ORIGINAL ARTICLE

WORK RELATED MUSCULOSKELETAL DISORDERS AMONGST DENTAL PRACTITIONERS

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ABSTRACT

The objective of the study was to identify the prevalence of musculoskeletal disorders amongst dental practitioners and co-relate with their respective specialties. This study was conducted in 4 dental hospitals and few private practices of Islamabad. Duration of the study was January 2015 – June 2015. 140 dental practitioners were assessed on the basis of Modified Nordic Questionnaire. The questionnaire assessed not only the site of pain but also the duration of pain. The results were then analyzed using SPSS Statistics 17.0. Results showed one year prevalence amongst dental practitioners was common. The most common site was neck and the most common specialty was Maxillofacial surgery that complained of musculoskeletal pain.

Key Words: *Musculoskeletal, Questionnaire, Maxillofacial.*

INTRODUCTION

Musculoskeletal Disorders (MSDs) are degenerative diseases and inflammatory conditions that cause pain and impair normal activities.[1] MSDs have become increasingly common worldwide during the past decade and is a common cause of work related disability among dental practitioners.[2] In dentists, over strain and awkward postures result in pain in different regions of the body. MSDs are considered to be multifactorial that are caused due to interactions between various risk factors.[3]

The data on the prevalence of WRMDs for dental practitioners can provide the basis for formulation of necessary strategies to prevent them in the future. However, to our knowledge, no data on the prevalence of WRMDs amongst dental professionals has been reported previously that highlights the prevalence in different fields on dentistry.[7]

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The primary aim of this research is to assess the occurrence of work related musculoskeletal disorders in dental practice. Secondly this research aims to identify the specialty with maximum complaints of musculoskeletal pain and also to identify the site of pain that has been pointed out by most of the dental practitioners. It then provides the evidence on the symptoms of musculoskeletal problems and the frequency of these discomforts which are significant in the development of WRMSDs among dental practitioners. This research does not only highlight the prevalence amongst dental practitioners, it also emphasizes on the prevalence of WRMSDs in different fields of dentistry. The findings of this study can help identify the prevalence of WRMSDs and can eventually contribute to the intervention and prevention strategies.

METHODOLOGY

This research is a quantitative cross sectional study carried out from January 2015 – June 2015. It is based on Modified Nordic Questionnaire 2 and was surveyed by 140 dental practitioners from 4 dental hospitals and few private practices of Islamabad.

The first section of the questionnaire included demographic questions about gender, age, existing medical condition, job title and working hours. The next half included 9 different areas of the body for the assessment of WRMSDs. The questions were related to the physical work characteristics and the types of musculoskeletal discomforts experienced at neck, shoulders, elbows,

wrist, back, thighs, knees and feet. The prevalence of this discomfort was assessed according to the working hours each day and also the type of dental specialty. The sample only included dental practitioners who have been practicing for over 3 years and had no existing medical condition. Age and gender of the sample was not taken into consideration. The results were assessed using SPSS Statistic 17.0.

RESULTS

Descriptive Statistics

A total of 140 dental practitioners were assessed in this research, out of which 66 (47.1%) were males and 74 (52.9%) were females between the age of 24-55 years. The years of experience of the sample were ranging between 2 to 32 years with maximum dentists practicing for 3 years. Their practice was also assessed in terms of days per week. The maximum working days per week came out to be 6 days per week and minimum 4 per week. Out of this sample of 140 dental practitioners, 51 (36.4%) were practicing for <6 hours/day, 34 (24.3%) were practicing for 6 hours/day and 55(39.3%) were practicing for more than 6 hours/day.

Pain/discomfort in the region of neck, shoulders, elbow, wrists/hands, upper back, lower back, knees and ankles/feet were assessed. The details of the results are illustrated in Fig 2-5 respectively and the results for

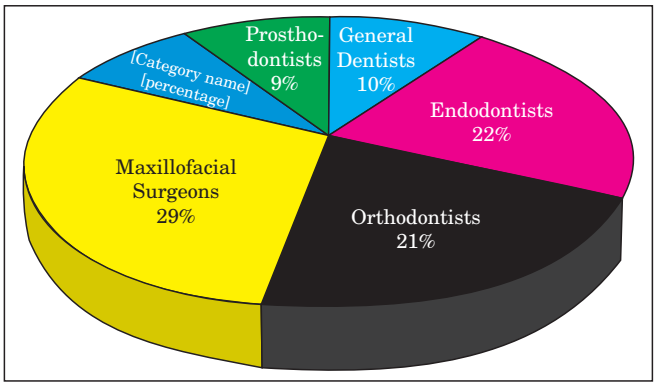

Fig 1: Sample size of dental practitioners from different specialties of dentistry

