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Questionnaire Survey on Cervical Spondylosis among Dentists

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Abstract

Introduction: Most patients particularly dentists who present with neck pain have "non-specific (simple) neck pain, "where symptoms have a postural or mechanical basis. Etiological factors are usually multifactorial, including poor posture, anxiety, depression, neck strain, and sporting or occupational activities. When mechanical factors are prominent, the condition is often referred to as "cervical spondylosis," although the term is often applied to all non-specific neck pain. The aim of this study was to find the frequency of neck pain among dentists. **Materials and Methods**: A cross-sectional survey was carried out by convenience sampling in different dental hospitals of Chennai. A total of 100 questionnaires were filled by dentists. The data were collected using a questionnaire focusing on back position, travel to clinic, hours of practice, assisting hands during practice, duration of sleep, time spent on electronic gadgets, dizziness or discomfort after work, duration of pain, and if any treatment undergoing. 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. Sixty-seven percent were male and 33% were female. Thirty-four percent are practising dentistry above 20 years, 32% above 15 years, 26% above 10 years, and 8% above 5 years. The position of practice is that 96% of the dentists practise sitting position and the rest 4% practise standing position. About 72% of dentists use electronic gadgets more than 3 h, 18% of dentists use them for 3 h, and 10 of them use. **Conclusion:** A The frequency of neck pain and neck disability in dentists seemed to be high and is an area that needs further deliberation. The majority of working dentists have musculoskeletal symptoms in the neck.

Keywords: Cervical spondylosis, Dentists, Ergonomics, Neck pain, Posture

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INTRODUCTION

Most patients who present with neck pain have "non-specific (simple) neck pain," where symptoms have a postural or mechanical basis. Etiological factors are poorly understood[1] and are usually multifactorial, including poor posture, anxiety, depression, neck strain, and sporting or occupational activities.[2] Neck pain after whiplash injury also fits into this category, provided no bony injury or neurological deficit is present.[3].

When mechanical factors are prominent, the condition is often referred to as "cervical spondylosis," although the term is often applied to all non-specific neck pain. Mechanical and degenerative factors are more likely to be present in chronic neck pain. In cervical spondylosis, degenerative changes start in the intervertebral discs with osteophyte formation and involvement of adjacent soft tissue structures. Many people over 30 show similar abnormalities on plain radiographs of the cervical spine, however, so the boundary between normal aging and disease is difficult to define.[4]

Even severe degenerative changes are often asymptomatic but can lead to neck pain, stiffness, or neurological complications. Neck pain is an ache or discomfort in anatomical area between occiput and 3rd thoracic vertebra and laterally between middle margin of scapula.[5] Neck pain is considered to be chronic if the patient suffered more than 3 months.[6,7] The prevalence of neck pain varies between 16.7% and 75.1% in the general population.[8] Neck pain may be caused by spondylosis, spinal stenosis, disc herniation, stress, poor posture, and prolonged posture.[9,10].

Symptoms of neck pain may include neck soreness and headache, pain around shoulder blades, and arm complaints (pain, numbness, or weakness). Dental profession is one of the occupational risk factors of neck pain.[5,11] Studies showed that neck pain starts early in dental career even during educational training.[12,13] In a recent study, 54.4% of dentists in K. S. A. had neck pain, 21.69% of them drop out of job.[14] Recently, it was shown that there is a strong relation between work duration and neck pain in the staff of dental school.[15,16] Another study reported that increasing weekly work hours has little effect on neck pain.[14,17].

The most common cause of neck pain in dentists is prolonged work posture which makes a high load on muscles of neck and shoulder region (trapezius more than splenius).[16] The main working posture of a dentist is in sitting, with neck flexion, shoulder elevation, and upper extremity abduction and his patient supine.[14,15,17,18].

MATERIALS AND METHODS

A cross-sectional survey was carried out by convenience sampling in different dental hospitals of Chennai. A total of 100 questionnaires were filled by dentists, of which 67 were males and 33 were females. The data were collected using a questionnaire focusing on sociodemographic data, back position, travel to clinic, consultation per day, hours of practice, assisting hands during practice, specialization, duration of sleep, type of mattresses and pillows, time spent on electronic gadgets, dizziness or discomfort after work, duration of pain, and if any treatment undergoing. Qualitative variables were represented as percentages and bar charts [Table 1].

