

WORK RELATED MUSCULOSKELETAL NECK PAIN: A NEGLECTED OCCUPATIONAL DISEASE AMONG DENTISTS IN PESHAWAR, PAKISTAN

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ABSTRACT

Objective: To determine the frequency and risk factors of work-related neck pain among dentists working in Public sector Hospitals in Peshawar, Pakistan.

Materials and Methods: A cross sectional study was conducted in Khyber College of Dentistry, Lady Reading Hospital and Hayatabad Medical Complex, Peshawar, Pakistan from 23rd September 2018 to 23rd February 2019. A total of 150 dentists who were working in public sector hospitals and were willing to participate were included in the study by convenience sampling. The Standardized Nordic Questionnaire (SNQ) was used for data collection. Data was analyzed with SPSS, version 23.

Results: The total number of participants in our study were 150. Males were 105(70%) and females were 45(30%). The mean age was 31.4200 ± 6.1 years. Majority (72.7%, n=109) of dentists were reported to have work related musculoskeletal pain while 41(27.3%) dentists had no such complaints. The commonly affected dentists were trainee medical officers (61.3%, n=92). The frequency of neck pain was more common among dentists who examined more than 15 patients per day (49.3%, 74%) and worked 6 days per week (64%, n=96). Dentists performing root canal treatment (70.7%, n=106) were more prone to have neck pain than others.

Conclusion: The frequency of musculoskeletal neck pain among the dentists was high. The risk factors were prolong working hours, examining more patients and prolong dental procedures.

Keywords: Dentist, Musculoskeletal disorders, work-related, neck pain, activity of daily living

INTRODUCTION

Dentists have a high prevalence of musculoskeletal (MS) pain, which is the most common symptom associated with work-related musculoskeletal disorders.¹ Musculoskeletal Disorders or MSDs are injuries and disorders that affect the human body's movement or musculoskeletal system (i.e. muscles, tendons, ligaments, nerves, discs,

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blood vessels, etc.).² Work-related musculoskeletal injuries (WRMI), also known as work-related musculoskeletal disorders (WMSD), are any range of inflammatory disorders resulting from injury sustained while completing work duties.³ Work-related musculoskeletal complaint is the most common complaint among dentists.⁴ Studies have shown that females had more musculoskeletal complaints than males.⁵ The frequency of work related to musculoskeletal neck pain has become a serious public health issue among health consultants, particularly among clinical dentists.⁶

The incidence of musculoskeletal neck pain

is reported in different research studies around the world. It has been reported that the neck and shoulder discomfort was experienced more than back and waist discomfort and pain.⁷ The frequency of neck pain in dentists is more common amongst the ages of 17 to 35 years.⁸ The occurrence of work-related neck pain reported in UK was 87.2%,⁹ Turkey 94%, Iranian 73%, Jordan 75%¹⁰ Saudi Arabia dentist,¹¹ Malaysian dentist reported 71%,¹² and Pakistani dentists was 81.96%.⁵

The work related neck pain might be on the time spend like acute pain period is not as much of than three months but onset of the pain will be rapid, sub-acute discomfort experience be remaining and it have less than three months gap and chronic pain will be quite lengthier than three period of time have less than 3 months and chronic pain duration is longer than 3 months.¹³

The incidence of obstinate activities done through dental professional such as stooping, slouching, ducking, faulty posture while sitting, tilting of forward trunk and sideways bending of head make dentists more disposed to musculoskeletal work-related neck soreness.¹⁴ The factors which may lead to the development of musculoskeletal disorders of neck pain due to work comprises of awkward postures, repetition of the same activities, prolonged use of vibratory dental equipment, time spent with a single patient and daily consultation of large number of the patients.¹⁵ Work-related musculoskeletal neck pain MSK can disturb the muscles of the body, joints, tendons, ligaments, and nerves arising from head to the toe. Well-being complications assortment after discomfort, minor aches, and discomforts, discomforts to further more severe to medical conditions resulting in significant social and economic costs, such as reduced quality of dental treatment, absenteeism from work, and even leave-taking from the duty.^{16,17}

There are different management approaches obtainable for treating of the musculoskeletal neck pain, that is conservative and ergonomic management. The work-related upper-neck pain can be treated by a variety of the medical protocols that is via enchanting the amount of the analgesic medicines, modification in the regular adopted posture and dynamic movements of the indignant area.¹⁸

Ergonomics is the discipline that betterment the job of a person's anatomical, physiological and psychological appearances in such a way that it improves human proficiency and good healthy life.¹⁹ Good operational ergonomics is vital so that work proficiency, productivity and professionally sound to the clinical level of treatment can be sustained throughout the working life of dental professionals.¹⁹

MATERIALS AND METHODS

The cross-sectional study was conducted to find out the frequency of the work-related neck pain and its risk factors among dentists working in public sector hospitals. The data was collected from Dental departments of Lady Reading Hospital and Hayatabad Medical Complex and Khyber College of Density, Peshawar from 3rd September 2018 to 7th February 2019.

