

# Assessment of neck pain among dental students and general dental practitioners

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## **Abstract**

### **Background:**

Dentistry is a physically demanding profession, due to the number of dental procedures involved. Hence, neck pain and musculoskeletal disorders, a common symptom among dental professionals, can be affected by several factors, such as ergonomically inappropriate positions and extended work hours.

### **Materials and methods:**

This study was conducted among 75 dental students, dental practitioners and dental faculties. The study was conducted in Saveetha Dental College and Hospitals, Saveetha University. Study was conducted using pretested questionnaires. The questionnaire consisted of 15 questions enquiring about the demographic data and further questions about the neck pain.

### **Results:**

The present research work reveals that over 76% of the participants complained of neck pain. The clinical areas where more pain was found were 54% in endodontics followed by 20% in surgical procedures and 15% in orthodontic procedures. Steps taken to relieve the neck pain 55% of the participants replied that they would take medication, 32% of them massage the area while 13% of them said they underwent acupuncture treatment for relieving the neck pain.

### **Conclusion:**

All dentists regardless of their dental specialties, are recommended to apply principles of ergonomics in their daily practice. Moreover, dental ergonomics should be taught to undergraduate students and strictly implemented in the clinics to provide comfortable working environment for all dental professionals.

**Keywords:** Neck pain, ergonomics, Medication, Disability, Clinical practice

### **Introduction:**

Dentistry has become an essential component of today's self-hygiene. With its numerous benefits, dentistry is considered to be a physically demanding profession

(1). The dentists are at high risk of neck and lower backache problems due to the limited work area with a limited scope of movement and narrow visual field associated with the oral cavity

- (2). Dynamic and static activities in dentistry cause musculoskeletal disorders, but dental students do not have sufficient awareness about the effects of ergonomic factors on their health. Improper ergonomic factors like posture, holding tools, stance contribute to muscular and skeletal problems
- (3). Prolonged change in posture, if detained for extended periods of time each day, tends to overstrain muscles and joints, particularly those of the neck, back and shoulder, triggering symptoms such as headache, backache, neck and shoulder pain
- (4). These conditions predispose to musculoskeletal disorders. Studies have shown that dentists report more frequent musculoskeletal pain particularly back and neck pain, has been found to be a major health problem for dental practitioners
- (5,6). Most common faults among dentists are craning and/or excessive bending and twisting of neck, bending forward from the waist, elevation of shoulders, and general bending or twisting of the back and neck
- (7). The application of ergonomics in dentistry would enhance optimum access, discernibility, relief and control in clinical practice, in order to reduce the strain in dental profession, the sit-down and four-handed dentistry perceptions have been implemented. Appropriate ergonomic design is essential to avoid repetitive strain injuries, which can progress to long-term disability over time
- (8,9). Some researchers believe that by transition of the position of dentists from standing to sitting, the frequency of the disorder not only did not change but also increased the symptoms of the neck and shoulders. Several studies reported that transition from the standing position to a sitting during work is not the only factor, but other factors such as environment, work, stress, work periods without interruption, and dentist's vision are very important as the predisposing factors to neck pain
- (10). The main objective of the present study is primarily to assess the neck pain among dental professionals and students so as to decrease the prevalence of musculoskeletal disorders in the future.

#### Materials and methods:

This study was conducted among 75 dental students, dental practitioners and dental faculties. The study was conducted in Saveetha Dental College and Hospitals, Saveetha University. Study was conducted using pretested questionnaires. The questionnaire consisted of 15 questions enquiring about the demographic data and further questions about the neck pain. The demographic data included age, gender, educational level. Further questions regarding the neck pain were more concerned, time of pain, when is the pain at peak, pain during the treatment hours, how do they relieve the pain. Questions regarding the presence of pain focused on when the pain started, whether it had affected their daily life and whether medical attention had been required. The obtained data from the dental practitioners was then analyzed.

