

WORK RELATED NECK PAIN AMONG THE DENTISTS WORKING IN ISLAMABAD & RAWALPINDI; A CROSS-SECTIONAL SURVEY

ROHAIL AMIR BABAR¹, ALEEZA SADIQ², SYED ALAMDAR HUSSAIN³, USMAN FAROOQ⁴

ABSTRACT

INTRODUCTION: Work related neck pain is common among different professionals, dentists being one of those. They often suffer from neck related issues mainly because of the postures they adapt while performing dental procedures. Symptoms may vary from slight ache to debilitating pain. There could be numbness, tingling or weakness in the arm and hands as well.

OBJECTIVE: To determine the frequency of work related neck pain in dentists of Islamabad and Rawalpindi.

METHODOLOGY: This study was a cross-sectional survey conducted in the different health care centres of Islamabad and Rawalpindi, with an approximately sample of 385. The study was conducted in the duration of 6 months and Neck Disability Index (NDI) was used to report the neck pain among the dentists.

RESULTS: The NDI score showed that 44.7% of the dentists showed mild disability and 33.8% dentist showed moderate disability subsequently showing total (Mean±SD) 2.28±0.80.

CONCLUSION: Approximately half of the dental population have mild disability of neck, whereas upper cervical region gets more effected then other segments.

KEY WORDS: Dentist, Neck Disability Index, Musculoskeletal Disorders & World Health Organization.

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INTRODUCTION

The field of dentistry is mentally and physically a challenging profession. Whereas the physical features include hearing, visual quality, good psychomotor skill, manual skill and capability to uphold good posture throughout work for an extended time period. For instance if a dentist be unsuccessful to amend to a specific working environment, the individual can face some serious consequences which can lead to injury or disability. Therefore dentists are prone to the work-related disorders.¹

The World Health Organization (WHO) describes musculoskeletal disorders (MSDs) as issue of muscles,

joints, tendons, peripheral nerves, inter-vertebral discs and vascular system and is not straight a result of early or acute incidence but rising and intensifying slowly, gradually and frequently. In the course of past many years MSDs has been reported to be greater than before in routine work.²

Across the globe MSDs have been found to be the most frequently occurring and mutual reason of chronic pain and disability causing millions of people to be effected. Researchers have shown the prevalence of neck pain to be highest among dentists labelling it to be the second most common MSDs in dentists. WHO outlines work-related MSD's being reliant on many aspects including but not limited to psychosocial, socio-cultural variables and structural.³ The sign and symptoms of MSDs are categorized by happening of disablement, uneasiness and pain for a protracted time frame in the soft-tissue structures.⁴ With a forwardly flexed and rotated cervical spine, frequent performance with high accuracy is a demand of this profession. Thus producing great static load in the cervical region. These repetitive movements and extended period of static load can consequence resulting in neck tension, neck pain, muscle imbalance, cervical instability or cervicogenic syndrome.^{4,5} Due to a slender oral cavity, dental professionals have a reserved visual field leading to

¹ Lecturer, Department of Rehabilitation Sciences Islamabad Medical & Dental College Islamabad - Pakistan.

² Physical Therapist, Bioflex Islamabad - Pakistan.

³ Lecturer, Northwest Institute of Health Sciences, Peshawar - Pakistan.

⁴ Lecturer, Northwest Institute of Health Sciences, Peshawar - Pakistan.

Address for correspondence:

Dr. Syed Alamdar Hussain

Lecturer, Northwest Institute of Health Sciences, Peshawar - Pakistan.

E-mail: syedalamdarhussain@gmail.com

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restricted movement of back and neck triggering pain in these areas.⁶

Head and neck in continuous forward flexion causes cervical spine instability that results in straightening of cervical curvature. Disc herniation and prolapse are at high and increased risk due to the malfunction of particular muscles, ligaments and tendons. Inflammation of neck muscles happens due to overwork and an unsteady and unstable neck posture.⁷

Likewise in tension neck syndrome (TNS), symptoms like soreness, pain and rigidity can be followed by patients in trapezius region. Which is frequently associated with trigger points, tenderness and muscular spasms. Though it is not mandatory to have all the symptoms localized in the specific region of neck but ultimately can radiate into skull, arms and between the shoulder blades. However the symptoms of TNS, most commonly tackled is a headache. Primarily, bad posture with a forward head is a causative factor of TNS. Whereas the associated factors may include increased working hours associated with forward head posture. The sign and symptoms of neck pain could be worse in professions where there work demands the extended head posture with utilization of muscles with less endurance that stabilize or holds the neck.⁷ Associated Risk factors for neck related MSDs comprise of stressful routine, maximum job effort, least social support and personal issues.⁸ Weakness of muscles, poor work ergonomics are factors and age related changes in vertebral body are contributing factors of neck and back pain.⁹ Moreover cervico-genic headache which is another associated factor of neck related MSD, is a pain that directed from cervical spine to the occult.¹⁰

As the susceptibility of work-related MSD's in dental professionals is high. The aim of the current study was to evaluate the frequency of work related neck pain among the dentists of the capital territory of Pakistan, Islamabad to spot this vital issue faced by a hard working majority professionals.

