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WORK RELATED MUSCULOSKELETAL DISORDERS AMONG DENTISTS IN CHENNAI- A QUESTIONNAIRE SURVEY

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ABSTRACT

Background: Musculoskeletal Complaints are very common among Dentists due to their bad posture confined to restricted area of their clinical practice while treating the patients. The aim of this study is to find out the most prevalent musculoskeletal complaint and the most commonly affected region among dentists in Chennai. **Methods:** A self reported questionnaire survey was carried out among 270 dentists in Chennai (response 90%). Questions include data to know about their background, regional pain, and routine practice posture, frequency of work about their clinical practice and the occurrence of musculoskeletal complaints in the past 3 years and chronic complaints in the past 3 months.

Results: 262 respondents completed the questionnaire and the result of the survey showed 76% of the respondents had pain and 24% reported no pain. Among the respondents with pain, dentists had significantly more neck pain than other regions. **Conclusion:** Based on the results of this study, the rate of musculoskeletal disorders among dental professionals in Chennai has been found to be high due to their increased work load and poor posture during work.

INTRODUCTION

The common risk factors which contributes to the development of health disorders can be grouped as those related to the personal background factors (anthropometric characteristics, age, hereditary factors) and those related to occupation (repetitive motion, static posture, force, awkward position, vibration, temperature, biological factors, chemical irritating or toxic factors, radiation).¹⁻²

Dentists at work are susceptible to the occupational health hazards and the development of cumulative trauma disorders.³ Dentists often work in static positions that are uncomfortable and asymmetric. Several dental procedures requires the dentist to assume and

maintain positions that might cause harmful effects on the musculoskeletal system.⁴ The dentists are prone more for neck and back problems due to the limited work area and impaired vision when procedures are done on some regions in the oral cavity. These working postures force a clinician to assume stressful body positions to achieve good accessibility and visibility in the oral cavity. Usually the dental procedures are usually carried out for a long period of time and demands more concentration during work. Dentist treat patients with their arms abducted and unsupported and the cervical spine flexed forward and rotated which makes them more susceptible for pain in the neck, back and shoulder regions.⁵ Moreover the monotony

of work, work in noise and artificial light are disadvantageous for dentists. Increased risks of Musculoskeletal Disorders (MSD) among dentists are associated with psychological stress, treating patients with high concentration and precision. It is a well known fact that stress can elicit muscular contraction and pain, especially in the trapezius muscle. Headaches and backaches are other symptoms experienced due to overstressed muscles and joints. The dental professionals are at a significantly high risk of developing work related MSDs. Comparing the prevalence of upper body symptoms of pathological conditions in dentists and personnel's working in a different types of environment, such as farmers, pharmacists and office employees, the symptoms occurred more often among dentists. The aim of this study was to survey the health status among dentists in Chennai regarding the prevalence of musculoskeletal pain.

MATERIALS AND METHODS

After the suggestions from the experts in the field, the questionnaire was checked, corrected and validated. Informed consent was obtained from all the dentists who participated in the study. A total of 270 dentists (122 females- 45 % and 148 males-55%) practicing in Chennai completed a validated questionnaire focussed on MSDs. At least 1 year of work experience in the current position was the only criterion for eligibility to participate in the study. The questionnaire was divided into 3 sections. The first section comprised of questions related to demographic information like age, gender, duration of work and acquired specialisation. The second section included questions related to work conditions like working posture, number of breaks in between the appointments and number of hours of practice per day and total number of hours in a week. The third section dealt with the MSDs and also physical activities. Some of the

questions allowed for multiple responses. The data was analysed using SPSS 15.0.