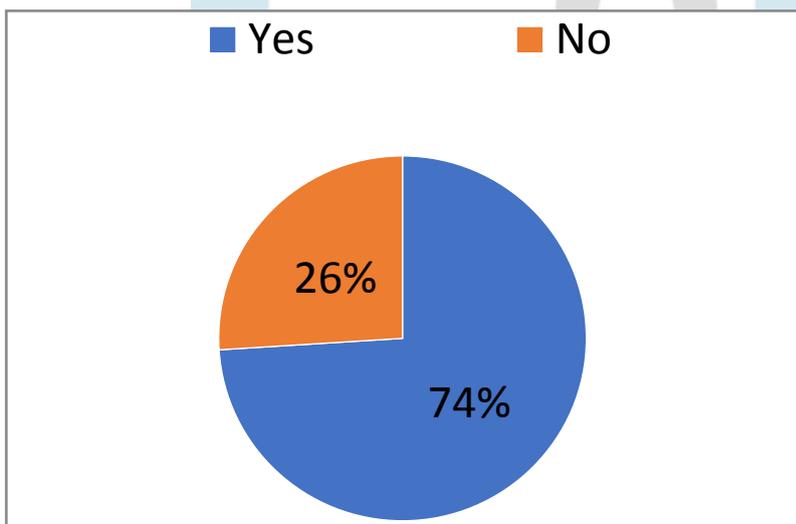
#### QUESTIONNAIRE

1. Have you had neck pain
  - i. Yes
  - ii. No
2. If yes, when do you start experiencing it
  - i. Before clinical practice
  - ii. After clinical practice
3. When is your neck pain at peak
  - i. Before work.
  - ii. After work
  - iii. During work
4. In which position you experience neck pain the most?
  - i. While bending down
  - ii. while erect
  - iii. while lifting up
5. Are you aware the improper ergonomics can cause neck disorders?
  - i. Yes
  - ii. No
6. What do you think could be other related problems due to improper ergonomics
  - i. Muscle spasm
  - ii. Back pain
  - iii. Musculoskeletal disorders
  - iv. All of the above
7. Will your neck pain prolong even after your treatment is done.
  - i. Yes
  - ii. No
8. How will you relieve your neck pain after treatment?
  - i. Massaging
  - ii. Through medication
  - iii. Acupuncture
9. According to you Which treatment causes Neck pain ?
  - a. Restorative dentistry ,
  - b. surgical procedures ,
  - c. Orthodontic procedures
  - d. Complete denture

- 10. Do you think correction of the ergonomics will get rid of neck pain
  - a. Yes
  - b. No
- 11. Do you think physiotherapy will relive your neck pain
  - a. Yes
  - b. No
- 12. Have you visited any physiotherapist to get rid of neck pain
  - i. Yes
  - ii. No
- 13. Complications of neck pain ?
  - a. Spondylosis
  - b. , Whiplash,
  - c. Muscle strain,
  - d. Musculoskeletal disorder
- 14. How can you prevent neck pain?
  - a. Proper ergonomics
  - b. Short treatment time
  - c. patient cooperation
  - d. all of the above
- 15. Have you attended any workshops regarding Neck pain?
  - a. Yes. No

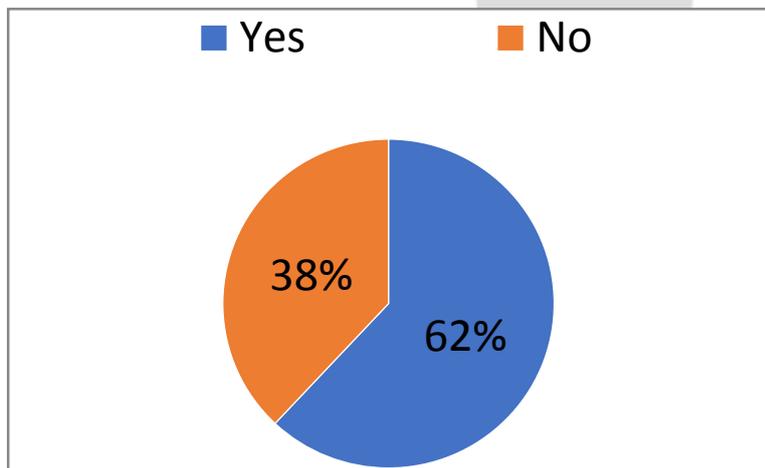
Results:

