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PREVALENCE OF WORK-RELATED MUSCULOSKELETAL DISORDERS AMONG SURGEONS IN GUJRANWALA, PAKISTAN

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HIGHLIGHTS

- This was an observational cross-sectional study. It was conducted in different hospital settings in Gujranwala. A sample size of 109 participants was taken. The Nordic musculoskeletal questionnaire was used.
- Our results indicated that 95(85%) participants reported neck pain, 89(81%) reported wrist/hand pain, 86 (79%) reported lower back pain and 78(70%) reported shoulder pain.
- 79(70%) reported elbow pain, 72(68%) reported ankle/foot pain, 75(65%) reported upper back pain, 65(58%) reported hip/thigh pain and 52(48%) reported knee pain during the last 12 months out of 109 participants.
- It is concluded that work-related musculoskeletal disorders are prevalent among surgeons in Gujranwala Pakistan.

ABSTRACT

Background: Work-related musculoskeletal disorders are the main reasons for disability in the working community because these are responsible for reducing the quality of life, decreasing productivity, and increasing costs on health.

Objective: To investigate the work-related musculoskeletal disorders among surgeons in Gujranwala, Pakistan.

Material & Methods: This was an observational cross-sectional study conducted in different hospital settings in Gujranwala and completed within three months after approval of the synopsis using convenient sampling. A sample size of 109 participants completed the nordic musculoskeletal questionnaire. Frequencies and percentages were attained for qualitative variables whereas mean and standard deviations were used for continuous variables. Bar charts presented the categorical variables of pain intensity in different periods.

Results: It showed that 95(85%) participants reported neck pain, 89(81%) wrist/hand pain, 86 (79%) lower back pain, 78(70%) shoulder pain,79(70%) elbow pain, 72(68%) ankle/foot pain, 75(65%) r upper back pain, 65(58%) hip/thigh pain and 52(48%) knee pain during the last 12 months out of 109 participants.

Conclusion: It is concluded that work-related musculoskeletal disorders are prevalent among surgeons in Gujranwala Pakistan. The body parts most often affected were the neck, wrist/hand, and lower back. The prevalence and body parts affected varied by practice setting and specialty area.

Keywords: work-related musculoskeletal disorders, surgeons

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musculoskeletal disorders among surgeons in Gujranwala, Pakistan. Asian Journal of Allied Health Sciences. 2022; 7(4):24-29

INTRODUCTION

Work-related musculoskeletal disorders (WRMSDs) like carpal tunnel syndrome, tendonitis, thoracic outlet syndrome and tension neck syndrome are a group of painful disorders of muscles, tendons, and nerves.[1] The prevalence of work-related musculoskeletal disorders is high among surgeons and its impact on the surgeon's personal and professional life is high. Forceful and repetitive maneuvers constitute the majority of pediatric orthopedic surgical tasks, thus subjecting surgeons to the risk of musculo-skeletal (MSK) injuries during their years in practice.[2] This study aimed to assess the prevalence, characteristics, and impact of MSK disorders among pediatric orthopedic surgeons. The WMSDs are responsible for morbidity in many working populations.[3]

Apart from lowering the quality of workers' life and reducing productivity, WMSDs are the most expensive form of work disability, attributing to about 40% of all costs toward the treatment of work-related injuries. These are considered to be multifactorial that are caused due to the interactions between various risk factors, which result in conditions that vary across different occupations.[4] Although the healthcare profession is known to be a high risk for WMSDs, it is one of the least-studied occupations. Most of the previous studies on WMSDs among healthcare workers were limited to any one of the professional groups such as nurses, physical therapists, dentists, and others.[5] Hence this study was aimed at looking into the WMSDs affecting five different healthcare professionals working in a tertiary care hospital. It compared the prevalence and distribution of WMSDs among the five groups, evaluated the multiple risk factors that contribute to the development of WMSDs, and identified the high-risk group.[6]

Ergonomic principles can be applied in the operating room to decrease the incidence and severity of those injuries and to avoid downstream sequelae, including the need for surgery. There is a need to improve ergonomics in the clinical and operative room settings and to educate surgeons on ergonomic principles. Ergonomic interventions may have a greater impact on the prevention of hand/wrist complaints.[7]

Musculoskeletal problems represent a significant burden for the dental profession.[8] Physical workload, psychosocial and individual factors appear to be important risk factors for musculoskeletal disorders.[9] Outcome of this study will help raise awareness regarding the WMSDs of health professionals. It would help develop prevention strategies for minimizing the occurrence of WMSDS. The purpose of the study was to investigate the work related musculo-skeletal disorders among surgeons in Gujran-wala, Pakistan.

