

MUSCULOSKELETAL DISORDERS AND ITS ASSOCIATED FACTORS AMONGST HEALTHCARE PROFESSIONALS

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ABSTRACT

Work related musculoskeletal disorders (WMSDs) are one of the most common factors that not only decrease the quality of life but also compromise productivity of health care personnel. This cross sectional study was aimed at looking into the WMSDs affecting physicians, nurses and dentists. A study of two months duration was initiated at Aga Khan University Hospital, Karachi. Subjects included were divided into three groups medical doctors, dental professionals and nurses. A questionnaire was designed for collection of data from the respondents. The data was entered and analyzed using SPSS version 14. Strenuous work position was reported by 38.9% participants and standing work posture 45.6% and only 22.2% reported interchanging their work posture. The most commonly reported WMSDs was lower back pain among all groups. The prevention and reduction of WMSDs among doctors, nurses and dentists should include their education in ergonomics and awareness regarding the importance of work-related risk factors.

Key Words: Health care professionals, risk factors, WMSDs, posture, dentists.

INTRODUCTION

Musculoskeletal conditions are a diverse group with regard to pathophysiology and are associated with pain and impaired physical function. They encompass a spectrum of conditions, from those of acute onset and short duration to lifelong disorders.¹ Musculoskeletal disorder is one of the most common work related disability with substantial burden on medical compensations.² World Health Organization (WHO) and United Nations with their endorsement of the Bone and Joint decade (2000-2010) highlighted the fact that prevalence of WMSDs is global.³ It is one of the most common cause of long term pain and disability among health care personnel. Presence of discomfort, persistent pain in muscles, tendons and joints are the common presentations of WMSDs.⁴ All these symptoms are due to repeated movements and prolonged awkward or forced body position which lead to decreased oxygenation in

the muscle and known as strenuous work posture.⁵ WMSDs has an impact not only on the physical but also on the psychological and social aspects of the practitioners.^{6,7}

The UK Health and Safety executives have estimated that 5.7 million working days were lost in 2001/02 mainly as a result of back pain that was caused or made worse by work. On average, each person suffering took an estimated 18.9 days off in that 12-month period.⁸ Musculoskeletal complaints are the second most common reason for consulting a doctor, accounting for up to 10-20% of primary care consultations in some countries.⁹ Literature reports strong link of factors like age, physical fitness, smoking, excess body weight and Occupational factors with musculoskeletal disorders.¹⁰ Relationship has been reported between physical demand of work and musculoskeletal disorder.¹¹

WMSDs are important to be studied and prevented as regularly occurring pain or discomfort that is ignored can cause the cumulative physiological damage. This in turn can lead to an injury or a career-ending disability.¹² Especially, co morbidity of chronic complaints is highly related to increase cost of disorders.⁷

The aim of the current study was to assess the distribution and pattern of musculoskeletal disorders amongst different cadre of health care professionals and to determine the association of work related factors with these disorders in a tertiary care health care facility.

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Received for Publication: September 29, 2015

Revised: November 22, 2015

Approved: November 23, 2015

METHODOLOGY

This cross sectional study of two months duration was initiated in September 2008 at Aga Khan University Hospital, Karachi. The subjects included in the study were divided into three groups of medical doctors, dental professionals (Dentists and Dental assistants) and nursing staff.

Sample size was calculated using NCSS PASS software. For categorical outcome at level of significance of 5% and power of 80% and effect size of 0.6 the total sample size required was 27 subjects in each group (total 81 subjects). The study sample collected consisted of 30 subjects in each health professional group (total 90 subjects). The study subjects were included in the study if the identified health care worker was a licensed professional and was employed at the health care facility. Subjects of both genders were included with age of 18 and above, with at least one year of work experience in the current health care facility.

A structured self-administered questionnaire was designed for collection of data. The questionnaire comprised of components like basic demographics of participants, work experience, work demand (position and posture during work, working hours), types, severity and frequency of musculoskeletal complaints experienced by the health care professionals.