Figure -1 Presence of neck pain before and after clinical practice



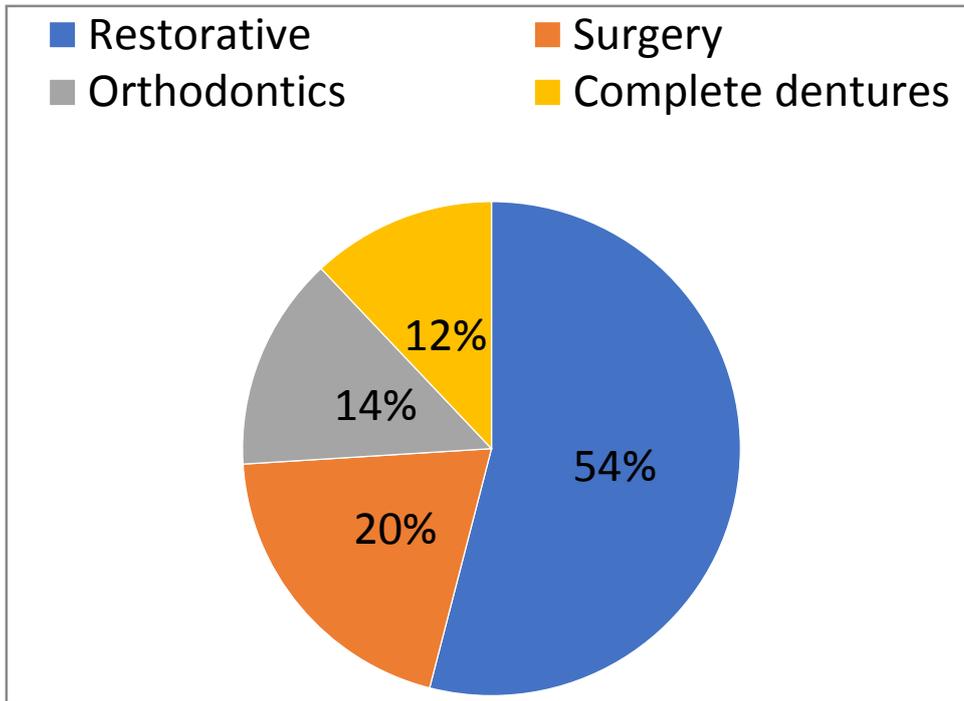
74% of them said that they had neck pain after clinical practice while ,26% said they had neck pain before the clinical practice.

Figure -2 Awareness about Ergonomics



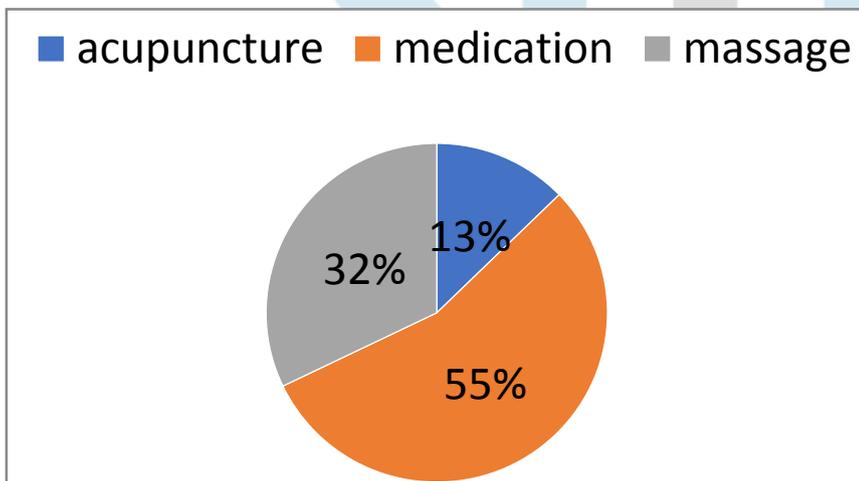
On enquiring about the awareness about ergonomics 62% of them replied they were aware about it while 38% of them replied they were not aware of it.

