

## **Work related musculoskeletal disorders among dentists**

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**Abstract.** This study was conducted to review the published literature on work related musculoskeletal disorders in dentists in order to know various measurement tools used, ergonomic risk factors and other findings. Methodology: A systematic review was done using MEDLINE by the keywords “dentists”, “ergonomics” and “musculoskeletal disorders”. Study design, type of data collection, assessment tools and outcomes obtained in the respective study were noted. Results: Among various specialities, dentists specialised in Prosthodontics were found to have a higher prevalence of work related musculoskeletal disorders. The design of the dentist chair was found to be the major risk factor and studies focusing on designing an appropriately designed ergonomic dentist chair provided positive results. Percentage of pain among dentists increases with increase in their working duration.

**Keywords.** Dentists, Ergonomics, Work related musculoskeletal disorders, MEDLINE.

### **1. Introduction**

Work related musculoskeletal disorders (WRMSD), constitutes a spectrum of musculoskeletal disorders that are acquired by the individual due to the work they perform. Healthcare is one of the largest and the most important industries worldwide. Although the knowledge of WRMSD is not new in healthcare setup, the healthcare professionals themselves are often affected by it. The prevalence of WRMSD among healthcare professionals and hospital staffs range from 43% to 78%. The risk factors and etiology of these occupational disorders are not well understood. Among the healthcare professionals, dentists are commonly affected with WRMSD because of the diversity of tasks performed, physical demands of the task, working under time pressure, extensive usage of mechanical tools and need for more precise work. As a compiled report on the impact of WRMSD among dentists is lacking, a review of the literature studies was needed. The aim of this study was to review the measurement tools used, ergonomic risk factors and other finding regarding WRMSD among Dentists.

### **2. Methods**

A systematic review of the published literature was conducted to find out the biomechanical risk factors among the dentists and recommendations regarding prevention of WRMSD. The literature search was done using MEDLINE by the advanced search and articles were found using the keywords “dentists”, “ergonomics” and “musculoskeletal disorders” with the limits set from 1995 to 2013. A total of forty seven articles were identified using the search criteria. The following features of the study were taken into review: study design, type of data collection, assessment tools and outcomes obtained in the respective study, study involving only professionals and not students.

### 3. Results

Out of the 47 articles only 9 studies were considered for further review. Table 1 gives the details about the author and year of publication, study design and population, measurement tools used and common outcomes.

Table 1: Results after analysis of the articles.

S. No	Author & Year	Study Design & Sample size	Measurement Tool	Outcome
1	Gopinadh et al (2012)	Cross sectional survey, 170 dentist	Self administered questionnaire	Distribution of pain, risk factor and its association with MSD
2	Sharma et al (2011)	Cross sectional survey, 102 dentist	Self administered questionnaire	Distribution of pain, risk factor and its association with MSD
3	Kierklo et al (2011)	Descriptive Survey, 220 Dentist	Self administered questionnaire	Distribution of Pain, association with experience, gender, posture and breaks
4	Lindfors et al (2006)	Cross sectional Survey, 945 female dental health workers	Self administered questionnaire	Predictors of Upper extremity disorder, association with psychosocial work charecteristics
5	Rolander et al (2005)	Cross sectional Analysis, 27 dentist	Questionnaire & Portable ergonomic observation (PEO)	Co-relation between subjective, objective evaluation and MSD
6	Droeze et al (2005)	Experimental Survey, 57 dentist	Self administered questionnaire following an intervention	Effectiveness of ergonomic intervention
7	Booyens et al (2009)	Cross sectional survey, 362 dentist	Self administered questionnaire	Distribution of pain, risk factor and its association with MSD
8	Szymańska et al (2002)	Descriptive Survey, 268 Dentist	Self administered questionnaire	Use of prophylactic measures and its effectiveness
9	Anton et al (2002)	Cross sectional analysis, 95 dentist	Questionnaire & NCS Study	Role of NCS in diagnosis of Carpel tunnel Syndrome

### 4. Discussion

All the studies were survey studies and mostly questionnaires were used. No experimental studies or Randomised Controlled Trials were available. Very few objective measurement tools to identify biomechanical risk factors were used. The prevalence rate of WRMSD was uniformly high among dentists.

### 5. Conclusion

Dentists report a high prevalence of WRMSD due to several biomechanical risk factors in the work environment. Dentists should incorporate ergonomics in their professional education and learn strategies to prevent WRMSD.