



PREVALENCE OF NECK PAIN AND SHOULDER PAIN AMONGST DENTISTS OF VADODARA CITY: A SURVEY STUDY

Dwija Yagnik¹, Harmisha Kadiya², Shivani Kathrotiya³, Noopur Bhatt⁴

Assistant Professor¹, BPT student², BPT student³, Assistant Professor⁴

¹Parul Institute of Physiotherapy

¹Parul University, Vadodara, India

Abstract

Background: Musculoskeletal disorders are impairments of anatomical structure like muscle, joints, tendons, ligaments, nerves, bones, and localised blood circulation system that are caused or aggravated primarily by work and by the effect of the environment of the work place is meted out. In Dentistry, improper working habits, inconvenient posture as well as repetitive movements. MSDs and psychological stress and eventually cause fatigue. Purpose: To know about the prevalence of Neck pain and Shoulder pain amongst Dentists of Vadodara City. Methodology: In Vadodara City, 25-40 age group of Dentist are included who have more than 1 year of experience and do not have any other deformity. Then after consent was taken from each participant. total 70 subjects were participate. in this study. In this study 32 female and 38 male are there. the assessment was conducted by the self-reporting scale NDI, SPADI. The pain assessment was taken by the NPRS for neck and shoulder. The survey is revealed that there is neck pain more as compared to the shoulder pain in Dentist of Vadodara City. The pain is increased with the number of years of practice and age and had a gender prediction towards female. The study concluded that the high prevalence of neck pain in Dentist of Vadodara City, The pain is increased with the number of years of practice and age and had a gender prediction towards female.

Keyword: NDI, SPADI, NPRS, Neck pain and Shoulder pain.

Introduction

Neck pain may be a common problem within the community affecting 70% of individuals at some point in their life. A series of micro traumatic event that accumulate within the body as a results of work place characteristics. Tissue healing never really occurs thanks to repeated exposure to occupational risk factors. [1][2] In dentistry, awkward working posture, strenuous arm position, sustained forward bend postures fatigues extensor musculature by eccentrically overloading them. The occurrence of neck pain in dentist is caused by frequent assumption of static posture. [3][2] Neck pain may arise thanks to muscular tightness in both the neck and upper back, and pinching of the nerves emanating from the cervical spine. Non-specific neck pain is that the most typical one. this can be also referred to as 'simple' or 'mechanical' neck pain. The causes is also minor strains and sprains to muscles or ligaments within the neck. Bad posture seems to be the foremost contributing think about many cases. [4] Non- specific neck pain is most frequently caused by continuous forward head carrying posture resulting in sub-occipital muscle tightness, decreased cervical

mobility and obliterated cervical spine curvature. [5] Neck pain can have a range of causes. Keeping your head in a clumsy position can cause your neck muscles to fatigue and also the joints in your neck to “lock” in situ, causing discomfort, stiffness and limited range of motion. [4] High rates of occurrence of upper extremity musculoskeletal disorders (MSDs) in dental professionals (dentist, skilled worker, and dental assistant) are well documented, including regional neck and shoulder pain, shoulder tendonitis, neuropathy, tension neck syndrome, and trapezius myalgia. [6][7][3] Problems of the upper shoulder and neck are thought to be related to repeated or sustained exertion in awkward or static postures, even with low external loads. [8][3]

These postures could also be combined with high static loads and fatigue within the trapezius muscles [9] [3]. Additionally, there can also be relationships to private characteristics (such as height), high visual demands [10] [3], workplace organizational and psycho-social factors [11] and lack of recovery time [13] [12] [3]. Barry suggests during a small longitudinal study that there is also a change to forward-leaning posture when dental hygienists come in the working environment, which can contribute to a rise in neck and shoulder pain. [14][3]

Bramson et al found in an videotape ergonomic analysis of 15 dental hygienists that shoulder risks averaged 4 on a 7-point scale (based on a mix of postures, force, frequency, duration, past injuries, and present discomfort). [14][3]

The occurrence of Neck pain and Shoulder pain in dentists is caused by frequent assumption of static postures which needs quite 50% of body's muscles to contract and hold, resisting gravity [9][15]. In line with previous studies dentists at work are prone to the occupational health disorders as they often assume static positions that are uncomfortable. [9][15]

In this study we are using SPADI, NDI and NPRS as outcome measures. SPADI may be a patient completed questionnaire with 13 items assessing pain level and extent of difficulty with ADL, requiring the utilization of the upper extremities. The pain subscale has 5 items and disability subscale has 8 items. This scale is additionally used with patients who have anatomical structure disease, osteoarthritis, atrophic arthritis, and adhesive capsulitis. It takes 5 to 10 minutes for a patient to finish it. It's the sole reliable and valid region specific measure for shoulder. The reliability of this questionnaire is 0.89 and validity is 0.66. NDI is completed condition specific functional status questionnaire with 10 items including pain, attention, lifting, reading, headache, concentration, work, driving, sleeping and recreation. The NDI has sufficient support and usefulness to retain its current status because the most typically used self report measure for neck pain. The dimensions is additionally used for patient who has musculoskeletal pain, whiplash, cervical radiculopathy etc. It's high reliability comparing with the PET, the VAS, the NPNQ, the PSFS and also the DRI. All of them had strong correlation suggesting their content is extremely comparable.

