

Knowledge, Attitude, and Practice Regarding Cervical Proprioceptive Training and Trapezius Activation Exercises in Dental Interns

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Abstract

Background: Dental interns often maintain sustained and constrained head and neck postures during clinical procedures. These work demands may contribute to musculoskeletal discomfort, making knowledge of cervical proprioceptive training, trapezius activation exercises, and ergonomic strategies relevant.

Objective: To assess knowledge, attitude, and practice regarding cervical proprioceptive training and trapezius activation exercises among dental interns.

Methods: A descriptive cross-sectional, questionnaire-based study was conducted among 150 dental interns. A self-made questionnaire included 10 knowledge items, 6 attitude items, and five practice items. Data were summarized using descriptive statistics, frequencies, percentages, and 95% confidence intervals as reported in the project. It was interpreted by using dichotomous scale for knowledge, five point likert scale for attitude and 4 point frequency scale for practice section

Results: The mean age was 25.87 ± 1.52 years; 61.3% were female, 78.0% reported more than six clinical working hours, and 72.0% reported neck discomfort. Overall, 53.3% had moderate knowledge, 35.3% good knowledge, and 11.3% poor knowledge. Positive attitude was reported for 87.3%, while 12.7% were classified as neutral. Practice was moderate in 54.7%, good in 29.3%, and poor in 16.0%. Awareness of specific cervical proprioceptive training and laser-pointer-based training was comparatively low.

Conclusion: The findings indicate a favourable attitude but mostly moderate knowledge and practice. Educational initiatives may help improve familiarity with cervical proprioceptive training and support more consistent preventive practices. The descriptive design does not establish causal relationships.

Keywords: dental interns, cervical proprioception, trapezius activation, ergonomics, knowledge attitude practice

1. Introduction

Work-related musculoskeletal disorders are an occupational concern in dentistry, where clinicians may work for prolonged periods in static or constrained postures. Such positions can place sustained demands on the cervical region and shoulder girdle, including the trapezius muscle. Previous literature has

described musculoskeletal symptoms among dental professionals and highlighted the importance of ergonomic approaches to reducing occupational strain ^[1-3].

Cervical proprioception refers to sensory information that contributes to awareness of head and neck position and movement. Proprioceptive input supports coordinated movement and postural orientation; disturbances in cervical proprioception have been discussed in relation to neck function and spatial orientation ^[4,5]. Targeted proprioceptive exercises and trapezius activation strategies may form part of rehabilitation and exercise approaches, although their effects were not tested in the present survey.

General awareness of posture and muscular strain may not necessarily mean that dental interns know about specific preventive exercises or consistently practise them. Assessing knowledge, attitude, and practice (KAP) can help identify educational needs related to cervical proprioceptive training, trapezius activation exercises, exercise breaks, and ergonomic behaviour.

2. Aim and Objectives

Aim: To assess knowledge, attitude, and practice regarding cervical proprioceptive training and trapezius activation exercises among dental interns.

Objectives: (1) To assess knowledge regarding cervical proprioception and trapezius exercises. (2) To assess attitude towards cervical proprioceptive training and trapezius activation exercises. (3) To identify reported practice and implementation of these exercises and related preventive behaviours.

3. Materials and Methods

Study design: Descriptive cross-sectional survey. **Study setting:** Dental college/setup in Pune, Maharashtra, India, as described in the project. **Sample:** 150 dental interns. Convenient sampling method is used. The reported sampling duration was six months.

Eligibility criteria: Dental interns aged 23–30 years who were willing to participate and provided informed consent were included. Individuals with a history of cervical spine injury or neurological conditions, or those receiving current treatment for neck pain, were excluded.

Instrument: A self-made KAP questionnaire was used. It contained 10 knowledge items scored on a dichotomous scale, six attitude items rated on a five-point Likert scale, and five practice items rated on a four-point frequency scale. The project reports review/validation by experienced physiotherapists. Participants completed the questionnaire after the study purpose was explained and informed consent was obtained.

Statistical analysis: The project reports analysis using IBM SPSS Statistics for Windows, Version 26.0. Continuous variables were summarized using descriptive statistics and categorical/ordinal variables using frequencies and percentages. Wilson 95% confidence intervals were reported for proportions. No inferential hypothesis tests were conducted because the stated objectives were descriptive.

4. Result

A total of 150 participants were included, with complete data reported for the demographic variables and questionnaire items. The mean age was 25.87 years (SD 1.52; range 24–30). Females represented 61.3% of participants. Most participants (78.0%) reported more than six hours of clinical work, and 72.0% reported neck discomfort.

