

# “ERGONOMICS EVALUATION OF WMSD’S (WORK-RELATED MUSCULOSKELETAL DISORDER) AMONG DENTISTS IN WARDHA DISTRICT REGION”

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## ABSTRACT

**Background:**-Ergonomic is branch of human health science which deals with the various forces act on human body .when doing work any work repeatedly this stress cause WMSD’s (work-related musculoskeletal disorder) long time and some MSD’s mostly affect in the area of dentistry due to their sheet arrangement and difficult posture or improper posture sheeting arrangement and rest time during work. The objective of the study is finding the most risk factor and prevalence of MSD's among dentistry.

**Methods:** A study was done among 80 dentists in which of 58 female and 22 male practitioner dentist in Wardha region and Sharad Pawar dental collage Wardha from July 2018 to February 2019. The study was conducted by using standard Nordic questionnaire which is pre-design and also statistical test, 2-way ANOVA, p-test are applied.

**Results:** Out of 80 study subjects majority were 22-30 year age are practitioner dentist. The most disabling MSD’s affecting study subjects were- Neck(60%),Shoulder(38.75%),Elbow(11.25%),Wrists(22.5%),Upper\_back(46.25),Lower\_back(45%),Hips(18.75),Knees(17.5), Ankles(20%).

**Conclusion:** Among the 80 study subject, every study subject is suffered from at least one MSD's. The most MSD's is affecting on study subject were upper back(46.25%), Lower back(45%), neck(60%),Shoulder(38.75%), Elbow(11.25%), Ankle(20%), Wrist(22.5%), Hips(18.75%), Knees(17.5%), this effect causing poor classroom performance, lose concentration on work.

**Keyword:** - Dentist, musculoskeletal disorder (MSD), the perception of pain, stiffness and dental work station.

## INTRODUCTION

we should found out the risk factors which increase the health disorders related to personal (age, weight) and occupation (repetitive action, improper posture, improper seating arrangement). Dentist work at susceptible part of the body, that's why improper posture and seating arrangements leads to health hazard and development of Cumulative Trauma disorder same time dentist required to work in static position for a long time this is uncomfortable to human body, due to maintain the static position that might cause harmful effect on the musculoskeletal system. Most of the forces and stresses are created on the neck, upper back and lower back by working in the limited area and impaired vision when the procedure is done on the same regions in the oral cavity. During the procedure, there is a demand for more concentration for a long time and maintain a static posture. When the dentist checking the patient there is mostly examine the oral cavity by rotating the neck, forward and backward movements, this leads for pain in the neck, back, and shoulder regions. This repeated work movement work, work in noise and artificial light are disadvantages for dentists. This pain which is a creating industry are symptoms of musculoskeletal disorder and reason for early retirement among dentist (29.5). Musculoskeletal disorder comes in a variety of forms.

1. Back problems
2. Upper back
3. Lower back
4. Hand
5. Wrist

MSD's or occupational health hazards due to dental practice among dental professionals are increasing which create a negative impact on the overall quantity of life. Dentist body goes in stress due to the o limited work area, repeating motion for better vision, that's why contraction of muscles increases in head, neck, shoulder and this effect is known as Cumulative Trauma Disorder (CTD) or MSD's. Some study is done on MSD's in dentistry or Cumulative Trauma and prolongs static posture. The study created the prevalence of WRMSD's among nurses, surgeons, and dentists. That's why science design tools, equipment, a work station that fits the job to the worker and the t worker to the job.

### Aim

Prevalence of ergonomics in Dentistry and improve equipment, tools, a work station that fits the job to the dentist and reduce the effect of WMSD's.

### Objectives

Find out the most risk factors which increase the health disorder related to personal (age, weight) and occupation (repetitive action, improper posture, improper seating arrangement).

### Methods and Material

First of all, gather information about ergonomics and relation between ergonomics and dentistry. Then collect the questionnaire and checked, corrected and validated from the experts in this field. Then make MSD's form contain age, height, weight, working periods (in months) and weekly working hours. The survey is conducted on 80 dentists in which 58

females and 22 males in Wardha district region. The survey is conducted on dentists who done their practice more than 6 months MSD's form is divided into 3 sections first section cover the basic information like age, gender, weight, height, working periods.

Weekly working hours Section covers the questions related to working posture, rest time between appointments and number of hours of work per day.

The third section covers the questions related to the MSD's in which everybody part is ton has taken to check the pain in 12 months, 7 months and have you at any time during the last 12 months been prevented from doing your normal work.

List of the dental practitioners with name and contact number was obtained from DIN of SPDC College. Take their appointment on the phone and what's app and give the MSD's form at their clinics. Out of 100 practitioner dentist 80 dentist fill-up the form. The survey is non-biased so only Dentist signature is taken on the form.