MATERIAL AND METHODS

An observational cross-sectional study[10] was conducted in six hospitals in Gujranwala, including; Jinnah hospital Gujranwala, DHQ hospital Gujranwala, and Fazal Hospital Gujranwala. Gondal medical complex Gujranwala, Social security hospital Gujranwala and Medicare international hospital Gujranwala. The sample size was calculated by using Epitool Calculator[11] by having an estimated population of 150 surgeons in different healthcare settings. The sample size was 109 surgeons. Participants' selection criteria were as follows;

Inclusion criteria: (1) Age group of 30 to 60 years, (2) Both Genders, (3) Surgeons of Gujranwala.

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Exclusion Criteria: (1) Age greater than 60 or less than 30 years, (2) Surgeons having any underlying systemic illness, (3) Surgeons that have a history of any recent trauma, (4) Surgeons having arthritis of any type.

Informed consent was taken from hospitals by telling the aims and objectives of the study. Surgeons were voluntarily involved and all medical ethics were considered. Healthcare professionals were selected based on a convenient sampling technique. [12] Assessment of musculoskeletal disorders, along with their signs & symptoms in different body regions, were recorded by using a nordic musculoskeletal questionnaire. [13]

Nordic musculoskeletal questionnaire is a valid and reliable questionnaire to identify the prevalence, commencement, and drawbacks of musculoskeletal pain.[14] First, the questionnaire recorded demographic information such as age and gender. Afterward, musculoskeletal disorders were evaluated by the standardized nordic musculoskeletal questionnaire.

After data collection, data were shifted to SPSS software version 21.0. Frequencies and percentages were attained for qualitative variables whereas mean and standard deviation were taken for continuous variables. Bar charts presented the categorical variables of Pain presence in different periods times.

RESULTS

After analysis of the data, it was found that; out of 109 surgeons, 62.4% were males and 37.6% were females. There were 35% of participants between 30-40 years of age whereas the remaining 65% of participants were from the age group of 41-60 years.

Table 1: Descriptive Statistics of Gender and age groups of Surgeons (n=109)

Variable	Construct	Frequency	Percentage
Age	30-40 years	38	35%%
	41-60 years	71	65%
Gender	Male	69	62.4%
	Female	40	37.6%

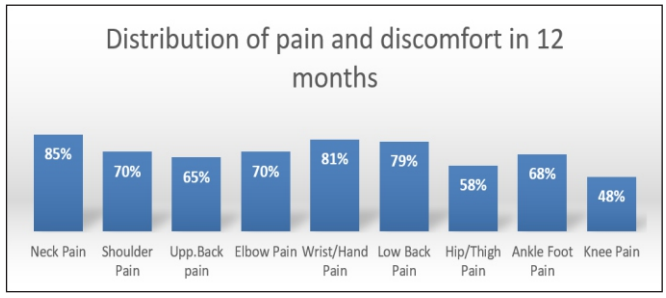

Figure 1: Distribution of Pain from 12 months

Surgeons were asked about their painful region in the last 12 months and

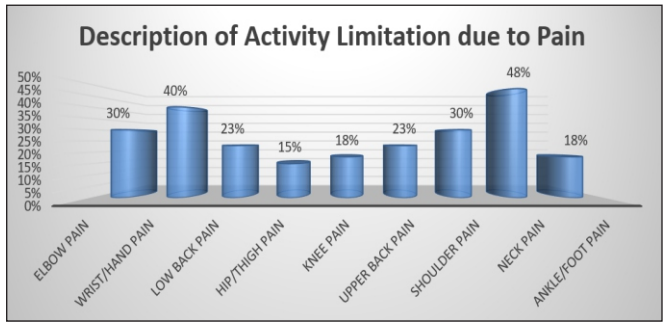

Figure 2: Distribution of due to Pain in Different Regions during the last 12 Months