Characteristic	Category	n (%)
Gender	Male	58 (38.7)
Gender	Female	92 (61.3)
Clinical working hours	<4 hours	2 (1.3)
Clinical working hours	4–6 hours	31 (20.7)
Clinical working hours	>6 hours	117 (78.0)
Neck discomfort	Yes	108 (72.0)
Neck discomfort	No	42 (28.0)

Table 1. Participant characteristics (N = 150).

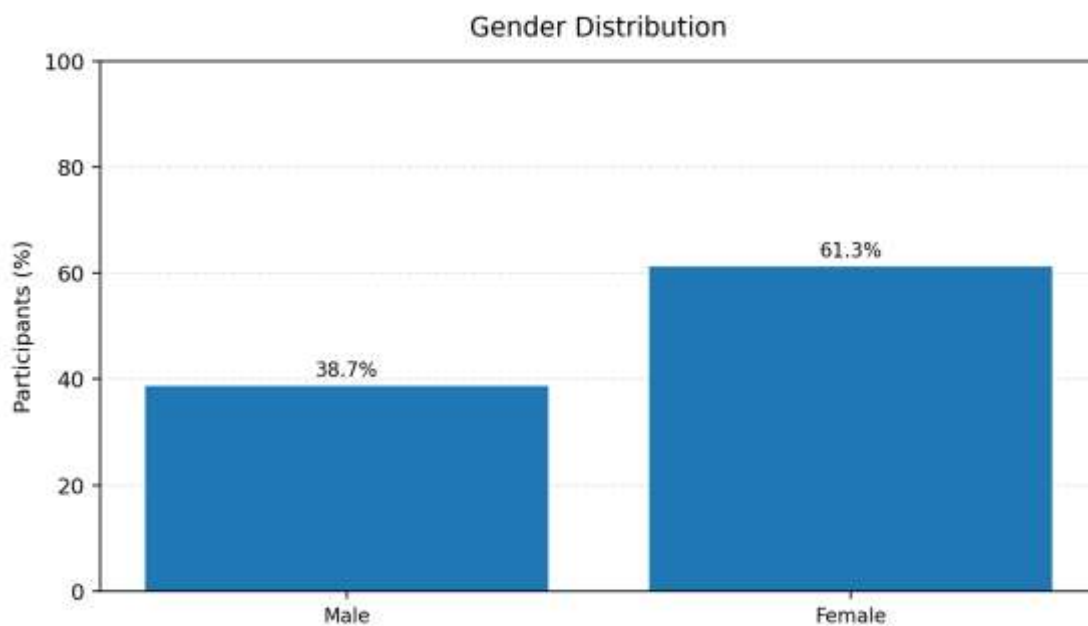


Figure 1. Gender Distribution of Participants

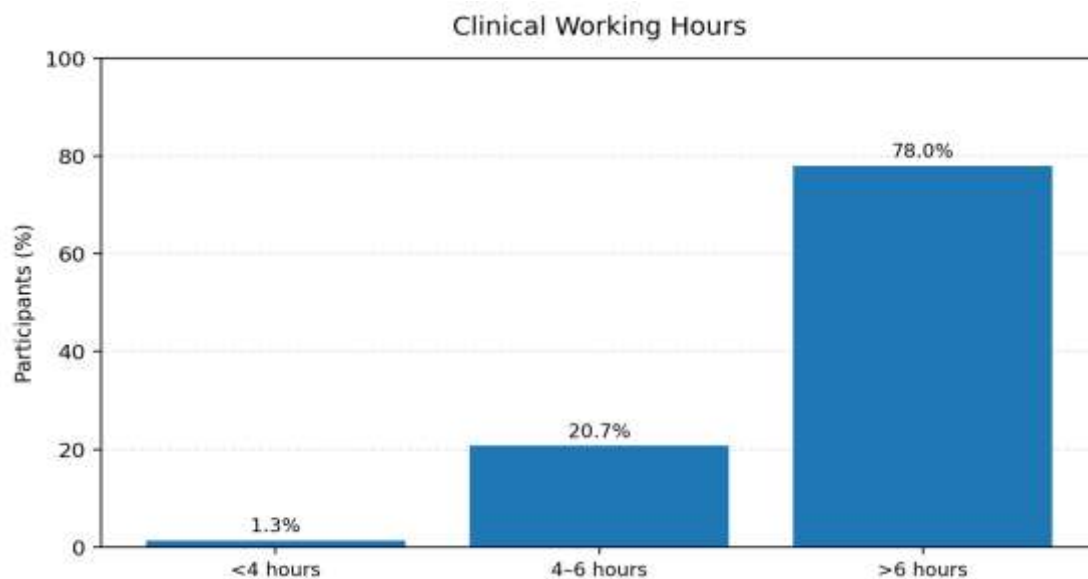


Figure 2. Clinical Working Hours

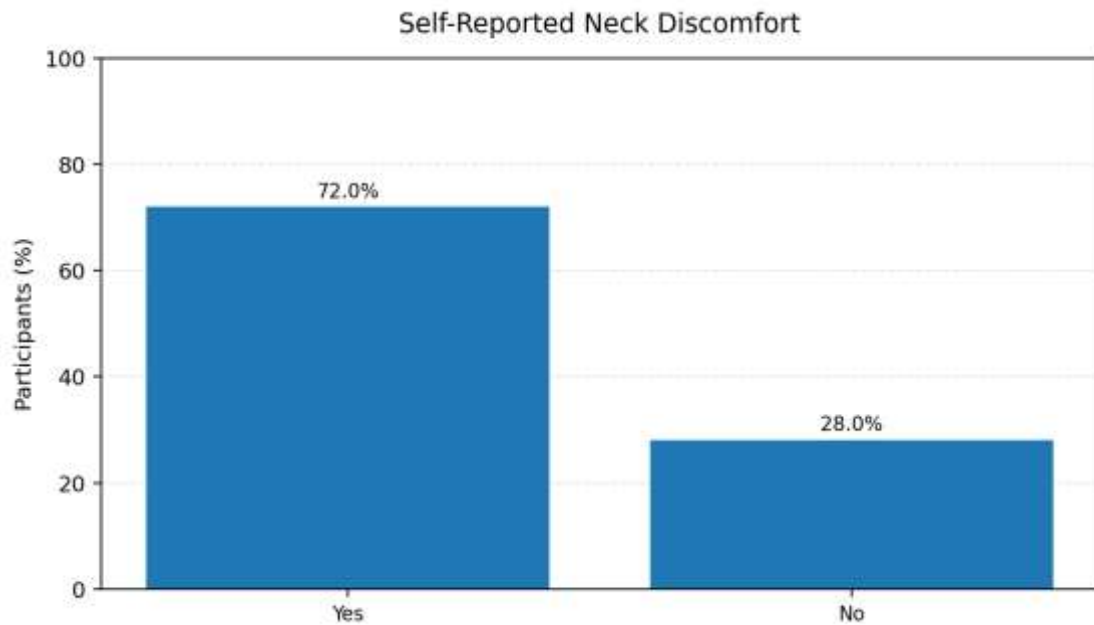


Figure 3. Self-Reported Neck Discomfort

The mean knowledge score was 6.85 ± 1.74 (median 7; range 3–10). Knowledge was classified as moderate in 53.3%, good in 35.3%, and poor in 11.3%. Awareness was high for the effects of prolonged neck posture, the role of the trapezius, possible effects of trapezius fatigue, and the value of exercise breaks. In contrast, 23.3% had heard of cervical proprioceptive training and 22.7% were aware of laser-pointer use in such training.

Knowledge classification	n (%)
Poor	17 (11.3)
Moderate	80 (53.3)
Good	53 (35.3)

Table 2. Overall knowledge classification.

The mean attitude score was 26.37 ± 3.16 (median 27; range 18–30). Overall attitude was positive in 87.3% and neutral in 12.7%; no overall negative attitude classification was reported.

Attitude classification	n (%)
Neutral	19 (12.7)
Positive	131 (87.3)

Table 3. Overall attitude classification.

The mean practice score was 12.78 ± 2.82 (median 13; range 6–20). Practice was classified as moderate in 54.7%, good in 29.3%, and poor in 16.0%. Neck stretching was reported as an inconsistent behaviour: 50.0% reported doing it sometimes and 22.0% never.

Practice classification	n (%)
Poor	24 (16.0)
Moderate	82 (54.7)
Good	44 (29.3)

Table 4. Overall practice classification.

