

PREVALENCE OF WORK RELATED MUSCULOSKELETAL DISORDERS AMONG PHYSICIANS, SURGEONS AND DENTISTS AT TERTIARY CARE HOSPITALS OF PESHAWAR

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Abstract

Objective: To determine prevalence of work related musculoskeletal disorders among physicians, surgeons and dentists.

Methods: A cross-sectional study was conducted at tertiary care hospitals of Peshawar Khyber Pakhtunkhwa. A total to 300 questionnaires were distributed amongst the participants. Questionnaires were given to 100 Physicians, 100 Surgeons and 100 Dentists working at tertiary care hospitals of Peshawar. Positive responses from physicians, surgeons and dentists were 87, 84 and 89, respectively. Questionnaire consists of two sections involving demographic characteristics and Modified Nordic questionnaire. SPSS version 20 was used for data analysis.

Results: The prevalence of WRMDs was highest among dentists 69% (55/80) followed by Surgeons 53% (42/80) and physician's 39% (31/80). Low back, neck and shoulder were the main complaint areas.

Conclusion: MSDs are multi-dimensional relating to various risk factors involving prolonged Static postures, repetitive tasks, awkward and cramp positions, inadequate training physical Conditioning, age and obesity. There is significant relation of MSDs with BMI and gender of Participants. WRMDs shows significant burden for health professional's therefore proper Attention and preventive measures should be taken to minimize this problem.

Keywords: Musculoskeletal problem, physicians, surgeons, dentists.

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physical conditioning, mental stress, genetic predisposition, age and obesity⁽⁶⁾⁽⁷⁾. The world health organization and Conceptual model describe multiple factors such as individual, physical, psychological social, cultural and environmental variables which can contribute to the development of WMSDs⁽⁸⁾⁽⁹⁾⁽¹⁰⁾. The specific characteristics of practice in hospitals and clinics are connected with, and accompanied by harmful health effects. Uncomfortable positions assumed by dentists, surgeons and physicians during work may affect their health conditions⁽¹¹⁾⁽¹²⁾. Various positions such as standing or sitting positions which are commonly used with unstable position of spine combined with increase pressure and physical load on some tissues and straining of others ,repetitive activities, overuse, and inadequate breaks may be the possible cause of painful musculoskeletal disorders^(6, 13, 14).

INTRODUCTION

Prevalence of Work Related Musculoskeletal Disorders (WRMD) has increased considerably in the recent past throughout world which not only affect health of an individual's leading to disabilities but have also significant economical consequences in the form of sick-leave and medicals expenses⁽¹⁾. Health professionals experienced more work related health problems than other professional groups^(2, 3). The working environment and the psychological state during work in hospitals greatly affect musculoskeletal systems and hence decrease productivity and job satisfaction⁽⁴⁾. Musculoskeletal disorders

describe as musculoskeletal complaints, musculoskeletal symptoms or musculoskeletal pain that reveal multiple conditions like backache, limbs pain, shoulder pain, knee pain, cervical spondylosis, tension neck syndrome, myofascial pain in the neck and upper back, cervicobrachial disorders , thoracic outlet syndrome, atypical facial pain, tendonitis, myofascial dysfunction syndrome, tenosynovitis, trigger finger, bursitis, De quervain syndrome, carpal tunnel syndrome, cubital tunnel syndrome etc⁽⁵⁾.

Various studies reveal that MSDs are multi-dimensional which may be due to prolonged static postures, repetitive tasks, poor lightening, faulty positions,

METHODS

After the approval of the research proposal by the institutional review board, the required data was collected from the selected doctors who fulfilled the inclusion criteria. Before data collection, permission was taken from the respective tertiary care hospitals at Peshawar and information sheet was provided to the participants. Consent was taken from the subjects who were willing to participate in the study.

INCLUSION CRITERIA OF THE STUDY

Doctors including physicians, surgeons and dentists with 26-60 years age group, having minimum of 1 year of practice and with minimum 30 hours of clinical work per week. Both male and female clinicians who were willing to participate in our study were included in our study.

EXCLUSION CRITERIA OF THE STUDY

Doctors with any systemic disease which may influence their musculoskeletal system, History of non-occupational injuries and Doctors who do not fulfill the inclusion criteria were excluded from our study.

Nordic Questionnaire was used which is reliable and valid which includes MSD related different parameters. For data collection, we used only English language but with easiest wording. Self-administered questionnaire was used for data collection. Hard copy of the questionnaire was distributed among the subjects. Questionnaire had two sections; Demographic characteristics and Modified Nordic questionnaire.