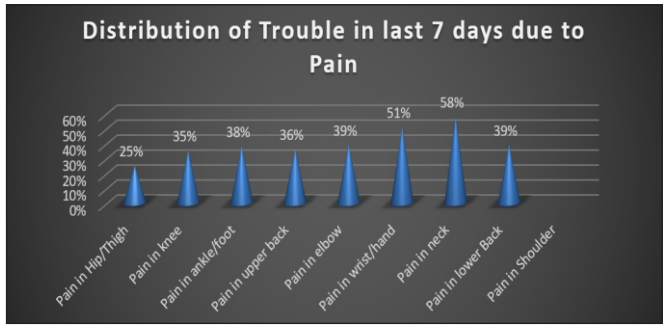

Figure 3: Distribution of "trouble in last 7 days"

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DISCUSSION

The main focus of the study was to find work-related musculoskeletal disorders among surgeons of Gujranwala. This study assessed the main body regions in which the surgeons could have problems and the impact of these problems on their activity and job duties. It also explored the ergonomic risk factors and effects of poor postures during different surgical procedures. Findings of research show that the physical workload of surgeons puts them at high risk of musculoskeletal disorders, especially of low back, neck, shoulder, and wrist. In compliance with the Questionnaire, the respondents' surgeons were selected from different hospital settings in Gujranwala.

Data indicates that 62.4% of participants were males and 37.6% were female. Data also indicates that 65% of participants were of the age group 30-45 and 35% were of the age group 46-60 years. At present fewer female surgeons are in practice due to difficult job demands and more physical work during surgery and also social constraints of job tasks. In our community females usually do not have to run their families so they come into practice less often and more surgeons are male. In this study, our main findings indicate that work-related musculoskeletal disorders are common in surgeons that are the other study concluded that the prevalence of work-related musculoskeletal disorders among surgeons is high. [15] This study is in accordance with another study that concluded that plastic surgeons are at high risk for work-related musculoskeletal injuries. Ergonomic principles can be applied in the operating room to decrease the incidence and severity of those injuries. [16] This study concluded that work-related musculoskeletal disorders are common in surgeons of Gujranwala as compared to another study which concluded that work-related musculoskeletal disorders are common in health care professionals [17] thus this study filled the knowledge gap in Pakistan. This study gave us findings that work-related musculoskeletal disorders are prevalent in surgeons as compared to another study which concluded that work-related musculoskeletal disorders are prevalent in doctors. [18] In research, surgeons were selected from six big setups of Gujranwala because these contain a higher number of practitioners and are more suitable for data collection procedures. The main regions of the body which are affected by poor biomechanical and ergonomic positions include the neck, shoulder wrist, hand, and upper and lower back. The main focus of the study was to find out different musculoskeletal disorders among surgeons and then provide suggestions on how to eradicate these issues and get better job compliance. Fewer research has been done on musculoskeletal disorders of surgeons than other health care professionals so we selected this topic. Musculoskeletal disorders among surgeons can be minimized by improving their workstations and also providing them an awareness of better working postures during prolonged surgical procedures. [19] More work is needed to educate the surgeons on the biomechanical demands of their work. Conferences, seminars, and other activities can be arranged to provide the surgeons with awareness about these factors and how to modify these. Health care organizations should also be encouraged to check the work demands of health care providers and should intervene to minimize these demands. The health care organizations need to focus on the necessity of allocation of resources that may help the surgeons to get less pain in different body regions and perform their work safely. There is a need to motivate and improve surgeons' interest through seminars, conferences, and workshops on awareness of work-related musculoskeletal

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disorders.

CONCLUSION

We concluded that work-related musculoskeletal disorders are not only affecting physical therapists, physicians, and other health care providers but surgeons are also the victims of these disorders. Most surgeons are in trouble due to neck pain and face activity limitations mostly due to neck pain.