Descriptive statistics, that is mean and standard deviation, were used to represent the total score. The survey was conducted without any bias, among various dentists in South India. Once the survey was done, the results were tabulated according to the data obtained. Pie charts and statistics were used for concluding the results. The results obtained from the survey were estimated below using pie charts.

RESULTS AND DISCUSSION

Sixty-seven percent were males and 33% were females [Figure 1]. About 30% of people were from 30 to 35 age group and 40–45 age group each, 25%were from 35 to 40 age group, 10%were from 45 to 50 age group, and 5%were >50 age group Thirty-four are practising dentistry above 20 years, 32% above 15 years, 26% above 10 years, and 8% above 5 years. About 50% of dentists use four-wheeler for travel, 45% of dentists use two-wheeler to travel, and 5% use three-wheeler for travel. Among these dentists, 55% of dentists work 8 h, 33% of dentists work more than 8 h, and 12% of dentists work 4 h a day [Figure 2].

World Health Organization defines musculoskeletal disorders (MSDs) as problems of muscles, tendons, joints, intervertebral 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 MSDs have increased in routine work.[19,20] MSDs are a frequent occurrence throughout the globe and are the most common reason of chronic pain as well as disability affecting millions of people. Literature shows that 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 sociocultural variables.

The second most common MSD in dentistry is neck pain.[21] The symptoms of MSD are categorized by the occurrence of uneasiness, disablement, and pain for a prolonged time period in the soft tissue structures.[22] 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.[23]

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.[24] 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.[23] As a result of tension neck syndrome (TNS), patients can have some symptoms such as 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 symptom 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.[24] Risk factors for this problem include high demands of job, poor job control, minimum social support, and some personal characteristics.[25] 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.[26]

Cervicogenic headache is a pain that refers from cervical spine to the head. Physiology of this pain is a conjunction between trigeminal afferents and upper three cervical spinal nerves afferents.[27] Trapezius pain is classic stress pain and it is the most common musculoskeletal disorder.[28] Neck pain is common in the general population, with 70% of individuals affected sometime in their lives.[29]

Many researchers have proven scientifically and have also reported that protracted shoulder might lead to shoulder malposition, which may increase the subacromial impingement.[30] Low back ache (LBA) is the second most common cause of disability.[31] The term work-related musculoskeletal disorders(MSDs) refer to the disorders to which the work environment contributes significantly to musculoskeletal disorders that are made worse or longer lasting by work conditions or workplace risk factors. Some of the examples of such workplace risk factors include jobs requiring repetitive, forceful or prolonged exertions of the hands, frequent or heavy lifting, pushing or pulling, or carrying of heavy objects and prolonged awkward postures. The level of risk depends on the intensity, frequency, and duration of the exposure to these conditions. A WMSD can be defined as a condition wherein work-related tasks affect the nerves, tendons, muscles, and supporting structures. Conditions can vary from mild recurrent symptoms to severe and incapacitating. Early symptoms of WMSDs include pain, swelling, tenderness, numbness, tingling sensation, and loss of strength.[32]

Grip strength is a force applied by the hand to pull on or suspend from objects and is a specific part of hand strength. It is the muscle power and force that can be generated by the hand. Mechanical neck pain may arise due to muscular tightness in both the neck and upper back. Exercise plus joint mobilization and manipulation has been found to be beneficial in both acute and chronic neck disorders. Neither mobilization nor manipulation without exercise however has been found to be helpful. Mobilization is equivalent to manipulation. Here, two varieties of techniques are carried out in treating the neck pain. Recently, evidence has begun to emerge for the use of manual therapy, specifically thrust manipulation procedures, directed at the thoracic spine in people with neck pain. Further decrease in the mobility of the thoracic spine has been shown to be related to the presence of neck pain symptoms.[33]