The sampling was done by non probability method and suitable study subjects were approached by the investigators and after informed consent the participants responded to the questionnaire and the investigators answered any queries of subjects regarding this research.

Statistical Analysis

The data was entered and analyzed using SPSS version 14. Mean and standard deviation were determined for continuous variables like age, years of experience. Proportions were reported for categorical variables like the musculoskeletal complaints and work related factors (working posture, duration of working hours and duration of work without break).

RESULTS

The mean age of the study participants was 27.8 ± 5.11 years. The study participants were mostly females ($n=53$, 58.9%). Most of the study participants reported for minimum 6 duty hours without break ($n=40$, 44.4%). Medical professionals reported longer working hours without break compared to nurses and dental professionals (Fig 1). Eighty one (90%) subjects reported presence of one or more musculoskeletal disorder.

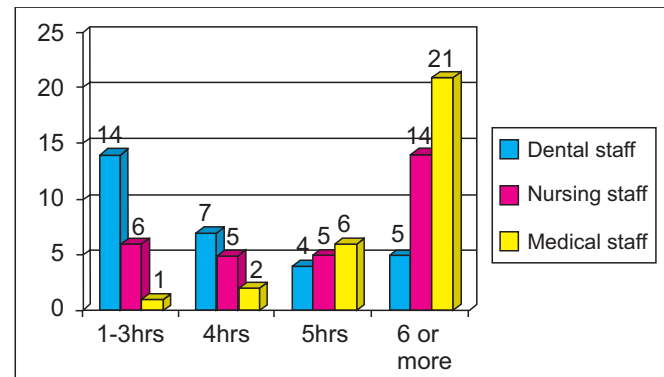


Fig 1: Distribution of working hours without break ($n=30$ in each group)

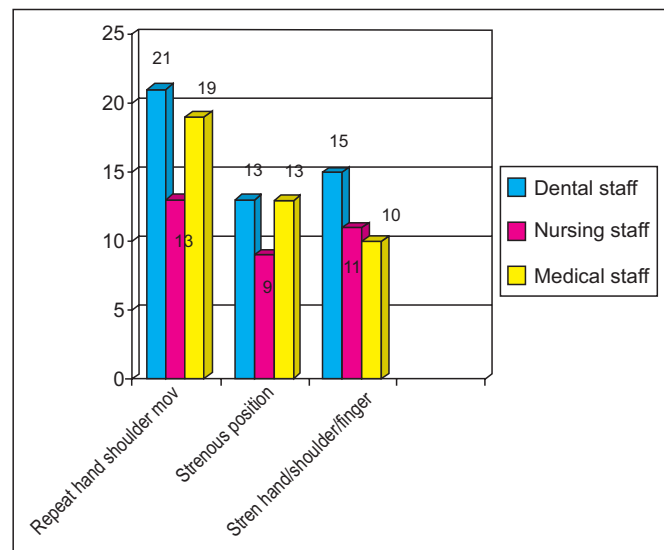


Fig 2: Distribution of stressful working postures

TABLE 1: DISTRIBUTION OF MUSCULOSKELETAL DISORDER AMONG HEALTH PROFESSIONAL (N=90)

Affected body segment	Occupation			Total n (%)	P-value
	Dental staff n (%)	Nursing staff n (%)	Medical doctors n (%)		
Neck	13(43.3)	7(23.3)	12(40)	32(35.6)	0.242
Lower back	15(50)	15(50)	16(53.3)	46(51.1)	0.957
Upper back	7(23.3)	9(30)	6(20%)	22(24.4)	0.749
Hand/wrist/finger	14(46.7)	5(16.7)	9(30.0)	28(31.1)	0.051
Shoulder	6(20)	7(23.3)	8(26.7)	21(23.3)	0.95
Headaches	8(26.7)	14(46.7)	15(50)	37(41.1)	0.167

Strenuous work position was reported by 35 (38.9%) participants and most of the participants reported standing work posture ($n=41, 45.6\%$), only 20 (22.2%) reported interchanging their work posture. Stress hand shoulder movement was reported more by dental professionals, whereas strenuous work position and hand/shoulder/finger movement was reported more among medical and dental professionals (Fig 2).

