posture and position maintain by a nurse during transfer the patient contribute to 16 (28.57%). The physiotherapist will also follow the same decision of nurse with the highest percentage of causes of WRMSD was a workload and the patient weight 15(62.50%) and 13(54.16%) respectively. Followed by wrong posture and patient behavior with 8 (33.33%) on both respectively. When seen in a total of both profession workload contribute to first place with 62 (77.5%) followed by patient weight 59(73.75%), wrong posture 24(30%), patient behavior 17(21.25%) in the second, third and fourth place respectively. When asking the possible solutions for reduce WRMSD according to the nursing practitioner reduce patient load takes first place with 45 (80.35%) followed by training program to educate how to avoid the work-related injuries with 31 (53.35%) , improve body fitness and physical status with 23 (41.07%) and poster all around the area in the hospital related to right posture and body mechanics with 15 (26.78%). In physiotherapist improve body fitness, and physical status was in the first place with 19 (79.16%), followed by reduced patient load 12 (50%), and training the program to educate how to avoid work-related injury 11(45.83%). Stick the ergonomic improvement poster all around the hospital area regarding right posture and body mechanism 10 (41.66%) each. When seen in overall response reducing workload is the leading solution for decrease the WRMSD among hospital staff with 57 (71.25%), then followed by training program and body fitness with 42(52.5%) each.

DISCUSSION

According to table 1, 94 nurses and 33 physiotherapists participate in this study out of 127 respondents 80 of them were having WRMSD with 56 nurse and 24 physiotherapists. From table 2, it shows that various pain area and musculoskeletal injuries among the nurse and physiotherapist. In that low back pain is the major causes for the pain among nurse and physiotherapist with 82.5%. Similar results have been obtaining from a study done by Shehab.D in Kuwait high prevalence rate of low back pain among physiotherapist in 57% in Kuwait. Male and female physiotherapist also have work-related low back pain (23%)[10]

Table 3, it shows that 52.5% of the nurse and physiotherapists are not seeking the medical treatment, they are managing the injury with self-treatment. 11.3%are not concerning this injury and not seeking any medical treatment. This result was supported one of the studies done by Darragh. A. R than 60% of the occupational therapist, and 43% of the physical therapist is also taken self-treatment for their work-related musculoskeletal disorders [11].

Table 4, it shows that workload (77.5%) and patient weight (73.75%) was the significant causes for the injury happen to the nurse and physiotherapists. Wrong posture (30%) also causes for the problem. This result also supported by Darragh. A.R mentioned that the experience working hours and patient care was the potential risk factors for the work-related injury[11] The study population suggested the solutions for the reducing the work-related injury. It was reducing the patient load one of the major solutions think by a nurse (80.35%), and physiotherapists think it improves body fitness and physical status was the dominant solution for reducing the injury. However, in total reduce the patient load was the first solution by both physio and nurse. Right position and body mechanics were found as a solution for reducing injury only by (31.25%) which was the least opinion given by the study population. It was just opposite to Darragh.A.R study says that therapist relies on proper body mechanics to avoid injury[11.]

The training program to educate how to avoid work-related injury was the second solution identified by the participants for about (52.5%) and the least thing about environmental change of (27.5%).it was supported by Darragh. A. R that training on

minimal lift and no lift programs were integrated to reduce the work-related injury[11].

There was a different diversity between the ages of the participants which might not give a clear idea whether it is associated with WRMSDs, while we kept the gender balance in the physiotherapist's sample, we faced a problem with nurses as the first employee majority were female. As shown in fig1&2, the high prevalence of WRMSDs in both professions is an alarming result that predicts that the hospital may have complications if their workforce could not keep up with the demands of their job. As mentioned above, most of them started to think about changing their profession or going to an academic career, this was supported by Crombie, from his study it was discovered that six physical therapists were moved or left the profession because of Work-related musculoskeletal injury[9]. Darragh A.R study also suggested that 28% of the therapist is considered in changing the job because of the work-related injuries[11]. It worth saying that there is a regular backcare educational program provided to the nurses across all hospital units and a mandatory certification to all nurses.

