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Correlation of neck pain and low back pain with Physical activity among dentists in Latur City

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ABSTRACT

Back pain represents one of the most common diseases across various populations of workers worldwide. Musculoskeletal pain is related with dental practice, with lower back pain being the most commonly reported. This study analyzes the correlation and the severity of back pain, based on selected demographic variables, and relationship with physical activity among dentists. There is a substantial relationship between work-related back pain and sitting posture. No association was found between sex and existence of pain. The study included 100 professionally active dentists, 38 males 62 females, from MIDS dental college and dental clinics in Latur city. Validated psychometric tools, namely; 1) for evaluation of disability due to neck pain and back pain- neck disability index [NDI], Oswestry disability index [ODI] respectively, 2) for physical activity – international physical activity questionnaire [IPAQ] were used. The study findings confirm that the pain in neck and lumbar area represents a serious occupational problem in a large percentage of dentists. Limitation of physical activity leads to more frequent back pain.

Keywords: Dentists, Physical Activity, Back Pain, Neck Pain, NDI, ODI

1. INTRODUCTION

Dentistry has become an essential component of today's self-hygiene. Dentistry is professionals which can come under cosmetic as well as in health. Dentistry is considered to be a physically demanding profession.¹ Dentistry has to work for long hour in different positions like standing and sitting this awkward position considered unhealthy for the lower back and neck.

Working in ergonomically inappropriate positions and which causes physical demand to lead for several complications which is causing musculoskeletal pain and symptom among dental professionals². Additionally, duration of work with the number of patients treated by a dental professional has the potential to increase or decrease the incidence of musculoskeletal symptoms.³⁻⁶. The impact of the appearance of low back and neck pain affects professional and everyday activities in dentistry.

In dentistry to achieving the ideal view of the patient's mouth and to provide a comfortable position to the patient dentist has to suffer from poor physical condition. Huge contribution to the occurrence and of the discomforts at dentists is given by non ergonomically designed working environment as well as instruments used in everyday work⁷⁻¹⁰.

Measuring disability is an important component in the assessment of LBP. Self-report questionnaire of Oswestry Disability Index (ODI) is one of the strongest available tools. It measures permanent functional inability with emphasizing on physical activities and not the psychological consequences of the pain¹.

To provide good dental care dentist has perform a fine motor skills distally for prolonged period the time for which stabilizing the shoulder girdle muscles is required. Neck pain has been shown to be associated with forward head posture is 20 degree or more for 70 percent of working time. This long duration of forward head posture can lead to cervical spondylosis. A radiographic study revealed that more than half of the dentist had spondylosis of the cervical spine.

This questionnaire has been widely used and accepted in evaluating the level of disability in patients with neck pain. It consists of 10 parts, seven of which are concerned with daily activities, two parts with pain, and one with concentration problems. Each part presents a choice of 5 scores (0-5), the total score being expressed in terms of percentage of the whole with the high values (representing) [1] a higher degree of disability¹.

There are several types of pain experienced by dental practitioners, Furthermore; the same literature suggests that more dental practitioners report back pain than neck pain¹. Therefore, conducting a study focused on back and neck pain experienced by dental professionals in Latur district.

Aim

To find out correlation of neck pain and low back pain with physical activity among dentists in Latur city.

Objectives

- To find out the correlation of neck pain with physical activity among dentists.
- To find out the correlation of back pain with physical activity among dentists.

2. METHODOLOGY

STUDY TYPE – Observational study
 STUDY DURATION – 12 months
 STUDY DESIGN – Descriptive correlation study
 STUDY SETTINGS – MIDSR dental college and
 Dental clinics in Latur City
 SAMPLE SIZE- 100
 SAMPELLING METHOD – Purposive
 PLACE OF STUDY – Latur City

3. CRITERIA OF STUDY

Inclusion

- Known subjects with symptoms of neck and back pain.
- Dentists of both genders.
- Dentists having work experience more than two years.
- Age group between 22 to 45 years.
- NPRS scale rating more than 2.

Exclusion

- Dentists other than work related musculoskeletal disorder
- Congenital diseases like spina bifida, Down syndrome
- Collagen vascular diseases like lupus, scleroderma, and rheumatoid arthritis

4. PROCEDURE

Study included 100 dentists both male and female, consent was obtained from study subjects and they were explained regarding the procedure.

