

Dental practice-related factors associated with occupational musculoskeletal complaints among dentists in Chennai city

A. S. Arthisri, Ashish R. Jain, Helen Mary Abraham, Jacob Mathew Philip*, C. J. Venkatakrishnan, Chitra R. Chandran

ABSTRACT

Background: Occupational musculoskeletal complaints (OMSCs) are responsible for a reduction in the quality of life among many workers. They are multifactorial in origin and of global concern today. Dentists are prone to develop these OMSCs. The study aims to determine the prevalence of OMSC among dentists in Chennai city and explore the various practice-related factors for the development of OMSC. **Materials and Methods:** This is a cross-sectional study conducted among dentists in Chennai city in India. A structured questionnaire was used to collect the demographic information, occupational history, risk factors, and ergonomic awareness with job task details. Data were entered into MS Excel and analyzed through SPSS software. **Results:** A total of 297 dentists of 600 who participated in the study had OMSC. The various practice-related factors for the development of OMSC were working hours, number of patients treated, rest periods, posture, etc. **Conclusion:** This study found that there is a high prevalence of OMSC among dentists in Chennai city. The practice-related factors were determined.

KEY WORDS: Dentists, Musculoskeletal complaints, Occupational hazards

INTRODUCTION

Due to the nature of work, dental health care workers are often afflicted with occupational musculoskeletal complaints (OMSCs). Dentists are prone to abnormal postures as part of their occupation. The profession necessitates a high degree of meticulous performance. They have to maintain prolonged and uncomfortable postures along with strained neck, arm, and hand movements. The most common position of dentists involve standing or sitting at various angles. If the discomfort and stress due to these positions are ignored, it is likely to lead to long-term musculoskeletal disorders.^[1-3]

The study aims to determine the work-related factors associated with dentists having OMSCs in Chennai city.

MATERIALS AND METHODS

A total of 150 dentists were randomly selected in each zone of Chennai (North, East, West, and South) from

the member's register of Indian Dental Association. Based on the etiology and predisposing factors of musculoskeletal disorder, a customized questionnaire was prepared to be given to the subjects. The questionnaire contained information on the respondent's individual characteristics, job history, method of work, physical load, and musculoskeletal complaints was identified by the presence or absence of pain in each specific body region and prophylactic methods adopted in relation to musculoskeletal complaint. Pre-testing of questionnaire was performed before the survey.

Questions on dental practice-related factors consisted of working hours, number of patients treated, rest periods, posture, repetitive movement, awkward working postures in which back is bent and twisted, prolonged sitting or standing, and strenuous arm position.

Dentists >25 years of age and with previous history of musculoskeletal complaints regarding their clinical practice were included in the study. Non-practicing dentists were excluded from the study. 150 questionnaires were distributed to the selected dentists in each of four zones until. 300 questionnaires were returned with musculoskeletal complaints. On checking

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ISSN: 0975-7619

Department of Prosthodontics, Tagore Dental College, Rathinamangalam, Tamil Nadu, India

*Corresponding author: Jacob Mathew Philip, Department of Prosthodontics, Tagore Dental College, Rathinamangalam, Tamil Nadu - 600 127, India. E-mail: jacobmphilip@gmail.com

Received on: 19-07-2018; Revised on: 21-08-2018; Accepted on: 26-09-2018

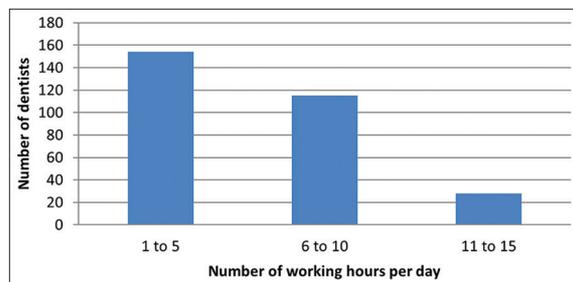
the data of the questionnaires, three were found to be incomplete and hence excluded from the study.