Declarations

Consent to participate: Written consent had been taken from patients. All methods were performed following the relevant guidelines and regulations.

Availability of data and materials: Data will be available on request. The corresponding author will submit all dataset files.

Competing interests: None

Funding: No funding source is involved.

Authors' contributions: All authors read and approved the final manuscript.

REFERENCES:

01- Grant K, Vo T, Tiong L. The painful truth: work-related musculoskeletal disorders in Australian surgeons. Occupational Medicine 2020; **70**(1): 60-3.

02- Epstein S, Sparer EH, Tran BN, et al. Prevalence of work-related musculoskeletal disorders among surgeons and interventionalists: a systematic review and meta-analysis. JAMA surgery 2018; **153**(2): e174947-e.

03- Epstein S, Tran BN, Capone AC, Ruan QZ, Lee BT, Singhal D. Work-related musculoskeletal disorders among plastic surgeons: a systematic review. Journal of Reconstructive Microsurgery 2018; **34**(08): 553-62.

04- Dabholkar T, Yardi S, Dabholkar YG, Velankar HK, Ghuge G. A survey of work-related musculoskeletal disorders among otolaryngologists. Indian Journal of Otolaryngology and Head & Neck Surgery 2017; 69(2): 230-8.

05- Vaghela N, Parekh S, Ganjiwale D, Mehta JN. Work-Related musculoskeletal disorder among surgeons in Gujarat. Journal of Education and Health Promotion 2019; 8.

06- 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 Journal of Occupational and Environmental Medicine 2014; 18(2): 75-81.

07- Alexopoulos EC, Stathi IC, Charizani F. Prevalence of musculoskeletal disorders in dentists. BMC musculoskeletal disorders 2004; 5: 16.

08- Hayes M, Cockrell D, Smith DR. A systematic review of musculoskeletal disorders among dental professionals. International journal of dental hygiene 2009; 7(3): 159-65.

09- Lorusso A, Bruno S, L'Abbate N. Musculoskeletal complaints among Italian X-ray technologists. Industrial health 2007; 45(5): 705-8.

10- Kesmodel US. Cross sectional studies–what are they good for? Acta obstetricia et gynecologica Scandinavica 2018; 97(4): 388-93.

11- Villarta Jr RL, Asaad AS. Sample Size Determination in an Epidemiologic Study using the EpiTools Web-Based Calculator.

DOI: 10.52229/ajahs.v7i4.1818

Acta Medica Philippina 2014; 48(1).

12- Sedgwick P. Convenience sampling. Bmj 2013; 347.

13- Crawford JO. The Nordic musculoskeletal questionnaire. Occupational medicine 2007; 57(4): 300-1.

14- Dawson AP, Steele EJ, Hodges PW, Stewart S. Development and test–retest reliability of an extended version of the Nordic Musculoskeletal Questionnaire (NMQ-E): a screening instrument for musculoskeletal pain. The Journal of Pain 2009; 10(5): 517-26.

15- Epstein S, Sparer EH, Tran BN, et al. Prevalence of Work-Related Musculoskeletal Disorders Among Surgeons and Interventionalists: A Systematic Review and Meta-analysis. JAMA surgery 2017: e174947.

16- Khansa I, Khansa L, Westvik TS, Ahmad J, Lista F, Janis JE. Work-Related Musculoskeletal Injuries in Plastic Surgeons in the United States, Canada, and Norway. Plastic and reconstructive surgery 2018; 141(1): 165e-75e.

17- 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): 75-81.

18- Lahoti S, Narayan A, Ottayil Z, Bhaskaran U. Prevalence of musculoskeletal disorders among doctors in Mangalore: A cross-sectional survey. International Journal of Health & Allied Sciences 2014; 3(3): 204-7.

19- Mavrovounis G, Meling TR, Lafuente J, Fountas KN, Demetriades AK. Postural ergonomics and work-related musculoskeletal disorders in neurosurgery: lessons from an international survey. Acta neurochirurgica 2021; 163(6): 1541-52.