

Frequency of neck pain among dentists

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Abstract

Introduction: The majority of working dentists have musculo - skeletal symptoms in the neck. Bad working habits, repetitive tasks and uncomfortable posture have contribution in the development of neck pain. The aim of this study was to find the frequency of neck pain among dentists.

Material and Methods: A cross sectional survey was carried out by convenience sampling in 3 different dental hospitals of Lahore, Pakistan. The duration of study was 6 months. Total 312 questionnaires were filled by dentists, in which 111 were males and 201 were females. The data was collected using a questionnaire focusing on socio-demographic data, symptoms of neck pain and by directly observing the posture and range of motion of neck and thoracic region. Numeric rating scale and neck disability index were used. Qualitative variables were represented as percentages and bar charts. Descriptive statistics that is mean and standard deviation were used to represent the total score.

Results: Neck pain was the most common complaint. 23.7% subjects had mild pain, 28.2% had moderate pain that was episodic, 10.6% had moderate pain, 3.2% had severe episodic pain and 1% reported severe pain.

Conclusions: Results indicated that the frequency of neck pain and neck disability in dentists seemed to be high and is an area that needs further deliberation.

Keywords: Neck disability index; neck pain; numeric rating scale

Introduction

Dentistry is physically and mentally a demanding profession. The physical characteristics include good psychomotor skills, hearing, visual quality, manual skill and ability to maintain good posture during work for an extended period of time. In case the dentist fails to adjust to a particular working environment, he / she can incur injury or disability. Hence dentists are at risk of work-related diseases / injuries e.g.

allergies, systemic diseases, loss of hearing and musculoskeletal problems.¹

World Health Organization defines musculoskeletal disorders (MSD) as problems of muscles, tendons, joints, inter-vertebral discs, peripheral nerves and vascular system. It is not directly a result of acute or prompt incidence but mounting slowly and frequently. During past many years it has been reported that MSD have increased in routine work.²

MSD are a frequent occurring throughout the globe and are the most common reason of chronic pain as well as disability effecting millions of people. Literature shows prevalence ratio of neck pain is high among dentists.

World Health Organization describes work related musculoskeletal diseases being dependent on many factors including but not exclusive to structural, psychosocial and socio-cultural variables. The second most common MSD in dentistry is neck pain.³ The

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symptoms of MSD are categorized by occurrence of uneasiness, disablement and pain for a prolonged time period in the soft tissue structures.⁴ Dentistry demands high accuracy and is frequently performed with the cervical spine being rotated and flexed forward. This produces high static load in the neck region. Extended duration of static load and repetitive movements can result in neck pain, tension neck syndrome, muscle imbalance or cervical instability.⁵

As the oral cavity is narrow, dentists have a constrained visual field and restricted movement of neck and back leading to pain in these regions.⁶

The forward flexion of head and neck leads to cervical spine instability that causes straightening of its curvature. There is an increased risk of disc herniation and prolapse due to the lengthening and shortening of particular muscles, tendons and ligaments. Inflammation of neck muscles ensues due to overload and an unstable neck posture.⁵

As a result of tension neck syndrome (TNS), patients can have some symptoms like rigidity, pain and soreness in the region of trapezius. This is frequently associated with muscular spasm or tenderness or trigger points. It is not necessary that all symptoms must be localized in the region of neck but this can radiate into arms, skull and between shoulder blades. The most common symptoms of TNS is headache. The primary causative factor for TNS is poor posture with forward head position. The associated factors with neck pain include forward head posture or increased working hours. The symptoms of neck pain can be worse in professions where work demands extended head posture and utilization of muscles with reduced endurance that stabilize the neck.⁵

Risk factors for this problem include high demands of job, poor job control, minimum social support and some personal characteristics.⁷ Age related changes in vertebral column, its shape, weakness of muscles, poor practice posture / techniques

of lifting and mechanical pressure are factors that contribute in neck and back pain.⁸ Cervico-genic headache is a pain that refers from cervical spine to the head. Physiology of this pain is conjunction between trigeminal afferents and upper three cervical spinal nerves afferents.⁹

After establishment of work related predisposition of the dental fraternity, aim of the present study was to determine the frequency of neck pain among the dentists in Lahore, Pakistan to highlight this important dilemma faced by a great majority.