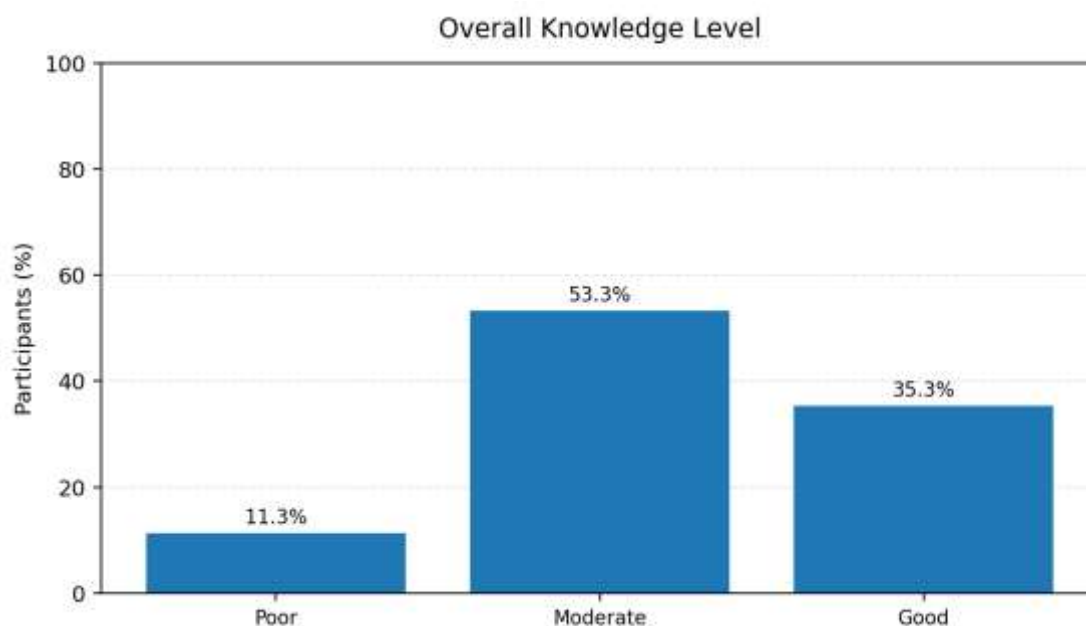


Figure 4. Overall Knowledge Classification

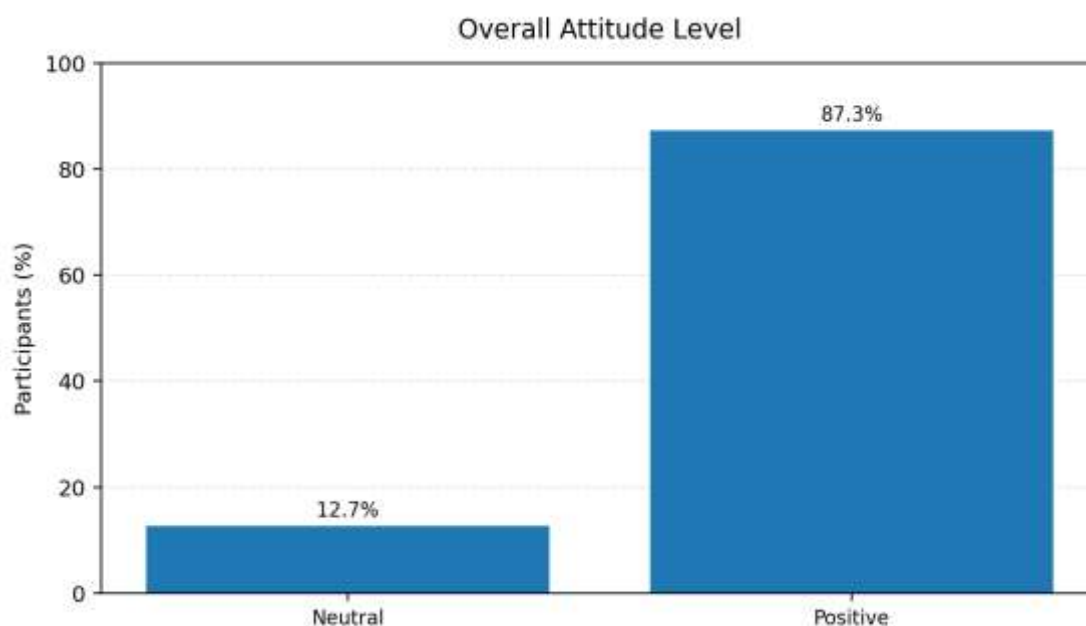


Figure 5. Overall Attitude Classification

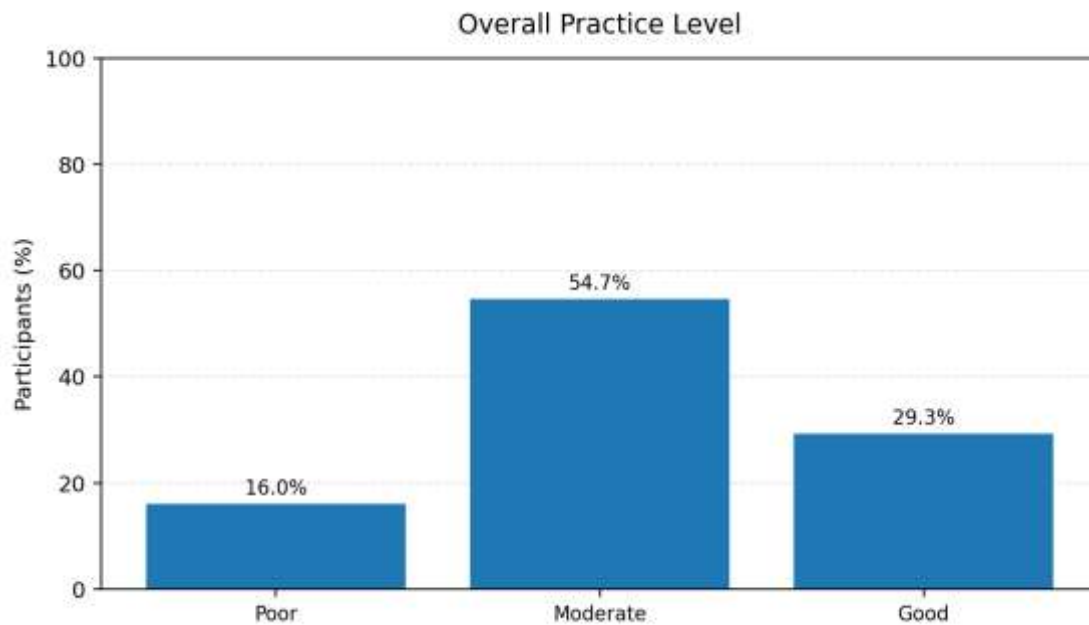


Figure 6. Overall Practice Classification

5. Discussion

This survey assessed KAP regarding cervical proprioceptive training and trapezius activation exercises among 150 dental interns. The most prominent findings were moderate overall knowledge, predominantly positive attitude, and moderate reported practice. In addition, 72.0% reported neck discomfort and 78.0% reported more than six clinical working hours per day. These findings highlight the relevance of occupational ergonomics in this population, but the cross-sectional design cannot show that working hours caused discomfort.

Participants were familiar with general concepts related to prolonged posture, trapezius function, fatigue, and exercise breaks. However, awareness of specific cervical proprioceptive training was limited: only 23.3% had heard of it, and 22.7% were aware of laser-pointer use. This contrast suggests an educational gap between general ergonomic awareness and knowledge of particular physiotherapy-based techniques. Literature on proprioception describes its contribution to movement control and clinical rehabilitation [4,5].

Attitude was largely positive, with 87.3% classified as having a positive attitude towards preventive strategies. Nevertheless, practice was mostly moderate, and only 4.0% reported always performing neck stretching. The pattern suggests that favourable attitudes do not necessarily translate into consistent behaviour. Ergonomic education may therefore be paired with practical demonstrations and feasible prompts for posture changes and breaks during clinical work.

These results should be interpreted cautiously. Neck discomfort was self-reported and was not measured using a standardized pain or disability scale. Cervical joint position error, muscle fatigue, strength, and actual exercise performance were not measured. The survey was descriptive and did not test associations between work hours, discomfort, and KAP scores. Further multicentre studies and intervention studies are needed to evaluate whether structured education changes knowledge or practice and whether such changes influence symptoms.

6. Limitations

The study used a self-made, self-reported questionnaire and may be affected by response or interpretation bias. The reported sample came from one dental college/setup in Pune, which may limit generalizability. Neck discomfort was not assessed using a standardized outcome measure, and reported practice was not directly observed. The study was cross-sectional and descriptive; therefore, causal relationships and associations between variables cannot be established. The sampling method was not specified in the supplied synopsis and should be added if available.

7. Conclusion

Among the 150 dental interns surveyed, knowledge and practice regarding cervical proprioceptive training and trapezius activation exercises were predominantly moderate, while attitude was predominantly positive. Participants showed high recognition of general postural and muscular-strain concerns but lower awareness of specific cervical proprioceptive training methods. These findings support the need for accessible ergonomic education and practical instruction in preventive strategies. The study does not demonstrate the effectiveness of any exercise intervention.

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10. References

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