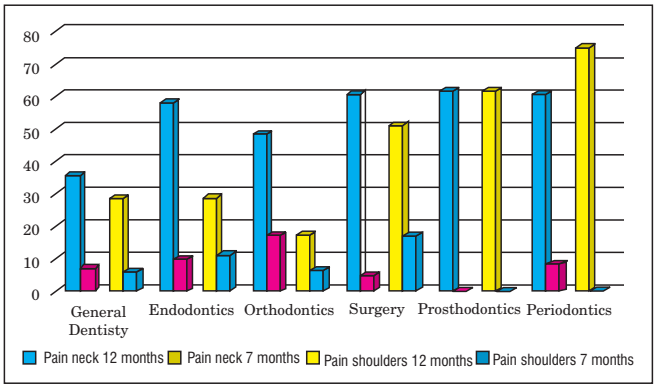

Fig 2: Pain percentage in neck and shoulders during the past 12 months and 7 days

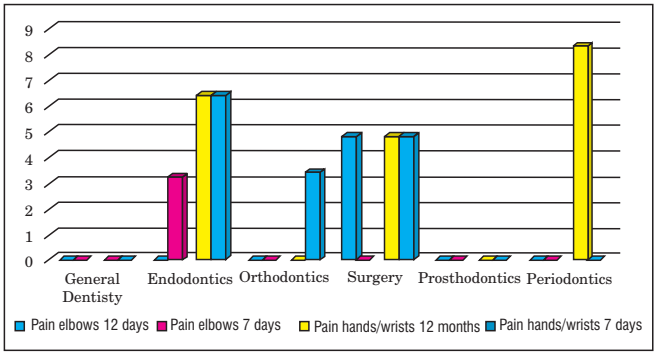

Fig 3: Pain percentage in elbows and hands/wrists during the past 12 months and 7 days

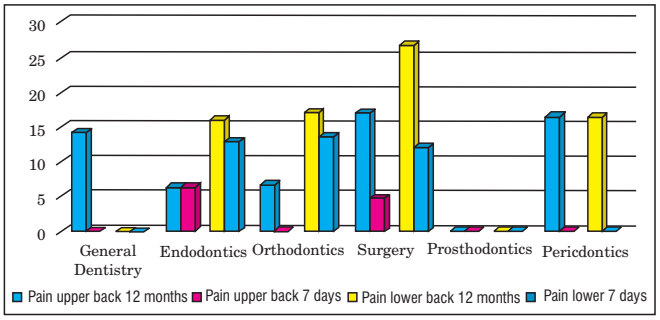

Fig 4: Pain percentage in upper and lower back during the past 12 months and 7 days

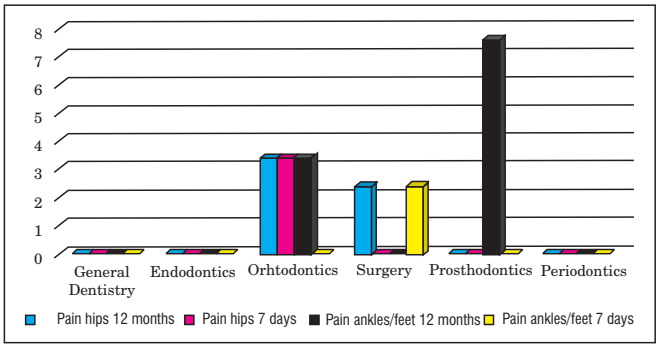

Fig 5: Pain percentage in hips and ankles/feet during the past 12 months and 7 days

hips/thighs are: 0% general dentists, 3.22% endodontists, 20.6% orthodontists, 14.6% maxillofacial surgeons, 0% prosthodontists and 8.3% periodontists complained of pain in hips/thighs. Which makes a total of 0.1% dental practitioners who complained of pain in hips/thighs. Out of these 14.2% complained of pain in neck during the past 12 months while 7.1% practitioners complained of pain during the past 7 days.