Material and Methods

A cross-sectional survey was carried out by convenience sampling in 3 different dental hospitals including University College of Dentistry (UOL), de'Montmorency College of Dentistry, Fatima Memorial Hospital, Lahore, Pakistan. Duration of study was 6 months. Sample size was calculated using WHO sample size calculator. Total 312 questionnaires were filled by dentists in which 111 were males and 201 were females. The data was collected using a questionnaire focusing on socio-demographic data, symptoms of neck pain and by directly observing the posture and range of motion of neck and thoracic region. Numeric rating scale and neck disability index were used to assess neck pain and neck disability. Qualitative variables were represented as percentages and bar charts. Descriptive statistics i.e. mean and standard deviations were used to represent the total score.

Results

According to this study Neck pain was the most common complaint. 23.7% subjects had mild pain, 28.2% had moderate pain that was episodic, 10.6% had moderate pain, 3.2% had severe episodic pain and 1% reported severe pain. 54.5% (170) dentists addressed the pain her/ himself and resolved it without further consequences. 23.7% (74) addressed pain

transiently through self medication but experienced further episodes of pain. 14.7% (46) looked after themselves but the episodes continued. 6.4% (20) subjects wanted to seek help but did not and managed it on their own. 3% (1) wanted help in their self-maintenance. Lastly 3% (1) had difficulty in even washing and staying in bed.

About 37.8% (118) could lift heavy weights without pain, 28.2% (88) could lift heavy weights but experienced pain in doing so, 20.2% (63) dentists reported that episodes of pain prevented them to do so, 8.7% (27) dentists could lift light to medium weights with comfort but perception of pain prevented them to do so, 4.5% (14) could lift little weight only and 6% (2) could not lift anything. About 26.6% (83) dentists had no pain during reading, 38.8% (121) dentists had slight pain during reading, 21.8% (68) had moderate pain, 11.2% (35) could not read books due to moderate pain and 1.6% (5) had severe pain while reading so could not do so. 39.1% (122) dentists did not experience headaches, 28.2% (88) had mild headaches, 21.5% (67) had moderate headache that occur occasionally, 8.3% (26) had moderate headache that occur repeatedly, 2.6% (8) dentists had severe headache that occur frequently, 3% (1) had headache all the time. 24.7% (77) dentist managed most of their work themselves, 29.8% (93) could do normal work without discomfort, 25.6% (80) could do most of their work but with certain limitations, 16.3% (51) could do normal work, 3.2% (10) could barely work, 3% (1) could not work. Statistical results about driving confirmed that 31.1% (97) dentists could drive their cars without experiencing neck problem, 36.9% (115) could drive their cars but experienced mild pain, 16.3% (51) could drive their cars with moderate neck pain while 11.2% (35) could not drive their cars due to moderate pain, 1.0% (3) could drive the car with sever difficulty and 3.5% (11) dentists could not drive their car.

34.3% (107) dentists had a comfortable sleep, 34.9% (109) had minor sleep problems, 11.5%

(36) had mild problems during sleep, 18.3% (57) had moderately disturbed sleep, 6% (2) had a disturbed sleep and 3% (1) had a poor sleep pattern. About 36.9% (115) subjects managed their recreational activities without neck pain, 33.3% (104) experienced some neck pain, 21.2% (66) could not do recreational activities due to pain, 7.7% (24) subjects could manage a very few activities due to the experience of pain, 1.0% (3) subjects could not do any recreational activity.

Table I: Personal Care

	Frequency	Percent
I can look after myself without causing extra pain	170	54.5
I can look after myself normally, but it causes extra pain	74	23.7
It is painful to look after myself and I am also slow and careful	46	14.7
I need some help, but manage most of my personal care	20	6.4
I need help every day in most aspects of self-care	1	0.3
I do not get understand. I with difficulty and stay in bed	1	0.3
Total	312	100