Therefore, a conclusion can be made that the prevention programs in the medical city or other places are either not practical or enough to stop the problem, so further analysis of the programs is needed.

Limitations

This study encountered some limitations, which are the limited time for data collection doubled with the busy schedule of the staff. Therefore, recommendations for future research include the use of standardized measurements tools for determining that the injury is caused by work.

CONCLUSION

This study concluded that WRMSDs are more common among the nurse and physiotherapist in King Abdulaziz medical city, with a higher percentage of low back pain followed by shoulder and neck pain. Most of them are do the self-treatment for their musculoskeletal problem. Reducing the workload was the major suggestion given by the study population. This study collected the factors contributed to WRMSDs from the perspective of the practitioners, for future research it is recommended to Further analysis of the factors mentioned in this study individually.

References

1. occupational safety & health administration: determination of work-relatedness. https://www.osha.gov/SLTC/healthcarefacilities/safepatienthandling.html. Published 2016. Accessed February 23, 2016.
2. Mccaughey D, Kimmel A, Savage G, Lukas T, Walsh E, Halbesleben J. Antecedents to workplace injury in the health care industry: A synthesis of the literature. doi:10.1097/HMR.0000000000000043
3. occupational safety & health administration: determination of work-relatedness. https://www.osha.gov/SLTC/healthcarefacilities/safepatienthandling.html. Published 2016. Accessed February 23, 2016.
4. Medical History Checklist: Symptoms Survey for Work-Related Musculoskeletal Disorders (WMSDs) : OSH Answers. https://www.ccohs.ca/oshanswers/diseases/work_related_WMSD.html. Accessed May 28, 2018.
5. Yasobant S, Rajkumar P. Work-related musculoskeletal disorders among health care professionals: A cross-sectional assessment of risk factors in a tertiary hospital, India. *Indian J Occup Environ Med*. 2014;18(2):75. doi:10.4103/0019-5278.146896
6. Al-Eisa E, Al-Abbad H. Occupational Back Pain Among Rehabilitation Nurses in Saudi Arabia The Influence of Knowledge and Awareness. 2013;61(9). http://journals.sagepub.com/doi/pdf/10.1177/21650799 1306100905. Accessed May 28, 2018.
7. Gropelli T, Corle K. Assessment of nurses' and therapists' occupational musculoskeletal injuries. *Medsurg Nurs*. 20(6):297-303; quiz 304. http://www.ncbi.nlm.nih.gov/pubmed/22409113. Accessed May 28, 2018.
8. Bork BE, Cook TM, Rosecrance JC, et al. Work-related musculoskeletal disorders among physical therapists. *Phys Ther*. 1996;76(8):827-835. http://www.ncbi.nlm.nih.gov/pubmed/8710962. Accessed May 28, 2018.
9. Cromie JE, Robertson VJ, Best MO. Work-related musculoskeletal disorders in physical therapists: prevalence, severity, risks, and responses. *Phys Ther*. 2000;80(4):336-351. http://www.ncbi.nlm.nih.gov/pubmed/10758519. Accessed May 28, 2018.
10. Shehab D, Al-Jarallah K, Moussa MAA, Adham N. Prevalence of low back pain among physical therapists in Kuwait. *Med Princ Pract*. 2003;12(4):224-230. doi:10.1159/000072288
11. Darragh AR, Campo M, King P. Work-Related Activities Associated with Injury in Occupational and Physical Therapists. doi:10.3233/WOR-2012-1430

How to cite this article:

Fayz Alshahry *et al* (2019) 'Survey Assessment of Workplace-Related Musculoskeletal Injury for Health care Providers at King Abdul-aziz Medical City (kamc)', *International Journal of Current Advanced Research,* 08(03), pp. 17869-17872. DOI: http://dx.doi.org/10.24327/ijcar.2019.17872.3405

****