## DISCUSSION

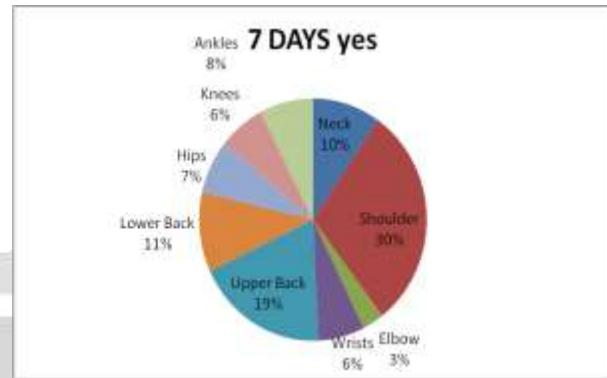
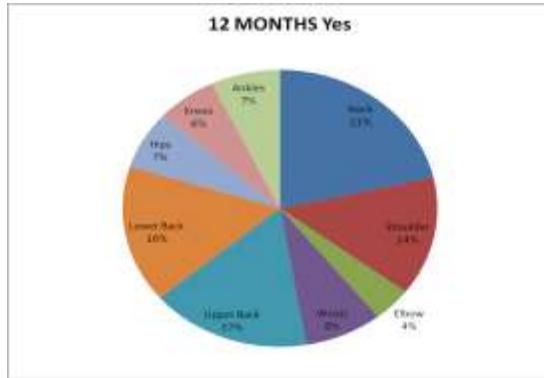
In that survey we found that out of 80 dentists, every dentist is suffered from at least one MSD problem in the neck, lower back, upper back mostly. A number of dentists reported neck and lower back complaints, also they taking treatment for that. In that survey predesigned to questionnaire is used for collecting the information related to Age, Weight, Gender, and Height working in day and week and also questions on musculoskeletal pain. A number of studies are done on MSD's in other countries but none has been conducted in Wardha, Maharashtra, India. This

| Month                | Neck | Shoulder | Elbow | Wrists | Upper Back | Lower Back | Hips  | Knees | Ankles |
|----------------------|------|----------|-------|--------|------------|------------|-------|-------|--------|
| <b>12 MONTHS Yes</b> | 48   | 31       | 9     | 18     | 37         | 36         | 15    | 14    | 16     |
| Percentage           | 60   | 38.75    | 11.25 | 22.5   | 46.25      | 45         | 18.75 | 17.5  | 20     |
| <b>7 DAYS yes</b>    | 19   | 59       | 6     | 13     | 37         | 21         | 14    | 13    | 15     |

study has been conducted for collecting information about work-related complain and also the prevalence of Neck, Shoulder, back, and find out their reasons, cause, symptoms, effects, and remedies. Most of the dentist is suffered from the Neck pain (60%), other MSD's is reduced by using proper posture, rest time between checking of the patient, doing Yoga and regular exercise at gym and Yoga at home. 30 minutes of Yoga and 30 minutes exercise in the gym is reduce the MSD's effect of the body.

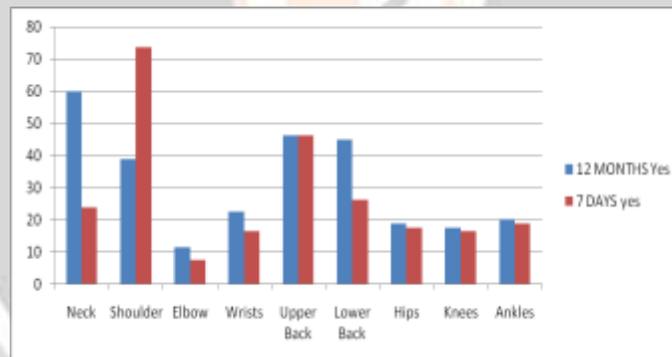
Study have been shown that dentist report more frequent and worse health problems than other high risk medical professionals.

|            |       |       |     |       |       |       |      |       |       |
|------------|-------|-------|-----|-------|-------|-------|------|-------|-------|
| Percentage | 23.75 | 73.75 | 7.5 | 16.25 | 46.25 | 26.25 | 17.5 | 16.25 | 18.75 |
|------------|-------|-------|-----|-------|-------|-------|------|-------|-------|



**RESULTS**

Out of 80 study subjects majority were 22-30 year age are practitioner dentist. The most disabling MSD's affecting study subjects were Neck(60%),Shoulder(38.75%),Elbow(11.25%),Wrists(22.5%),\_Upper\_back(46.25), Lower\_back(45%),Hips(18.75),Knees(17.5),Ankles(20%).



**CONCLUSION**

MSD's problem creates due to their work environment and limited work area (oral cavity) and improper posture rest time between checking patient and improper arrangement. The problem I to increase slowly with respect to the time period of practice. There is necessary to know about the MSD's problem and their effects and remedies among dentist.

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