Disability of participants was evaluated using NDI [Neck disability index] for cervical spine, ODI [Oswestry disability index] for lumbar spine and habitual physical activity will be assessed using IPAQ [International physical activity questionnaire].

NDI questionnaire was used to determine degree of pain in cervical spine. It included 60 items grouped in 10 sections related to various domains of life (6 items each section). Items marked on scale are scored 0-5 according to level of pain and degree of disability is assessed by summary of all score (maximum score 50) 0 to 5-no disability, 5 to 14-mild, 15 to 24-moderate, 25 to 34-severe, > 35-total disability.

According to similar concept, ODI questionnaire for lumbar spine, they also marked their chosen item grouped in 10 sections (6 items per section) scored on scale 0 to 5, sum of all score is multiplied by 2 which represents degree of disability, <20-minimal disability, 21 to 40 %-moderate, 41 to 60%-moderate to serious, 61 to 80%-serios, 81 to 1005-total disability.

The IPAQ [International physical activity questionnaire] served as a tool to estimate level of physical activity, it found out about kinds of physical activity that people do as part of their daily lives.

5. OUTCOME MEASURE

- ✓ Oswestry disability index
- ✓ Neck disability index
- ✓ International physical disability questionnaire

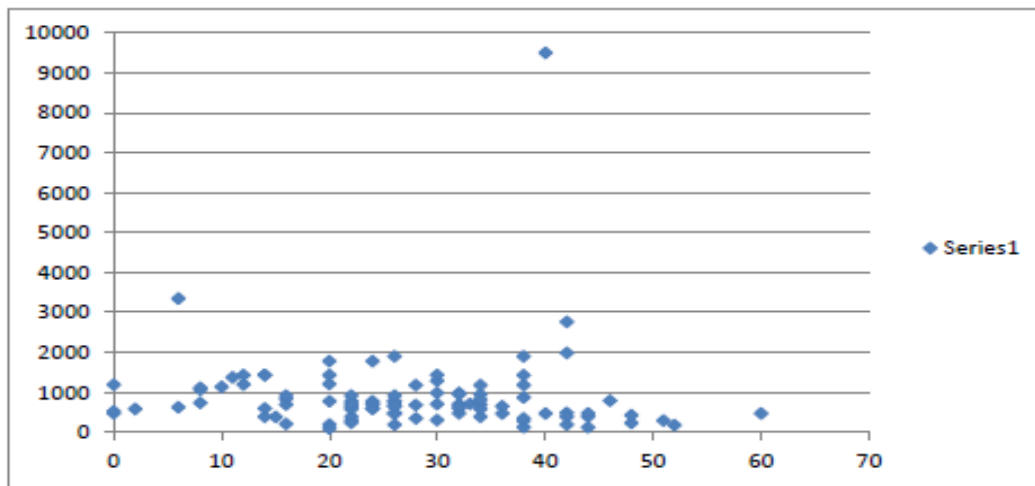
6. STATISTICAL DATA ANALYSIS

Correlation Beteen NDI And IPAQ

Table – I

r Valve	P Valve	Result	Interference
0.128	00001	P<0.0001	Strong correlation

GRAPH - I

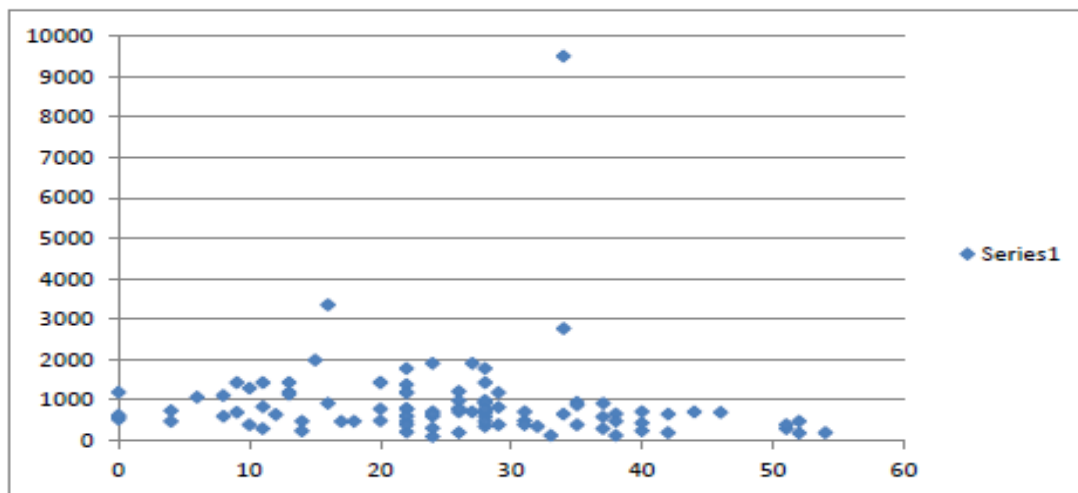


Correlation Between ODI And IPAQ

Table – II

r Valve	P Valve	Result	Interference
0.283	<00001	P<0.0001	Strong correlation

GRAPH – II



7. DISCUSSION

Our study, conducted among dentists, explores the prevalence and severity of neck and low back pain and its relation with physical activity. As dentists are monotonous professional, and this sedentary lifestyle may lead to back pain. In this study, the fact that a considerable number of dental professionals do not exercise because of hectic schedules as well as with the severity of pain.

In our study, it was found out that dentists report a lesser amount of physical activity. In our study we found that the r value 0.128 and $p < 0.0001$ suggest there is strong correlation between NDI and IPAQ score. The work related stress and the psychosocial risk factors cause less physical activity. The results obtained in this study are in agreement to a study conducted by Singh A & Purohit B which stated that dentists were obese and reported lesser physical activity¹¹.

Physical inactivity and overload from family and work can also increases the risks.¹² Work related risk factors include repeated movements, bad posture, vibrations, high temperatures, chemical or noxious factors and radiations causing the main reasons for this decreased physical activity.