An information sheet, consent form and Nordic questionnaire was given to 100 physicians, 100 surgeons of various specialties and 100 dentists working at tertiary care hospitals of Peshawar, Khyber Pakhtunkhwa, Pakistan, in October to December 2015. Positive responses from physicians, surgeons and dentists were 87, 84 and 89 respectively. Because of systemic issues and incompletely questionnaire 4, 4 and 7 were rejected. From the remaining 3 responses from physicians and 2 responses from dentists were eliminated randomly to compose the final sample as 80 per group. Data was analyzed through SPSS version 20 after collection. The collected data were presented with tables, bar graphs and pie charts. The collected data and result shows real image about the demographic characteristics and the predisposing risk

factors about the work related musculoskeletal disorders among physicians, surgeons and dentists working in Peshawar. The obtained results were then calculated in frequencies and percentages while descriptive statistics were also shown.

RESULTS

Data analysis represent that n=128,(53%) subjects out of 240 subjects have some form of WRMDs. Comparing different specialties of health practitioners showed that physicians n=31,(39%), surgeons n=42,(53%) and dentists n=55,(69%) have some form of WRMDs.(Figure 3). Data showed that of all the participants n=157 were male while n=83 were female. Analysis also demonstrate that in male n=72, (46%) out of 157 were suffered from WRMDs while in female n=56, (67%) subjects out of 83 have some form of WRMDs. Outcomes show that female are more prone to MSD as compared to male.

Data analysis regarding BMI of the participants revealed that among 240 respondents prevalence of work-related musculoskeletal disorders were n=5, (100%) out of n=5 participants having BMI less than 18.5, n=74, (44%) out of 168 subjects having BMI 18.5-24.9, n=42, (71%) out of 59 subjects having BMI 25-29.9, and n=7, (88%) out of 8 subjects having BMI more than 30 have some form of WRMDs. Outcomes show significant relationship between BMI and MSD (i.e.) MSD is more common in underweight, overweight and obese participants.

Data analysis showed that most common musculoskeletal disorder in overall health practitioners were low back (37%) problem followed by neck (30%),shoulders (15%),upper back (7%),wrists/hands (4%),knees (4%), ankles/feet (2%),elbows (1%) and hips/thighs/buttocks (1%).Out of n=128 participants n=43 experienced WRMD problems in more than one body region consisting n=18 Physicians, n=9 Surgeons and n=16 dentists. Relating different body parts with health practitioners specialty showed that in

physicians low back pain (33%) was more common followed by neck (29%), shoulders (18%), upper back (6%), knees (6%), ankles/feet (4%), wrists/hands (2%) and hips/ thighs/ buttocks (2%). Similarly in surgeons low back pain (47%) were more common followed by neck (24%), shoulders (16%), knees (6%),upper back (4%), ankles/feet (2%) and wrists/hands (2%).While in dentists neck pain (35%) was more common followed by low back (34%), shoulders (13%),upper back (10%), wrists/hands (6%), elbow (1%) and ankles/feet (1%). (Table 20)

Outcome showed that of all n=128 participants the most common risk factor stated for WRMDs was working in awkward or cramped positions (32%) followed by working in the same position for long periods (26%), performing the same task over and over (20%), not enough rest breaks during the day (9%), work scheduling (over time, irregular shift, length of workday) (5%), continuing to work despite of injury or pain(4%) and repetitive movements of upper limb(2%).So stressful positions in all specialties leading to injuries are working in awkward or cramped positions, working in the same position for long periods and performing the same task over and over.(Figure 21)

Comparing different types of treatment data shows that out of n=84 participants using medications n=74, (88%) participants were improved while n=10, (12%) participants remain unchanged. Of all the n=29 participants using physiotherapy n=26, (90%) participants were improved, n=2, (7%) participants were worsened and n=1, (3%) participants were unchanged. Out of n=7 using surgery n=2, (29%) participants were improved, n=1, (14%) participants were worsened and n=4, (57%) participants were unchanged. Using others treatment as an option out of n=8, n=6, (75%) participants were improved while n=2, (25%) participants remain unchanged