RESULTS

Two hundred and sixty two questionnaires (97 %) were returned. Missing data were excluded from the analysis. The study group comprised of general dentists and dentists with various specialisations in different fields of dentistry: 11% of respondents were general practitioners, while 22 % of dentists were specialised in orthodontics, 14 % in prosthodontics, 24 % in conservative dentistry, 12 % in maxillofacial surgery, 6 % in pedodontics, and 11 % in periodontics. The mean number of years employed in the dental profession among the study group was six years. Most dentists (87.2 per cent) reported of having at least one MSD symptom in the past 12 months. The most prevalent musculoskeletal complaints among dentists during the previous 12 months were reported at the neck (42.5 per cent), upper back (8.9 percent), lower back (28.7 per cent), shoulder (12.3 per cent) and hand and wrist (7.6 percent)

From the episode of backache experienced by the dentists in the last one year, 38 (55.9%) had mild pain, 13 (19.4%) had moderate pain and only 2 (3%) had severe pain. Forty (58.8%) dentists had at least one episode of neck pain during the last one year. Twenty-nine (42.6%) had mild pain, 8 (11.8%) had moderate and 4 (5.9%) had severe pain.

DISCUSSION

In this survey, we found a higher prevalence of lower back pain, neck pain and shoulder pain. Musculoskeletal co morbidity was high and significant number of dentists reported chronic complaints and were seeking treatment for the same. In this survey, self reported questionnaires were used to collect the information regarding age, gender, work experience, physical activity

and existence of musculoskeletal pain. There are large numbers of studies relating to musculoskeletal complaints among dental surgeons in the Western literature but none has been conducted in Chennai, Tamilnadu. This study has been conducted to assess the work-related complaints among dentists in our region with the specific objectives to find out the prevalence of neck, shoulder and back pain among the dental surgeons and to identify the risk factors associated with these symptoms.

Occupational back pain among dentists has been reported between 37 percent to greater than 55 percentages in the literature.⁶ As in most of the studies, there was a significant relation between self reported physical factors and occurrence of MSDs. The occurrence of MSDs is significantly associated with physical work load.

Dentists can reduce the risk of developing MSDs by using proper body posture and positioning during clinical procedures, incorporating regular rest breaks, maintaining good general health and performing exercises regularly. The presented results are based on the self reported experiences of the dental professionals. Conducting interviews and performing physical examination would provide more detailed information. The study allowed for a general assessment of the occupational health hazards among the dentists and further research will follow.

Most dentists today work in the sitting position treating the patient in the supine position. Because their work area (the mouth of the patient) is narrow, performance of dental treatment results in a very inflexible work posture.⁷ Studies have shown that dentists have a high frequency of musculoskeletal disorders,⁸⁻¹⁰ and the reason is that dentistry is a profession which demands concentration and precision.

Studies have shown that dentists report more frequent and worse health problems than other high risk medical professionals.¹¹ Dentists characterize their profession as requiring more

patience and physical self-sacrifice than they are able to give. Dental professionals regardless of the specialty should receive education about all aspects of dental ergonomics, including rest breaks. Physical exercise and regular rest breaks are recommended to prevent the accumulation of harmful agents. Short rest breaks during dental procedures at regular intervals can reduce the discomfort.

Fatigue and back pain are the most prevalent physical complaints of Lithuanian dentists. A study in Greece showed that 62% of dentists reported at least one musculoskeletal complaint¹²; while 87.2% of Australian dentists reported having experienced at least one musculoskeletal symptom in the past 12 months¹³. In India, neck and back disorders have previously been reported at a higher frequency than hand and wrist complaints¹⁴. In the USA, 29% of dentists reported symptoms of peripheral neuropathy in the upper limbs or neck.¹⁵ Regarding chronic conditions, back pain and fatigue were the most prevalent of all physical disorders, suggesting that the back region of dentists may be most affected by constant strain.

CONCLUSION

It was recognised that limited ergonomics in the work environment of the dental professionals results in MSDs, and the prevalence is high. The symptoms of MSD increase with the number of years of practice. The dentists should be aware of the work related risk factors and educate themselves in dental ergonomics.

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Table 1: Baseline and demographic information of dentists

Characteristics	Minimum	Maximum	Mean	SD
Age (year)	28	52	36.4	6.8
Weight (kg)	53	102	70	10.7
Height (cm)	152	186	165	8.1
Duration of employment(year)	3	18	6	4.8
Duration of daily work (hour)	1.5	6	3	1.2
Number of days working weekly	3	6	4	0.6