Dentistry is demanding professions which include good psychomotor and manual skills, visual quality and ability to maintain a stable posture for longer hours. In our study the r value 0.283 and $p < 0.0001$ suggest there is strong correlation between ODI and IPAQ score. 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).¹³ this overused neck muscle causes frequency of neck pain

and Osteoarthritis of the cervical spine and cervical spondylosis is high among dentists.¹⁴ The intensity and frequency of neck pain, disability and its related factors have been proved by this study. In the past, many studies have been done to find out the different causative factors that ill cause the reason of early retirement in dentistry.

Our data analysis indicates that there were no participants with severe or total disability of cervical and lumbar spine bases on NDI and ODI scales. A study with dentist conducted by Omar A AL-Mphrej¹⁵ in turkey also reported high prevalence of pain in dental student's neck pain 67% and back pain 57% were most common. In our study, 64% of dentists having neck pain and 56% of dentists having low back pain. 33% of women dentists and 41% of male dentists are suffering from neck pain and 38% of women dentists and 44% of male dentists are suffering from low back pain.

In our study the r value 0.152 and $p < 0.0001$ suggest there is strong correlation NDI and working hours and in our study the r value 0.194 and $p < 0.0001$ suggest there is strong correlation between ODI and working hours. 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 instability¹. Another study by Gaowgzeh et al.³ reviewed musculoskeletal disorders among dentists with a specific focus on lower back pain. The study found that 70% of the surveyed dental professionals reported back pain, dominant in the 46.7% of the cases¹. Inappropriate postures are considered to be the primary factor leading to these musculoskeletal problems. A concerning conclusion of this study was that even though the majority of professionals surveyed knew the advantages of the ergonomics and physical activity but still they suffer from work related disorder.

8. CONCLUSION

The study findings confirm that the pain in neck and lumbar area represents a serious occupational problem in a large percentage of dentists. The problems are associated more with less physical activity. It also affect with long working hours stress and improper ergonomics.

9. LIMITATIONS & SUGGESTION

Limitations:

- The study is done in latur city only.
- Sample collect should be classified according to their physical fitness level.

Suggestion:

1. Other musculoskeletal conditions such as shoulder pain, upper back and wrist pain can be included in the study.
2. The study can be conducted in different cities and areas.

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