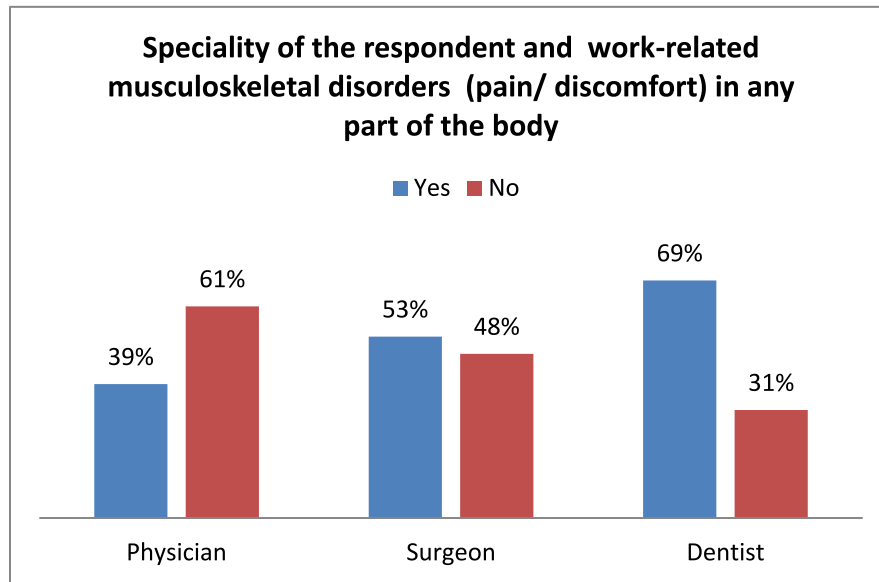


Figure 1: Specialty of the respondent and work-related musculoskeletal disorders

Table 20: Specialty of the respondent and area of the symptoms

Specialty	AREA OF SYMPTOMS									Total
	Neck	Shoulders	Upper Back	Elbows	Low back	Wrists/Hands	Hips/Thighs/Buttocks	Knees	Ankles/Feet	
Physician	29%	18%	6%	0%	33%	2%	2%	6%	4%	100%
Surgeon	24%	16%	4%	0%	47%	2%	0%	6%	2%	100%
Dentist	35%	13%	10%	1%	34%	6%	0%	0%	1%	100%
Total	30%	15%	7%	1%	37%	4%	1%	4%	2%	100%

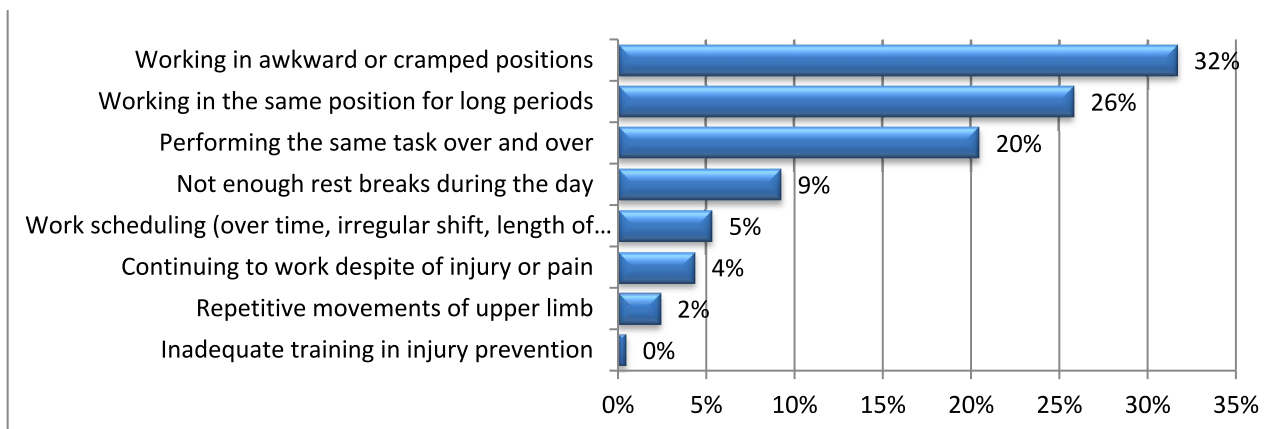


Figure 2: Factors that contribute to work related musculoskeletal disorder

DISCUSSION

Work related MSDs is one of the major health issue among health practitioners particularly surgeons and dentists who work in static and awkward posture with repetitive tasks. There is limited literature about the prevalence of MSDs in medical professionals in Peshawar KP.