The NPRS is that the simplest and therefore the most ordinarily used numeric scale within which the patient rates the pain from 0 to 10. Its validity has been established with good correlations between NPRS and FPSR score in children. It's a subjective measure within which individuals rate their pain on an eleven point numeric scale. The dimensions consists of 0 to 10. It's been shown that composite classification system including best, worst and current level of pain over the last 24 hrs.

Need of the study There are sample of researches administered for the neck and shoulder pain on many medical professionals but there are less quite evident researches done on dentists. Dentists assume static posture and add awkward positions while they're handling the patients. So there are high chances of occurrence of pain and disorders amongst them. So as to forestall these disorders knowing its prevalence and risk factors is very important.

Hypothesized that (H0) there's no significant prevalence of neck pain and shoulder pain amongst dentists. (H1) there's significant prevalence of neck pain and shoulder pain amongst dentists.

In this study we are include the age bracket is between 25 to 40 years ,work experience is more than1 years ,working days over 5 days per week , each participant has qualified interest in practice and also the participants don't seem to be on any reasonably medication. exclusion criteria are Pain prevailing because of any accident, injury, surgery or cardiovascular condition within the past.

Methodology

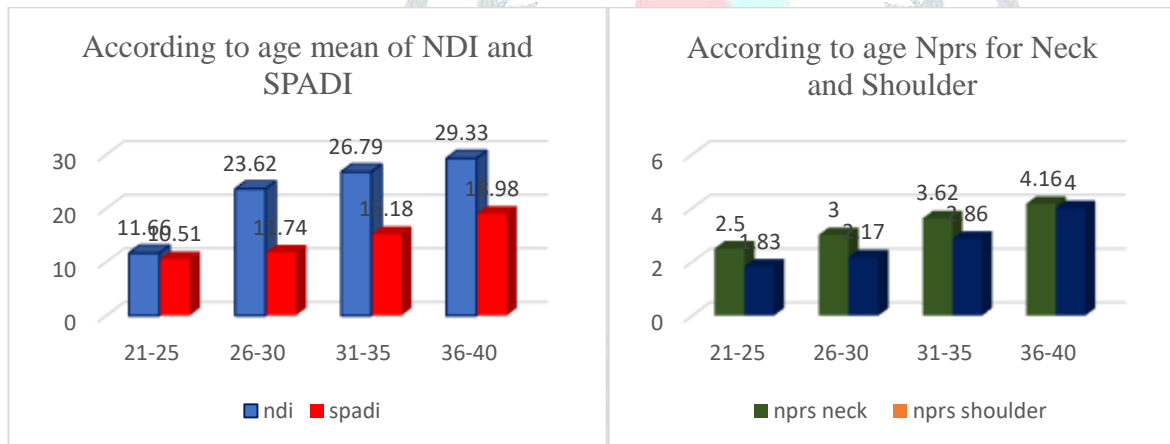
Total 70 populations was taken who were fulfilling the inclusion and exclusion criteria. Participants were explained about the research. Consent form was signed by the participant before they were examined. A questionnaire with personal information such as name, age, gender, address, work address, contact number etc. was completed. The assessment was conducted by the self-reported scale NDI and SPADI and the pain assessment was taken by the NPRS for neck and shoulder

Statistic software

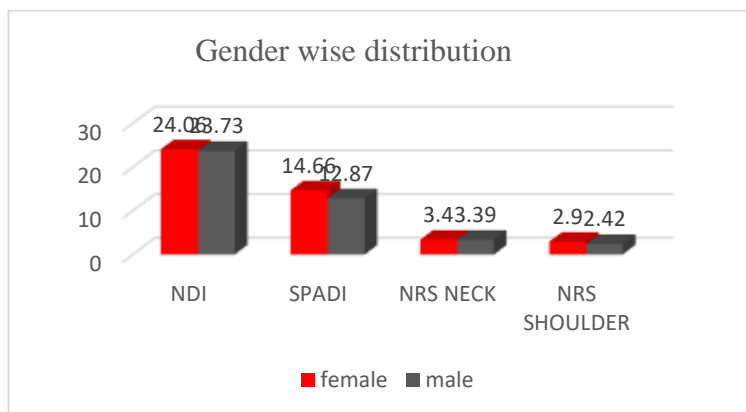
Calculation of mean was done using software named “IBM SPSS Software version 20.”Data analysis generated of tables and graphs was conducted using Microsoft Excel 2010, Microsoft Word 2010.