Figure-3 Procedures causing neck pain



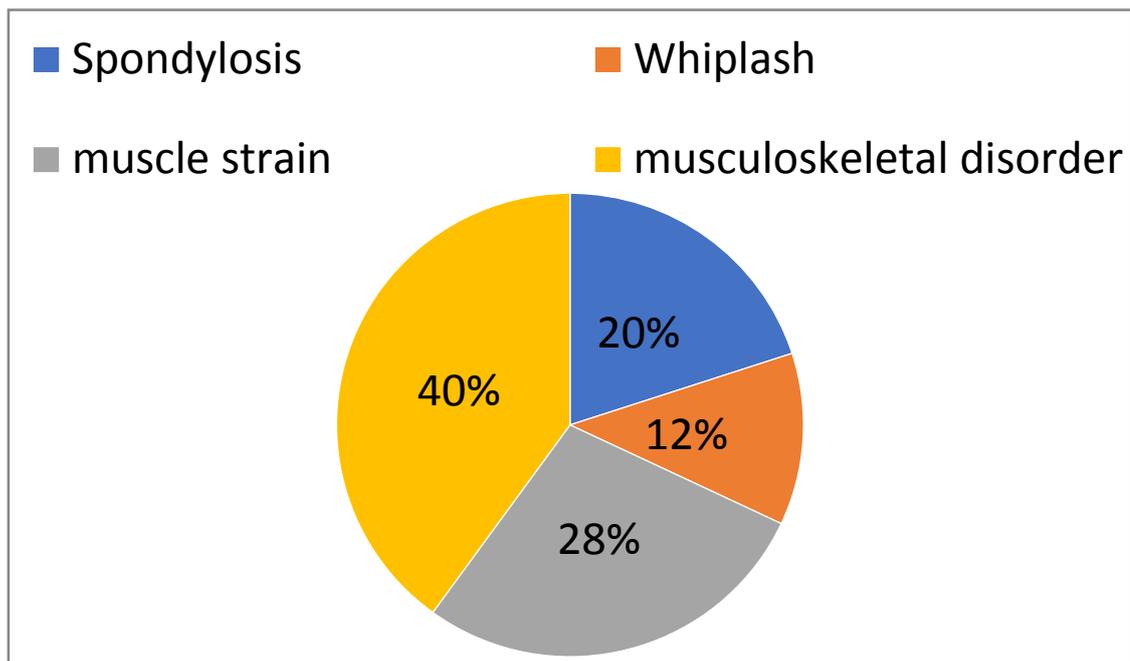
On asking about the procedures that cause neck pain, 54% of participants replied that restorative procedures cause more pain, followed by 20% for surgical procedure, 14% for orthodontic procedures, 12% for complete denture procedures.

Figure -4 Therapy for Neck pain



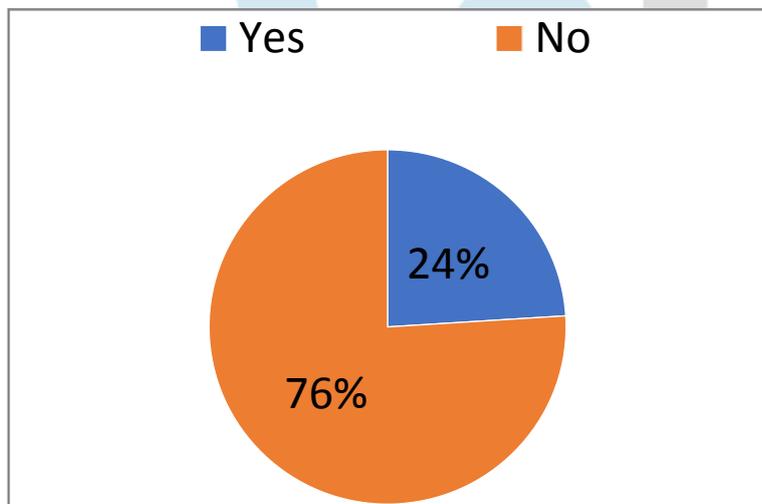
55% of the participants replied that they would take medication to relieve the neck pain, 32% of them massage the area to get rid of the neck pain, while 13% of them said they underwent acupuncture treatment for relieving the neck pain.

Figure – 5 Complications of neck pain



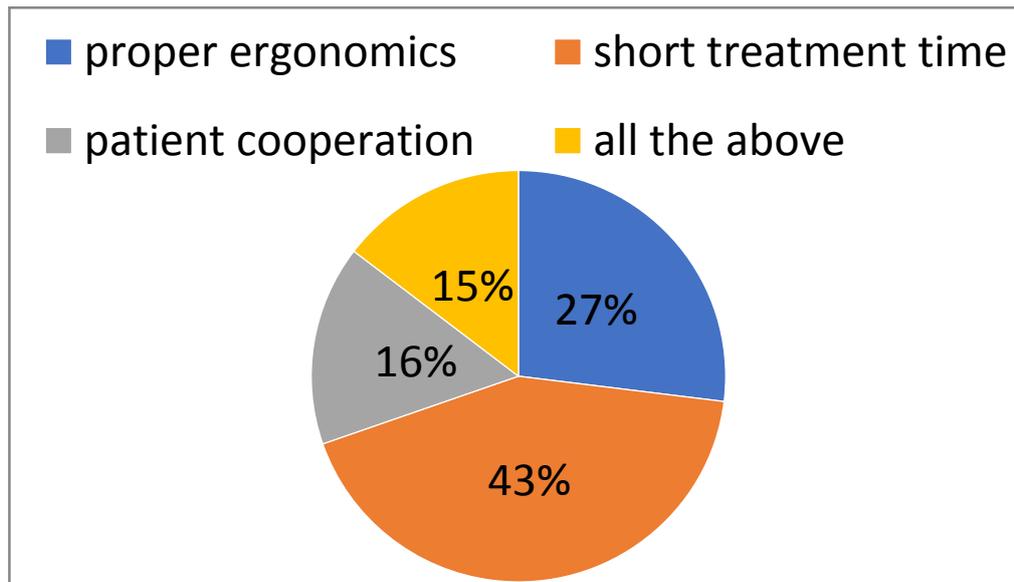
On enquiring about the complications of the neck pain 40% said that it would lead to musculoskeletal disorders, 28% said that it would lead to muscle strain, 20% said it would lead to spondylosis while 12% said it would lead to Whiplash.