DISCUSSION

Work related musculoskeletal disorders is probably the most common health hazard in medical/dental practitioners. Musculoskeletal pain can be an occupational health problem for medical professionals, particularly surgeons and dental surgeons, who maintain static postures using precision hand and wrist movements.[7,8] Musculoskeletal co-morbidity was high and a significant

proportion of the subjects reported chronic complaints, seeking medical care and absenteeism from work. Repeated prolonged static postures are thought to initiate a series of events that could account for pain, injuries, or career-ending problems.[9] Though no doctor suffered from career-ending problems because of MSD in our study, significant number of doctors suffered from absenteeism from job.

Most of the studies on the prevalence of WRMSDs due to dental practice have been focused on the gender differences, physical and psychological aspects of the work and have not yet considered extra-rational factors such as the perceived musculoskeletal discomfort types and their frequencies.

This research highlights the prevalence of WRMSDs in different dental specialities and also its link with the numbers of working days per week and number of working hours per day. The set of people more affected were females (52.9%) as compared to males. (47.1%). Our study indicates that the Oral and Maxillofacial surgeons were affected most by the WRMSD's as compared to other fields of dentistry, we believe this is due to the prolonged working hours and prolonged periods of static position. Neck, lower back and wrists were the worst affected sites of MSD in surgeons, whereas upper back and elbows were least affected. This may be because of prolonged standing and bending posture during surgeries.[7,8]

The most common pain found amongst Endodontists was neck pain, this is thought to be due to prolonged bending of the neck during Root Canal Treatments without intermittent rest periods. More significantly, prolonged exposure to high static muscle and joint load may lead the soft tissues to adaptively change, and with time may lead to pathological effects and permanent disability.[10] There were significant cases with pain in shoulders and lower back, thought to be due to prolonged working hours without any period of rest in between. Pain in the wrists/hands was also reported due to the precise work carried out by the endodontic instruments such as files and reamers.

Orthodontists commonly complained of pain in the neck region due to inappropriate posture while working, most of the orthodontists perform their work while in standing position that leads to increased strain on the neck. In recent years, for Canadian orthodontists in Alberta, low back pain was the most prevalent of MSDs (59%), followed by neck (56%) and shoulder pain (47%).[11] Other studies have shown that orthodontists have predominantly low back pain because of the repeated forward positioning of head and bending of low back during clinical procedures.[12]

The most prevalent pain amongst Prosthodontists is shoulder, neck and upper back pain. We suggest this is due to continuous bending posture in order to ease crown and bridge work and also facilitate limited mouth opening in geriatric patients.

Periodontists most commonly complain of pain in neck and shoulders. This is due to the time consuming procedures such as scaling, that they perform. They also require precision in their work in cases of GTR and GBR. Dental hygienists and periodontists are shown to be predisposed to neck, shoulder, and wrist pain largely due to the static postures combined with forceful, repetitive movements adopted while performing procedures.[12]

General dentists that are performing work from all the fields experience pain in neck and shoulders most commonly. This is due to the work load they have during the prolonged clinical working hours. They do not focus on one single specialty and thus have to put in an extra effort and time. General practitioners tend to be predisposed to neck and low back MSD due to their prolonged static postures (PSP) and fewer repetitive motions while working.[13]

MSD affects the physical, psychological, and social aspects of practitioners. This in turn impacts on their productivity and ultimately reducing the quality of life of the practitioners.[14] Literature has shown that predisposing factors for MSD are multifactorial.[15] This may be due to increased physical load, stress and static postures. The high prevalence of MSD in this study suggests the need to identify the factors predisposing to MSD among the dental practitioners.

CONCLUSION

- One year prevalence of WRMSDs amongst dental practitioners was common.
- The most common site for WRMSDs is neck which was complained by 80 out of 140 (57.1%) dental practitioners.
- The specialty with the most complaints of neck pain was 25 out of 41 (60.9%) maxillofacial surgeons.
- Further research should be directed towards interventions aimed at improving the posture during work.
- Further research should also highlight the interventions aimed at reducing stress during work.

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2	**Owais Khalid Durrani:**	Writing of the manuscript.
3	**Mohsin Fazal:**	Data Collection.
4	**Sana Aziz:**	Data Collection.
5	**Irum Hussain:**	Data Collection.