METHODOLOGY

This was cross-sectional survey conducted in the capital territory, Islamabad, and Rawalpindi Pakistan by obtaining data from 385 dentist situated in different healthcare setups of Islamabad and Rawalpindi, Pakistan. The sample size which was obtained using Open-Epi sample size calculator.

The participants prior to the recruitment were given the informed consent and were made sure that anyone above 65 year or with any known medical condition was not included in the study because as per the inclusion criteria participants who have been working from minimum 1 year and have been actively participating in their field were recruited in the study. Self-reported neck disability Index (NDI) was used with additional demographic to achieve the purpose of the study and rule out the professionals suffering from neck related musculoskeletal disorders.

All the collected data was then analysed through SPSS 22.0 and descriptive statistics were applied. However continuous variables were described in term of mean standard deviation and frequency tables and charts.

RESULTS

The respondent dentists were 385 in number out of which less than half were males 120(31.2) and remaining were female 265(68.8%). The respondents whose age reclined in-between 25-35 were maximum 357(92.7%) whereas those above 35 were 25(7.3%). When asked about the experience of their professional life more sat in the slot of less than 10 years of experience 354(91.9%) while dentist having 10-20 years of experience were 27(7%) and more than 20 years 4(1%). Moreover when speciality enquired, almost greater population were general dentists 192(49.9%) followed by Orthodontists 78(20.3%), Maxillofacial surgeons 31(8.1%) and Prosthodontics 29(7.5%).

While questioning about the location of pain, the values lied from ascending to descending portraying upper cervical 177(44.4%), lower cervical 88(22.9%), between the shoulder blades 72(18.7%) and around the shoulder blades 54(14%). While enquiring about the working posture dentist performing there dentistry while sitting 241(62.6%) followed by professionals acquiring the standing position were 144(37.4%) Most of the dentists 239(62.1%) took break whenever need, as per their will, those 44(11.4) took break after every patient, and at the bottom of hierarchy lied those 18(4.7%) who took break after every one hour whereas 84(21.8) of the dentist rarely took any break.

The neck disability index was included in this study to measure the level of disability to evaluate the neck pain in the participants. The NDI score shows that 44.7% of the dentists showed mild disability and 33.8% dentist showed moderate disability as shown in figure 1.1. The total Mean \pm SD obtained for NDI was 2.28 ± 0.80 as shown in table 1.1.

When Compared mean of various variables with the neck disability Index average compared means of different variables showed Mild disability on top of the hierarchy followed by moderate disability subsequent to their gender and life style related to their profession. Complete details are shown in table 1.2.

DISCUSSION

Dentistry is known to be a challenging profession by physical and mental means.¹¹ The dentists require good psychomotor and manual dexterity skills along with that the vestibular system and visual needs to in good state to maintain the equilibrium of body while standing for dental procedure of longer durations.¹² For a good dentists it is essential to maintain their physical and mental health because both factors play role in overall health of professional.¹³ The working posture of dentists has an important role and it has been found to be a risk factor for

FIGURE 1: Neck Disability Index

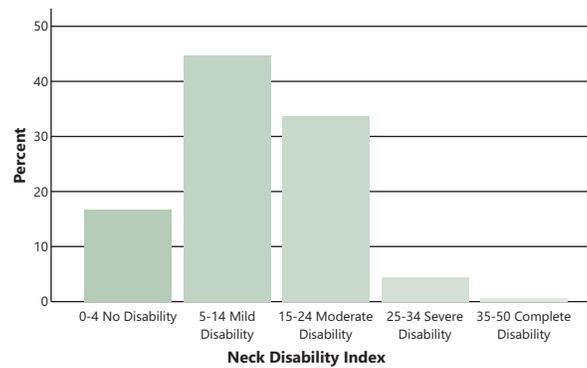


TABLE 1.1: NECK DISABILITY INDEX

Neck Disability Index	Frequency	Percent
0-4 No Disability	64	16.6%
5-14 Mild Disability	172	44.7%
15-24 Moderate Disability	130	33.8
25-34 Severe Disability	17	4.4%
35-50 Complete Disability	2	.5%
Total Mean ± SD	2.28 ± 0.80	

development of the work related musculoskeletal disorders and it is obvious from many studies that maintaining poor posture for longer duration dental procedure can lead to muscular fatigue and discomfort along with pain which increases gradually with passage of time.¹⁴ If not treated on proper time these problems can lead to pathological problems and can cause permanent disability.¹⁵ A study by Stapley et al concludes that forward bent neck posture can not only cause fatigue of muscles but eccentrically causes overloading of muscles and the micro trauma to musculature of neck lead to neck pain and related symptoms.¹⁶ In present study the working postures were found and 62.6 % professionals adapted sitting posture to practice while 37.4% adapted standing posture for practice. It has been reported by Steilen et al that maintain flexion of neck for longer duration can trigger osteoarthritis and cervical spondylitis.¹⁷