Result

In this study we were included the 21 to 40 years of age of subjects.6 participants were there in the 21-26 years of age, in 26-30 years of age criteria there were 30 participants , 31-35 years of age there were 29 participants and 6 subjects were in the 36-40 years.



In gender wise distribution there were female NDI score is more as compared to male.



Discussion

The current study was finished the 70 participants. during which 32 female participants and remainder of the 38 were male participants. The people ranges between 25-40 years And their experience is differ from 1-15 years. The age bracket 21-25 years the mean age of onset of pain on neck was 11.66%.and 2.5 per NPRS the cohort 21-25 years the mean age of onset of pain on shoulder was 10.51% and 1.83 consistent with NPRS. From 26-30 years the mean age of onset of pain on neck was 23.62% and three in line with NPRS. 26-30 years the mean age of onset of pain on shoulder was 11.74% and 2.17 consistent with NPRS. muscle to take care of posture .This is referred to as muscle substitution.

From 31-35 years the mean age of onset of pain on neck was 26.79% and 3.62 consistent with NPRS. 31-35 years the mean age of onset of pain on shoulder was 15.18% and 2.86 in line with NPRS. From 36-40 years the mean age of onset of pain was 29.33% and 4.16 in step with NPRS.31- 35 years the mean age of onset of pain on shoulder was 15.18% and 2.86 in line with NPRS.

It is possible that the explanation for this might be directly related poor posture or other physical factors. Abnormal postures may end in muscle fatigue and recruitment of more muscle fibers over time as a compensatory methods potentially resulting in injury to muscle leading to pain. there's gender wise distribution, within the female the mean of NDI was 24.06% and 3.4 in keeping with neck NPRS. within the male the mean of NDI was 23.73% and 3.39 in line with neck NPRS. within the female the mean of SPADI was 14.66% and 2.90 per shoulder NPRS. within the male the mean of SPADI was 12.87% and 2.42 in keeping with shoulder NPRS.

Our study was in line with the previous studied showing MSDs to be gender related. The prevalence of neck pain after joining the Dental profession was found to be high in female profession as compared to male profession. We found that ladies consistently report more Neck Pain than men and this is often in agreement with other reviews coping with Neck Pain. In fact, women appear to report more musculoskeletal pain than men, and it's been suggested that this can be supported different physio-logical mechanism for pain perception between the genders.[17]

The high prevalence of neck pain considered during this study should highlight the necessity for dental professionals and society normally to enhance the working environment of Dentists. Specific occupational health education programmes, including ergonomic workplace adaptation, refined work organisation and psychosocial coping skills should be implemented to forestall the severe risks to health during this occupation. Long working hrs. considered is to be correlate with the duty demand, which implies tight work schedule has been shows to guide to an elevated risk of developing neck and upper limb MSDs. [16] normally, it's known that the prevalence of Neck Shoulder Pain increases with age. Neck pain and Shoulder pain is expounded to psychological stress. in line with Jung et al.75.6% of the adolescents experienced moderate stress, while only 52.9% of the young adults experienced moderate stress during this study. Viikari-Junture et al.found that mental stress was dose-dependently involved in increasing neck pain in a very study that repeated follow-up measurements over three years to seek out factors affecting radiating neck pain. Therefore, it'd be necessary to develop active interventions which will reduce stress-induced muscle tension to forestall and treat Neck and Shoulder Pain. [17] Regular exercise may provide dentists with an opportunity from their strenuous workload, and refresh and strengthen their bodies while also providing mental relaxation from the high psychosocial demands of the task. These effects probably interact to contribute to a far better health status and a decreased risk of musculoskeletal symptoms

Conclusion

The present study concluded that the high prevalence of neck pain in the Dentist of Vadodara City. In this study, shoulder was also commonly affected among the Dentist of Vadodara City. The symptoms MSDs are increased with numbers of years of practice and Age and had a gender prediction towards female. A multidisciplinary approach with primary prevention of, early intervention and continuous education about the potential effect of Dentistry should be employed

Limitations & further recommendation

The sample size is small. The main focus was only investigate neck and shoulder and lower limb were not included The duration of the study was too small. Neither risk factor nor intervention was seen in study The present study was conducted in Vadodara city, thus the result cannot be generalised to whole population. Further study can be done with large sample size. Also the study can be done including lower back and lower limb muscles. Further analysis diagnosis specific can be done and studies regarding the intervention which can be helpful in treating pain in Dentists. Study can be find out the new Dental instruments compatible with ergonomics to reduce the musculoskeletal disorders. Future studies should investigate whether regular exercise may be a vital factor to help dentists prevent the development of MSDs.