The result shows that 53% (n= 128) of health practitioners (physicians, surgeons and dentists) have WMRDs. The finding of our study shows highest prevalence of WRMDs in dentists (69%) followed by surgeons (53%) and physicians (39%). The finding of our study is comparable to the results of a cross sectional study conducted in India which show highest prevalence of WRMDs in dentists (61%) followed by surgeons (37%) and lowest physicians (20%)⁽¹⁵⁾. The study show less prevalence in physician than our finding because of workload is less and most of the physician work in sitting position. Dentists have high prevalence of WRMDs because of their working environment and ergonomics. Dentists mostly work in standing position with small area of working which require high precision and frequent movements and twisting of body. The prevalence of MSDs in dentists is also higher in other studies and comparable to the results of our study. A cross sectional study carried in Romania showing that 89% of the dentists had some form of MSDs in past 12 month⁽¹⁶⁾. A Study conducted in 2011, by Kierklo A, Kobus A, Jaworska M, Botuliński B in Poland found that (92%) of dentists had some sort of musculoskeletal problems while 81% of American dentists show musculoskeletal symptoms^(17, 18). Another cross sectional study conducted in Shiraz southern Iran, show that prevalence of MSDs among dentists is 86.7%⁽¹⁹⁾ while Study conducted in 2011, by Kierklo A, Kobus A, Jaworska M, Botuliński B in Poland show that 92% of dentists have MSDs. The study shows higher prevalence than our study because most of participant was female 88.2% and the average number of years in practice was 16 years with most of the participants worked without an assistant 63.6%⁽¹⁸⁾.

Our study find out that 53% of surgeons have WRMDs which is less than dentists 69% and more than physicians 39%. Mostly surgeons work in standing position with repetitive task and awkward, stressful bending and twisting. The prevalence of MSDs in physicians is lowest as compared to dentists and surgeons because most of physicians work in sitting position with out stressful movements and awkward position with better ergonomic position during work. We found that 39% of physicians have some form of MSDs. While Ramin Mehrdad, Jack Tigh Dennerlein, Maryam Morshedizadeh in 2012 find out 10% to 20% of prevalence of MSDs in Iranian physicians⁽²⁰⁾. This study show less prevalence of MSDs as compare to a cross-sectional study conducted in Iran (Babol) in 2011 which find out that 95% of surgeons have MSDs⁽²¹⁾. This is because of small sample size of 45 surgeons than our study which is 300.

The finding of this study show that, most frequently affected area in dentists was neck followed by lower back and shoulder, where in physicians and surgeons the most commonly affected area was low back followed by neck and shoulder. Cross sectional study carried in Romania showed that commonly affected body region in dentists was lower back, neck and shoulder⁽¹⁶⁾. While a comparative cross sectional study conducted by T Rambabu and K Suneetha show that neck and lower back is the mostly affected areas 40% and 50% respectively in physicians and dentists while elbow wrist/hand and knees are less affected where in surgeon have commonly problem in low back, hip, knees ankle and neck⁽¹⁵⁾.

There is significant relation of MSDs with BMI and gender of participants. Female have greater prevalence of WRMDs than male while MSDs are more common in underweight, over weight and obese participants. Tariq Abdullah Abdul-Jabbar in 2008 find out similar result that female dentists have more MSDs than male dentists. The study showed no statistically significant difference between male and female but female participants had considerably higher rate of pain, headache and weakness is compared to male⁽²²⁾. The finding of our study is similar to the result of a cross sectional study conducted by

Sadeq FI in 2012 in Bangladesh which show that obesity is related to WRMDs and there is increase in MSD as weight of the individuals increase. A similar study conducted in Norway also show the same finding that obesity is the individual's risk factor associated with low back pain. This is possibly due increase load on joint and muscle while working in same position for long time with out not enough rest breaks. Those with underweight with frequent MSDs may possibly due decrease in endurance while performing there jobs in in same position which leads to MSDs.

Regarding the common risk factor in all specialties stated for WRMDs was working in awkward or cramped positions followed by working in the same position for long periods, performing the same task over and over, not enough rest breaks during the day, work scheduling (over time, irregular shift, length of workday), continuing to work despite of injury or pain and repetitive movements of upper limb. A similar result shown in a systemic review that the MSDs are multi-dimensional which may due to prolonged static positions, repetitive activities, improper positions, occupational hazards and psychological stress⁽²³⁾. Our finding is supported by a study conducted in Bangladesh which show that the common risk factors for WRMDs are performing the same task over and over and working in awkward or cramped positions⁽²⁴⁾. Babatunde in (2008) showed in his study that risk factors leading to WRMDs is excessive work in one day, working in same position for long time, not enough rest break, bending or twisting position in awkward cramp position, same task over and over and continuing work when injured. No significant statistical correlation has been found between MSDs and risk factors but it is shown that WRMDs are multidimensional and all these factors can lead to MSDs.

CONCLUSION

Prevalence of Work related musculoskeletal disorders (WRMD) are high among health professionals which are related to different risk factors. There is highest prevalence of WRMDs in dentists followed by surgeons and

physicians. The most frequently affected area is neck, lower back and shoulder. There is significant relation of MSDs with BMI and gender of participants. Female have greater prevalence of WRMDs than male while MSDs are more common in underweight, over weight and obese participants. In summary WRMDs shows significant burden for health professional's therefore proper attention and preventive measures should be taken to minimize this burden.

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