A study by Yui et al on operative dentistry has revealed that in recent years the work related MSD among dentists has drawn there attention towards proper ergonomics education to avoid the disorders.¹⁸ Another study conducted in Iran by Shams-Hosseini highlighted that MSD are more prevalent among dentists due to workplace settings and workplace social, socio-cultural variables among professionals and the same study further found that neck pain is second most common musculoskeletal disorder and it has impact on their work and normal activities of daily life.¹⁹ Similar study by Hassan et al conducted in Egypt revealed that neck pain was second most common complain of dentists followed by shoulder

pain and reason was that most of dental professionals were living sedentary lifestyle and daily exercise was not the part of their routine.²⁰ In present study 44.7 % dentists have reported mild disability according to neck disability index according to which almost half of population of dentists have neck related issues and they are living with it.

The MSDs are also being reported by Italian dental professionals and female population reported a combination of wrist and hand pain along with neck pain.²¹ As in present study the population of male was 31 % and female was 68.8% and mild neck pain was reported on NDI scale. In our study the most reported region of pain include upper cervical region and 44.4% of professionals reported pain in this region followed by lower cervical region. Another study conducted in Iranian dentists population to find out work related MSDs and it has shown that neck pain and shoulder pain is more commonly reported as compared to other work related MSDs.²² The importance of number of years of practice has also a role in occurrence of neck pain but other studies have shown the same number of symptoms between young and older dentists.²³ As in present study most about 91.9 % of population was younger dentists less than ten years of practice but they reported mild disability on neck disability index scale. More interestingly some studies have shown that MSDs and more commonly the neck pain symptoms were also reported by undergraduate dental students of final year and it suggests that raising awareness about optimal working postures and good habits of work can limit the risk of neck pain and its related symptoms and overall musculoskeletal

TABLE 1.2: COMPARED MEAN WITH NECK DISABILITY INDEX

Variables		Mean ± SD	Total Number	Percentage
Gender	Male	2.21 ± 0.86	120	31.2%
	Female	2.31 ± 0.77	265	68.8%
Experience	Less than 10 years	2.25 ± 0.80	354	91.9%
	10 – 20 years	2.70 ± 0.72	27	7.0%
	Above 20 year	2.00 ± 1.15	4	1.0%
Specialty of Dentist	Public Health	2.17 ± 0.76	24	6.2%
	General Dentist	2.23 ± 0.77	192	49.9%
	Operative	1.87 ± 0.62	25	6.5%
	Orthodontist	2.36 ± 0.86	78	20.3%
	Prosthodontics	2.62 ± 0.10	29	7.5%
	OMFS	2.42 ± 0.62	31	8.1%
	Restorative Dentist	2.00 ± 0.00	2	0.5%
	Oral Surgeons	3.00 ± 0.00	4	1.0%
Location of Pain	Upper Cervical	2.44 ± 0.82	171	44.4%
	Lower Cervical	2.07 ± 0.77	88	22.9%
	Between Scapula	2.21 ± 0.80	72	18.7%
	Around Scapula	2.19 ± 0.72	54	14.0%
Working Position	Sitting	2.16 ± 0.80	241	62.6%
	Standing	2.47 ± 0.77	144	37.4%
Breaks	After Every 1 hr	2.44 ± 0.85	18	4.7%
	After Each Patient	2.45 ± 0.62	44	11.4%
	Whenever Needed	2.21 ± 0.82	239	62.1%
	Rarely	2.33 ± 0.82	84	21.8%

related disorders it was also further reported in same study that all dentists should be properly educated about dental ergonomics including rest breaks.²⁴ In present it was found that most of population of dental professional took break when needed. Another study conducted on Australian dentists by Sakzewski also concludes that work related musculoskeletal disorders can be reduced if dental professions perform daily exercises and keep themselves fit.²⁵

The major limitation of the study was that the most of the dentists that participated in the study were young, thus we didn't really get a chance to assess clear effect of age on neck pain secondly the more than half of the population was female which can lead to gender biased results. Measurements to minimize the effects of risk factors that predispose dentists to neck pain weren't considered in the succeeding research plus stress related symptoms are similar to these work related MSD and no such criteria was tracked to differentiate between them.

CONCLUSION

From present study it can be concluded that neck pain

among dentists is not of severe in nature and the functional disability was mild. The upper cervical region is largely prevalent to pain in dentists. That brings along with it a considerable amount of discomfort, lost working time, and financial loss. What we need is not preventing its incidence and recurrence by performing mild stretching techniques along with some relaxation exercises in weekly activities of dental professionals. The education of work ergonomics can also be helpful and should be made part of curriculum of studies. This will help in improving the quality of work in their clinical practice.

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CONFLICT OF INTEREST

Authors declare no conflict of interest.

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