Coming to the consultation, 68% go for consultation and the rest 32% do not. The most important part of back posture where 70% of the dentists do not use back rest, whereas 30% use back rest [Figure 3]. Single-handed dentistry is been practised by 25% of dentists, two-handed dentistry is been practised by 65% of the dentists, and 10% of the dentists practice four-handed dentistry. The position of practice is that 96% of the dentists practise sitting position and the rest 4% practise standing position [Figure 4]. Among these dentists, dental surgeons were 20%, 10% were periodontists, 53% were endodontists, 12% were prosthodontists, and 5% were pedodontists. About 61% of dentists sleep 2 h, 20% of the dentists experiences pain >4 h, 35% of dentists experiences pain dentists practise yoga, 35% of dentists exercise regularly, and 10% do not undergo any treatment [Figure 5].

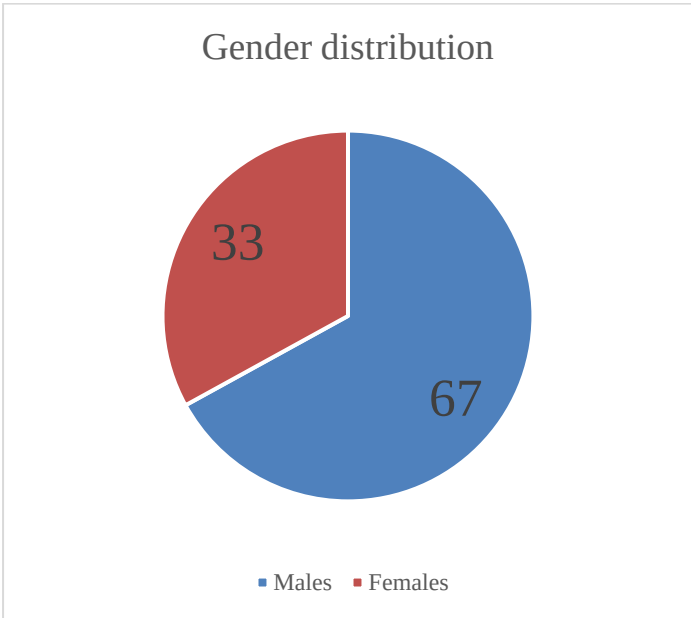

Figure 1 : Gender distribution

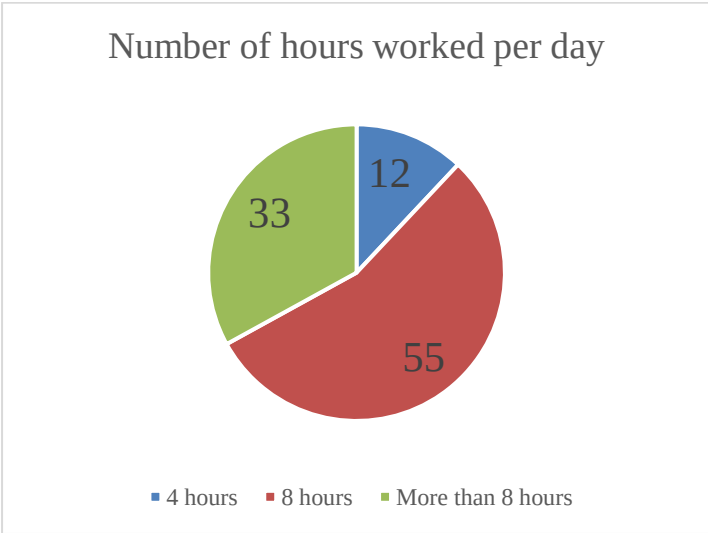