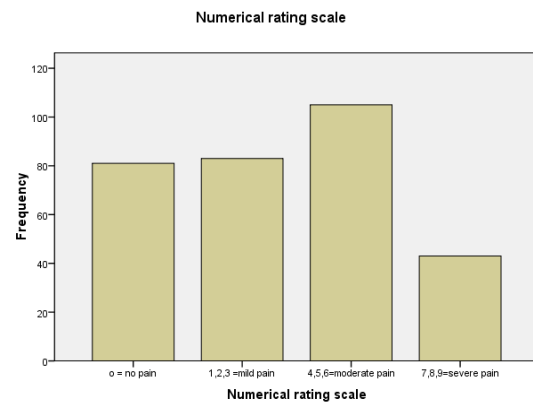


Figure 1: Numeric Rating Scale

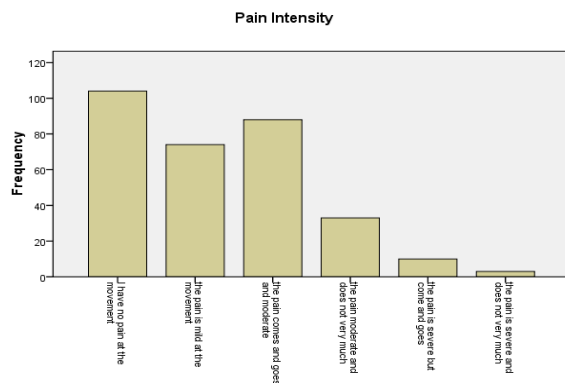


Figure 2: Neck Disability Index

Discussion

Dentistry is a demanding profession both physically and mentally. The physical characteristics include good psychomotor and manual dexterity skills, visual quality and ability to maintain a stable posture for longer hours. In case of failure to maintain such a stable posture, result is injury or inability to work efficiently. Hence dentists are at risk of work-related injuries like allergies, systemic diseases, loss of hearing, musculoskeletal problems (neck, back and shoulder pain) and injuries (percutaneous or ocular).¹⁰

Musculoskeletal disorders are more prevalent among dentists due to work place circumstances and work place exposure, structural, psychosocial and socio-cultural variables among individuals. The second most common musculoskeletal disorder that the dentists experience is neck pain.¹¹ The high occurrence of musculoskeletal disorders among this population has consequences towards their work, normal functional activities and daily lives.¹²

The association of the neck pain with forward head posture by 20 degrees is in 70% of patients since the cause of cervical instability and flattening of neck curvature is forward head posture. Osteoarthritis of the cervical spine and cervical spondylosis occurs in patients who maintain a flexed head for longer periods of time. The frequency of neck

pain and cervical spondylosis is high among dentists.¹³

The intensity and frequency of neck pain, disability and its related factors have been proved by this study. Present results parallel results of other studies in which estimations of frequency of neck pain in dentists was done.¹⁴ The posture of a working dentist while performing procedures has effects on the neck region.¹⁵

In the past, many studies have been done to find out the different causative factors that create disablements among dentists. Results of most studies show that dentistry requires high accuracy and is frequently performed with cervical spine flexed forward and rotated. This produces high static load in the neck region. Extended duration of static load and repetitive movements can result in neck pain, tension neck syndrome, muscle imbalance or cervical instability.¹⁶ Oral cavity is narrow and the dentists have a constrained visual field that entails restricted movement of neck and back, leading to pain in these regions.¹⁷ There are psychosocial risk factors like a demanding job or minimum social support. There can be personal traits like height, inappropriate time period for rest etc and these can increase the risk of neck pain. Physical inactivity and overload from family and work can also increase the risks.¹⁸ Work related risk factors include repeated movements, bad posture, vibrations, high temperatures, chemical or noxious factors and radiations. A survey conducted in China showed that 83.8% dentist suffered from neck pain which was corroborated by another study as well.¹⁹⁻²⁰ Another study was conducted to evaluate the intensity and location of musculoskeletal pain among the students and professors from different postgraduate programs in the School of Dentistry, University of Barcelona (Spain) which again proved that the neck region was the most affected (58% of all participants) location in the body. Females and younger

dentists showed a high frequency of neck pain.²¹

Conclusions

Dentists are at the high risk of musculoskeletal symptoms in the neck. The reason for it is the position of work is difficult with cervical spine in flexion and rotation, repetitive procedure which demand accuracy; these problems can be overcome by some preventive measures like dentist's chair is properly constructed and the design of work unit should be appropriate, educate the dentist regarding ergonomics and should improve the work organization.

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