The most commonly reported musculoskeletal disorder was lower back pain among all groups of health care professionals (Table 1). On comparison of body segments involved in symptoms among groups of professionals it was observed that medical professional reported more symptoms in region of shoulder and head, whereas nursing professionals reported higher proportion of symptoms in upper and lower back. Symptoms in region of neck, hand, wrist, finger were reported more among dental professionals but no statistically significant difference was observed in pattern of symptoms among study group (Table 1).

No significant difference was found between occurrence of WMSDs and posture, duration of working hours and working without break. Only 8.9% of the participants reported doing regular exercise whereas the majority of the study participants exercised occasionally (91.1%). Twenty one (23.3%) of the participants reported that the musculoskeletal problems were affecting their work and 25 (27.8%) believed that musculoskeletal disorders were affecting their general health.

DISCUSSION

Prevalence of musculoskeletal disorders is different among various occupational groups and national boundaries. Variation in rates of WMSDs in different studies is subjected to, variation in assessment methods, different working environments, cultural differences in perception, reporting and threshold of pain. From present study, an association was found between occupation and prevalence of WMSDs among the health workers (Table 1). In current study it was found that 81(90%) subjects included in the study were suffering from one or more musculoskeletal disorders. The proportion of WMSDs in current study was much higher than a previous study by Emmanuel C. et al among tertiary health care workers, they reported 68.7% occurrence of musculoskeletal disorders.¹³ Rambabu T et al conducted a study among various health care givers and concluded that 60% of the dentists, 40% of the surgeons and 15% of the physicians included in the study were having WMSDs. A study conducted by Rehman K et al reported musculoskeletal disorders in 46.7% of the participating dentists.¹⁴ This high rate of WMSDs among dentists is attributed to lack of basic knowledge of ergonomics, complex body posture during dental pro-

cedures, long working hours without breaks, age and fitness.¹⁵ Current study reported a very low proportion of subjects who did regular exercise. Strenuous work position was reported more among medical and dental professionals. Hand/shoulder/finger movement was reported more among nurses and dental professionals (Fig 2). Previous studies showing similar results were by Rehman K, Dayakar et al¹⁶ and Mansoor SN et al in which dentists were facing most stressful neck, shoulder and hand movements.¹⁷ The most commonly reported musculoskeletal disorder was lower back pain among all groups of health care professionals (Table 1).

Symptoms in region of neck, hand, wrist, and finger were reported more among dental professionals but no statistically significant difference was observed (Table 1). A study conducted by Yasobant S et al, they observed most commonly reported WMSDs in the shoulder (39.4%), upper back (38.1%) followed by neck (37.5%) and wrist (29.4%) among dental professional.¹⁸ This region wise pain is due to working in the same position, performing the same task again and again and ignoring the early signs of musculoskeletal pain.^{19,20}

In current study strenuous work position was reported by 35 (38.9%) participants and 41 (45.6%) of the participants reported standing work posture and only 20 (22.2%) reported interchanging their work posture. In a previous study by Kierklo et al reported significant relationship between MSDs and both standing work position and non-use of rest breaks but in current no significant association was determined, this may be attributed to smaller sample size and use of different questionnaires for collection of data.²¹

Limitations of our study are that the current study is limited to a single tertiary care center, and possibility of reporting bias by respondent as the presence of WMSDs could not be measured objectively. Keeping these limitations in mind future studies should aim at use of equipment for measuring muscular activity and its correlation with reported severity of WMSDs by study subjects.

CONCLUSION

A thorough understanding of the underlying physiological mechanisms, leading to WMSDs problems is necessary to develop and implement a comprehensive approach to minimize the risks of a work-related injury. Health policies on prevention and taking care of work related problems should be designed and implemented in work place.

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CONTRIBUTION BY AUTHORS

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| 1 Muneeza Khan: | Performed the research study. |
| 2 Nadia Aman: | Performed the statistical analysis. |
| 3 Lubna Pasha: | Wrote the paper and reviewed the manuscript. |