Figure -6 Attended Workshop regarding neck pain



76% of the participants replied that they attended workshops regarding the neck pain, while 24% of them replied they didn't attend any workshops regarding neck pain.

Figure-7 Prevention of neck pain



Questions Regarding the preventive measures, 43% of them shorter treatment time would help in preventing neck pain, 27% replied that proper ergonomics would help in prevention, 16% of them said patient cooperation plays an important role while 15% of them said all of the above.

#### Discussion:

The present survey was carried out to investigate about the awareness of ergonomics and prevalence of neck pain among dental professionals and students which would further decrease the prevalence of musculoskeletal disorders in the future. The provided self-reported information by the respondents was of clinical relevance for the assessment of occupational health hazards among dental professionals at various educational levels.

In the dental profession, like other professions, there are a number of harmful factors which will expose health workers in this profession to high risks if they do not conform to occupational health standards. Studies have shown that dentists are exposed to the risk of musculoskeletal problems more than any other professional medical workers. Therefore, recognition of ergonomic factors in the workplace of the dentists plays a very important role. (11).

In this study 76% of them had neck pain during their clinical practice which was consistent with studies carried out by Dargahi H et al., Nasle Seraji, Ahmadi Motemayel et al., Mojabi et al. (12,13,14).

Several studies reported that restorative and endodontic procedures caused more neck pain. The high incidence of musculoskeletal pain in root canal treatment is attributed to the need to see more details and accurately so that dentists deviate from the normal position when working (15,16). The same was reported in our study that almost 54% of participants said that restorative procedures caused more pain followed by 20% for surgical procedure, 14% for orthodontic procedures, 12% for complete denture procedures. To the question relating to whether they used prophylaxis to treat some of the musculoskeletal system disorders (steroids, analgesics and physiotherapy), 55% of the participants replied that they would take medication to relieve the neck pain, 32% of them massage the area, while 13% of them said they underwent acupuncture treatment for relieving the neck pain, which was in accordance in a study by Szymańska et al. (17). The prevalence and distribution of symptoms of MSDs was also observed within the frame of the present study occurring even among dental students similar to previous studies. The present findings suggest that awareness about these problems should be taught to the students from the early preclinical stage of their undergraduate studies, as a preventive measure regarding proper work practices and positions to reduce the risk of musculoskeletal disorders. (24,25). The result of long hours every day was unreasonable from the viewpoint of ergonomics. The experience of numerous disorders of the musculoskeletal system increased with the number of years in dental practice. Shorter working time would reduce the risk of musculoskeletal problems. In our study on enquiring about the prevention measures, 43% of them said shorter treatment time would help in preventing neck pain, 27% replied that proper ergonomics would help in prevention, 16% of them said patient cooperation plays an important role. The main objective of Ergonomics is the prevention of work-related musculoskeletal disorders and the associated symptoms that aggravate these disorders in dentistry, bad working practices, and repetitive tasks such as root planning, scaling and uncomfortable physical postures significantly contribute to musculoskeletal disorders, stress, and loss of productivity. The working capacity and productivity of dental professionals can be improved by practicing correct postures, in turn, they will be able to practice in a pain-free environment for quality dental care to their patients (20,21).

#### Conclusion:

The results of this study showed that the dentists sitting positions and working environments need to be improved and it seems that more training is necessary in this field of ergonomics to prevent musculoskeletal disorders. Further improvements in the dental

chair and working environment along with the practice of four and six handed dentistry would reduce the muscle strain and provide better treatment to patients.

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