A total of 150 participants were recruited in the study by convenience sampling. The sample size was calculated according to WHO sample size formula as $n = z^2pq/d^2$. Dentists having at least one year of clinical experience and working as clinical dental practitioners were included in the study. Those dentists who had previous history of any kind of musculoskeletal disorders like cervical disk herniation, cervical spondylosis, cervical spine fracture, low back pain, traumatic and post-surgical conditions of neck and other related pathological problems were excluded.

Participation in the study was voluntary. Ethics approval was obtained from the Ethical review committee of the Institute of Management Sciences Peshawar. A self-administered questionnaire, accompanied by a covering letter explaining the purpose of the study and reassuring respondents of the confidentiality of the study was distributed among the dentists of Hayatabad Medical Complex, Lady Reading Hospital, and Khyber College of Dentistry Peshawar. The questionnaire was mainly focused on the frequency of work-related musculoskeletal neck pain and its risk factors affecting the dentists in their routine job.

The questionnaire was used in modified version of the Standardized Nordic Questionnaire (SNQ) (20) for the evaluation of the neck pain. Data was analyzed with SPSS, version 23. Data was presented in the form of different frequency tables, bars and

pie charts for interpretation.

RESULTS

The total number of participants in study were 150 with a male to female ratio of 105:45 (70%-30%) and age range was 25 years to 52 years.

Dentists complaining of work-related neck pain were 109 (72.7%) while those dentists who did not felt pain were 41 (27.3%) with overall mean 1.273 ± 0.44716 . Work-related neck pain among different dentists is shown in Table 1. Among the participants, 92 (61.3%) Trainee Officers had pain.

88 Dentists (58.7%) had working experience of one to three years while 26 (17.3%) dentists had experience of more than 5 years see fig 1. Most of the dentists worked for 6 days per week 96 (64%) The dentists felt pain that seen more than 15 patients per day were 74 (49.3%) and the dental procedures Root canal treatment 106 (70.7%), scaling filling task was 29 (19.3%) and tooth extraction and preparation was 15 (10%) see Fig 2. The dentists who were aware of ergonomic during clinical work of patient's treatment were 126 (84%). The activity of daily living which was disturbed in working place was 101(67.3%), sleeping was 36(24%) see table 2.

Table 1: DESIGNATION WISE DISTRIBUTION OF STUDY POPULATION

Designations	Frequency
Trainee Officer/TMO	92
Medical Officers/ House Officers (MO,HO)	22
Registrars/Senior Registrars, R/SR	17
Assistant Professors/ Associate Professors	15
Professors	4
Total	150