Acknowledgement

We wish to state my special thanks and credit to my respectable guide and teacher Dr.Dwija Yagnik, in Parul Institute of Physiotherapy, Vadodara for her valuable help and guidance, constant encouragement and keen interest shown in this study and without whom this work would not have been possible. We express my thanks to Dr.Nilesh Parmar in Parul Institute of Physiotherapy for their help and valuable suggestions in statistics. We owe this to our lovely parents for their constant support, care and motivation through their blessings. We express our thanks to our friends in Parul Institute of Physiotherapy.& thanks to all subjects.

Reference

1. Vishakha Shinde, Shakala Patel, Rajshree Naik, Avinash D'Souza. Neck amongst dentists in Mumbai: an exploratory study, J res adv. dent. 2015; 4:1s:43-46.
2. Dr. Reshmy Sutar, Dr. Abhijit Satralkar, Dr. Mahendra Shende, Effectiveness of strain counter strain on neck pain and disability in dentists: An experimental study, International Journal of Yoga, Physiotherapy and Physical Education, Volume 3; Issue 6; November 2018; Page No. 10-12
3. Anshul Bansal, Parul Bansal, Sandeep Kaur, Akansha Malik. Prevalance of neck disability in north India, journal of evolution of medical and dental sciences. 2013; 12 (11):8782-8787.
4. Singh LP. Prevalence of Musculoskeletal Disorders Risk among Dentist: A Study in Northern India. August. 2018;7(2):00017
5. Agbor AM Hilbert K. Work-related musculoskeletal disorders amongst oral health workers in Cameroon. Journal of Oral Health and Dental Management. 2016; 15(6).
6. Akesson I, Johnsson B, Rylander L, Moritz U, Skerfving S. Musculoskeletal disorders among female dental personnel – clinical examination and a 5-year follow-up study of symptoms. Journal title. Int Arch Occup Environ Health; 72(6): 395-403.
7. Al Wazzan KA, Almas K, Al Shethri SE, Al-Qahtani MQ. Back & neck problems among dentists and dental auxiliaries. J Contemp Dent Pract. 2001; 2(3): 17-30.
8. Fine L, Silverstein B. Work-related disorders of the neck and upper extremity. . In: Levy B, Wegman B., editors. Occupational Health. (Fourth ed). Philadelphia (PA): Lippincott Williams and Wilkins; 2000. 515- 35.
9. Finsen L, Christensen H, Bakke M. Musculoskeletal disorders among dentists and variation in dental work. Appl Ergon. 1998; 29(2):119-25.
10. Smith C, Somme rich C, Mirka G, George M. An investigation of ergonomic interventions in dental hygiene work. Appl Ergon. 2002; 33(2): 175-84.
11. Crawford L, Gutierrez G, Harber P. Work environment and occupational health of dental hygienists: a qualitative assessment. JOccup Environ Med. 2005; 47(6): 623- 32.

12. Oberg T, Karsznia A, Sandsio L, Kadefors R. Work load, fatigue, and pause patterns in clinical dental hygiene. *J Dent Hyg.*1995; 69(5): 223-29
13. Sanders M, Michalak-Turcotte C. Preventing work-related MSDs in dental hygienists. . In: Sanders M., editor. *Ergonomics and the management of musculoskeletal disorders.* (2nd Ed). St. Louis, MO: Butterworth Heinemann; 2004. 448- 69.
14. Barry RM, Woodall WR, Mahan JM. Postural changes in dental hygienists. Four-year longitudinal study. *J Dent Hyg.* 1992; 66(3):147-50.
15. Rahmani N, Amiri M, Mohseni-Bandpei MA, Mohsenifar H, Pourahmadi MR. Work related neck pain in Iranian dentists: an epidemiological study. *J Back Musculoskeletal Rehabilitation* 2013; 26(1):9-15.
16. Feng B, Wang Y, Liang Q, Andersen LL, Szeto G. Prevalence of work-related musculoskeletal symptoms of neck and upper limb among dentists in China. *Physiotherapy.* 2015 May 1;101:e379
17. Yeun YR, Han SJ. Factors associated with neck/shoulder pain in young adults