Figure 2 : Distribution of dentists regarding number of hours worked per day

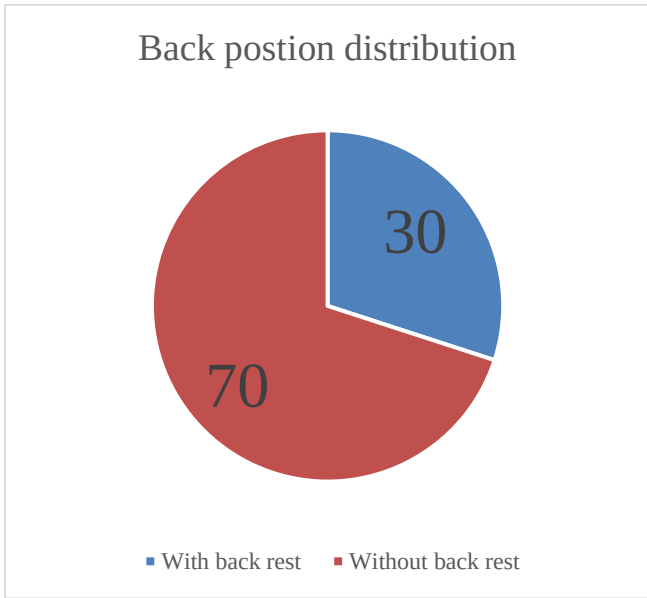

Figure 3 : Distribution of dentists regarding back position

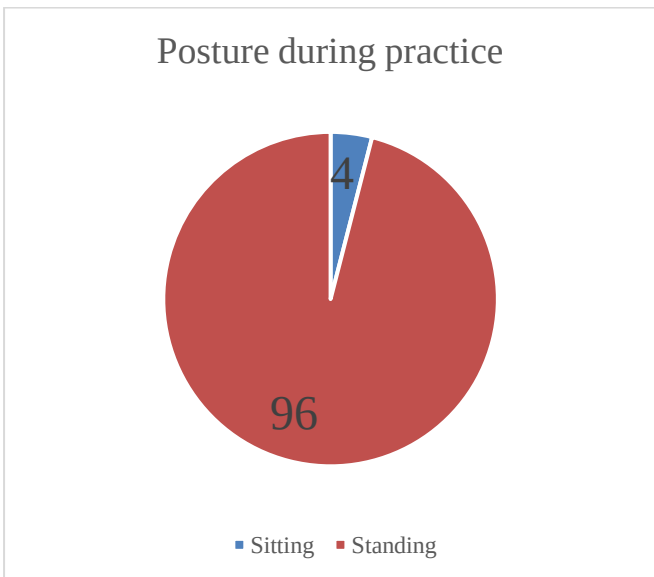

Figure 4 : Distribution of dentists regarding posture during practice

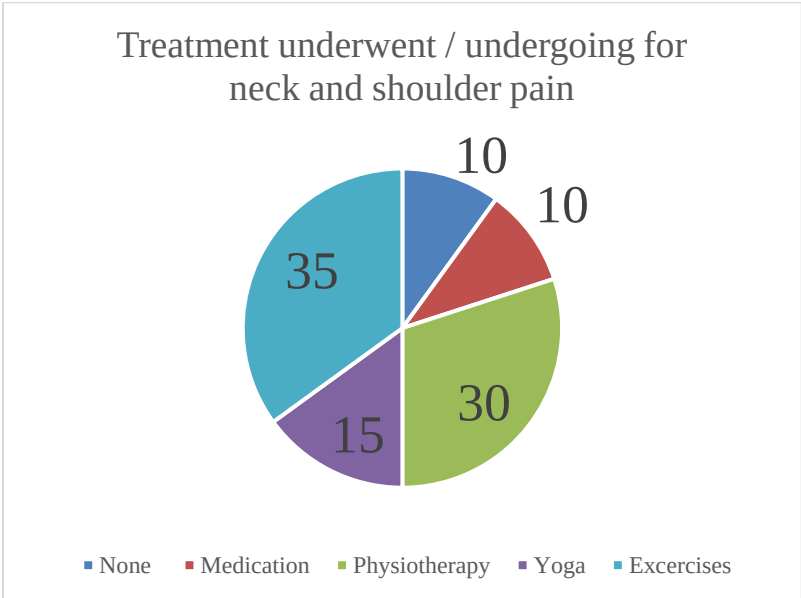

Figure 5 : Distribution of dentists regarding treatment for neck and shoulder pain

CONCLUSION

Dentists are at a 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, a repetitive procedure which demands accuracy; these problems can be overcome by some preventive measures such as 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.

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, for example, allergies, systemic diseases, loss of hearing, and musculoskeletal problems.

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Conflicts of interest
There are no conflicts of interest.

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