RESULTS

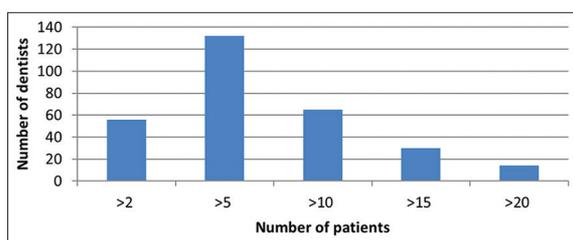
On an average, 51.85% ($n = 154/297$) of dentists were working for 1–5 h/day [Graph 1]; 63.2% ($n = 188/297$) of dentists treat 2–10 patients/day [Graph 2]; 36.02% ($n = 109/297$) of dentists treat >10 patients/day; 44% ($n = 132/297$) of dentists took a break of 5 min between treating patients [Graph 3]; 79.12% ($n = 235/297$) of dentists were treating the patients in sitting posture and the remaining 20.88% ($n = 62/297$) of dentists were in standing posture; and 39.39% ($n = 117$) of dentists were in the habit of replacing their instrument/tool in 6 months and the remaining dentists were replacing their instrument/tools in a year or two: 88.55% ($n = 263/297$) of dentists were not using any magnification loupes.

DISCUSSION

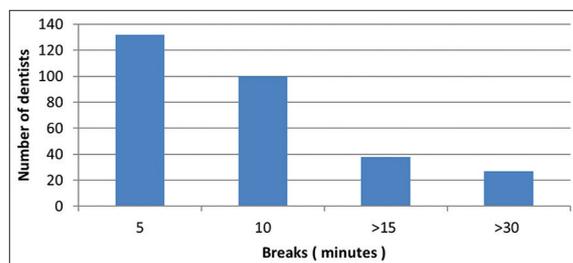
Posture is considered an important occupational health issue for dental surgeons. The physical



Graph 1: Number of work hours per day of dentists with occupational musculoskeletal complaints



Graph 2: Number of patients treated per day by dentists with occupational musculoskeletal complaints



Graph 3: Duration of breaks taken by dentists with occupational musculoskeletal complaints

posture of the operator should be such that all the muscles are in a relaxed, well-balanced, and neutral position. Unbalanced, strained postures outside of this neutral position are likely to cause musculoskeletal discomfort. A thorough understanding of the underlying physiological mechanism leading to these problems is necessary to develop and implement a comprehensive approach to minimize the risk of work-related injury.^[4] In dentistry, adverse working habits, repetitive tasks, and uncomfortable physical postures contribute greatly to OMSC, stress, and loss of productivity.^[5] The key objective for clinicians is to find a position that allows them to achieve optimum access, visibility, comfort, and control at all times while avoiding OMSC.^[6]

Karwaski *et al.*^[7] reported that OMSC may be due to many risk factors including prolonged static postures, repetitive movements, and poor positioning. Ratzen *et al.*,^[8] on the other hand, linked musculoskeletal pain occurrence in the dentists to frequent static postures. The static forces resulting from these postures have been shown to be much more damaging than dynamic forces. Repeated prolonged static postures could account for pain, injuries, or career-ending problems.

According to our study, the contributing factors that are attributed to the prevalence of musculoskeletal symptoms to the dentists in Chennai city are the dentists with the practice of treating commonly >5 patients/day (81.14%), not taking sufficient break of 5 min between patients treated (78.50%), working for >10 h/day (48.15%), and majority of dentists work without using magnification loupes (88.55%).

CONCLUSION

Within the limitations of the study, OMSC is a significant occupational health problem among the dental surgeons. The study revealed the various dental practice-related variables contributing to the OMSC experienced by dental surgeons. The number of patients attended per day, posture and rest were important factors associated with OMSC among dentists.

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Source of support: Nil; Conflict of interest: None Declared