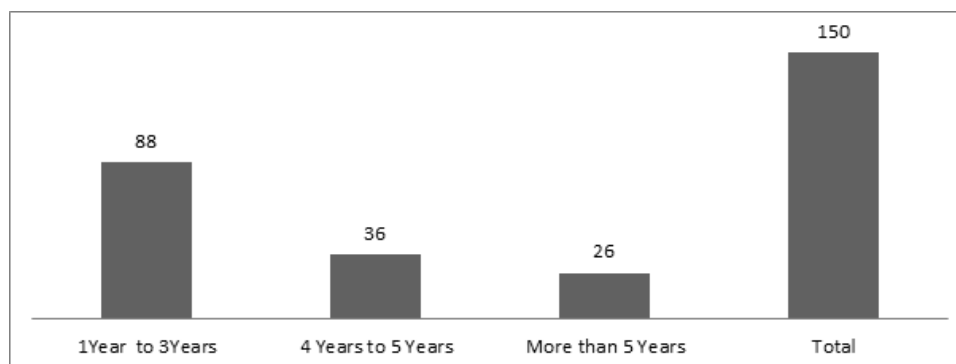


Fig 1: FREQUENCY OF WORKING EXPERIENCES AND THE WORK-RELATED MUSCULO-SKELETAL DISORDERS AMONG DENTISTS

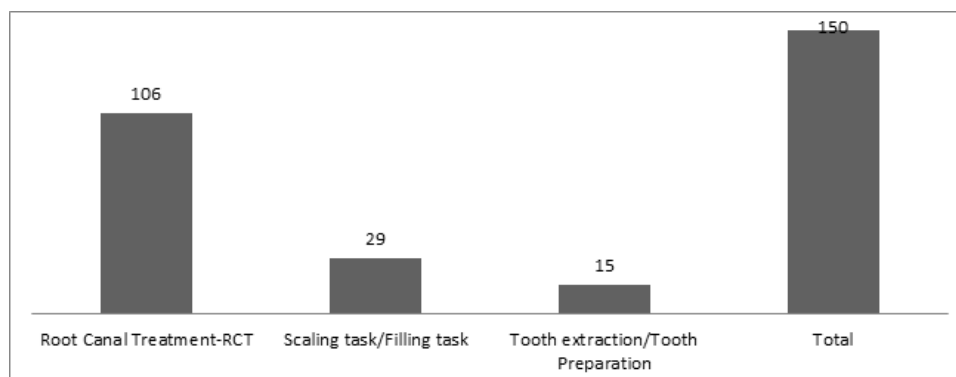


Fig 2: DISTRIBUTION OF DENTAL PROCEDURE CAUSES WORK-RELATED MUSCULOSKELETAL NECK PAIN

Table 2: DISTRIBUTION OF DIFFICULTIES IN DOING ACTIVITY OF DAILY LIVING DUE TO WORK-RELATED MUSCULOSKELETAL NECK PAIN

The activity of daily living	Percent
Reading	8.7%
Sleeping	24%
Disturbing in working Place	67.3%
Total	100%

DISCUSSION

The current study used the questionnaire which is modified version of the Standardized Nordic Questionnaire (SNQ) to determine the frequency of musculoskeletal disorders among dentists; and to identify the risk of the work-related musculoskeletal neck pain, working time, number of patients and posture, procedures, usage of tools and knowledge about the ergonomics. This questionnaire is a very effective method of receiving information. A similar study in India also used simple, close ended questionnaire which was easy to analyze as well.²⁰

The response rate was 72.7 % as compared to 88 % shown in previous similar studies among dentists in Peshawar, Pakistan. While in Hong Kong it was between 57% to 63%²¹ and among Malaysian Dentists, it was 71%.¹² Thus, the study response rate was considered satisfactory compared with previous studies.

Our study reported the male to female ratio of musculoskeletal neck pain among dental professionals as 105(70%) and 45(30%) respectively. A similar study was done in Iran in 2011, in which 92 dentists participated in study showing that 73 % of the dentists had musculoskeletal pain with a male to female ratio of 59 (64.1%) : 33(35.9%)²² For that reason, demographic risk factors which have been recognized in other related researches, such as female gender, middle to older age and working experiences were used to appeal the relationship in this study because the environment of working place had similarities in almost all the dental settings across the globe.

Similar results were shown in a study in Thailand, that the dentists who worked in clinics or for long duration of dental procedures had risk of developing the neck pain that disturbed their clinical practice and daily life. Regular active neck movements, shoulder movements and truck rotational exercises were found to be effective strategies in improving

the neck pain in these studies.^{19,23}

In general, the dentists had mild to moderate neck pain due to work-related awkward posture related to repetitive bending activities in dental procedures. Prolong working hours and use of dental instruments which were heavy or vibratory, that mainly affects dentists' shoulder and wrist also finally leads to musculoskeletal discomforts. The years of experience among dentists , gender of dentists and the relationship with age (range from 25 to 65) were also related to the work-related neck pain.²⁴

Similar studies in India reporting risk factors included neck pain due to prolong standing, sitting postures, awkward bending or tilting neck/trunk for prolong time, repetitive shoulder/hand movements, use of vibrating tools, use of revolving chairs and chairs without armrests etc. Physical load play an important role in maintaining good general health. The leading risk factors were prolonging static posture during dental procedures.^{25,26}

The other important factor was lack of knowledge about the ergonomic and its implementation during working places of dentists¹² as height adjustable chairs with armrests/supports have been ergonomically proven to be an efficient intervention for reducing musculoskeletal pain.²⁷ Due to time constraints, dentists of other public hospitals not be included were the limitation of the study.

CONCLUSIONS

From this study, it can be concluded that work-related musculoskeletal neck pain is highly prevailing among dentists in Peshawar, Pakistan. It is also reported that the prevalence of neck pain was higher among those dentists who worked in static postures for a long time. Similarly, neck pain was directly proportional to number of patients examined per day, and the length of the procedure.

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