

Awareness and Attitude toward Temporomandibular Disorders among Final Year Dental Students in Western Maharashtra

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ABSTRACT

Background:

Temporomandibular disorders (TMD) represent a prevalent group of musculoskeletal conditions involving the temporomandibular joint, masticatory muscles, and associated structures, often resulting in pain, restricted jaw movement, and compromised quality of life. As future oral health professionals, dental students must possess adequate knowledge and a positive attitude toward the diagnosis and management of TMD. However, evidence from existing literature suggests considerable variability and gaps in students' understanding of TMD, largely due to limited emphasis on orofacial pain within undergraduate curricula.

Aim:

To assess the level of awareness, knowledge, and attitude toward temporomandibular disorders among final-year dental students in Western Maharashtra.

Materials and Methods:

A cross-sectional descriptive questionnaire-based study will be conducted among 200 final-year BDS students from selected dental colleges in Western Maharashtra. A pre-validated structured questionnaire comprising demographic details, awareness-related items, and attitude-related Likert scale statements will be administered after obtaining informed consent. The questionnaire evaluates knowledge regarding etiology, signs and symptoms, diagnostic criteria, and management options for TMD, along with students' attitudes and confidence in managing TMD cases. Data will be analyzed using SPSS/Excel. Descriptive statistics will summarize awareness and attitude levels, and inferential tests such as Chi-square will assess associations between awareness/attitude and demographic factors. A p-value of <0.05 will be considered statistically significant.

Expected Results:

While general awareness of TMD among students is satisfactory, significant gaps exist in deeper clinical understanding. Enhanced curriculum integration and clinical exposure are recommended 80% identified correct definition, 72% symptoms, 73% management. Knowledge gaps in bruxism (54%) and occlusion (45%). Positive attitude observed.

Conclusion:

The findings are expected to underscore the need for strengthening TMD-related teaching within the undergraduate dental curriculum. Improved training and clinical exposure may enhance the preparedness of future dentists in early diagnosis and effective management of TMD, ultimately improving patient outcomes.

INTRODUCTION

Temporomandibular disorders (TMD) encompass a diverse group of musculoskeletal and neuromuscular conditions that affect the temporomandibular joint (TMJ), masticatory muscles, and associated structures. These conditions represent one of the most common causes of non-dental orofacial pain and functional impairment, with symptoms ranging from joint sounds, muscle tenderness, and jaw deviation to restricted mandibular movement and chronic facial pain. The global prevalence of TMD varies widely, with studies suggesting that approximately 5–12% of the population experiences

clinically significant symptoms at some point in their lives. Despite this high prevalence, TMD often remains underdiagnosed or mismanaged due to its complex, multifactorial etiology. Contributing factors include parafunctional habits such as bruxism, psychological stress, trauma, occlusal abnormalities, and systemic influences, all of which make accurate diagnosis and management challenging.

Dental practitioners play a pivotal role in the early identification, assessment, and management of TMD, as many patients initially present to dental clinics with TMD-related symptoms. The Diagnostic Criteria for Temporomandibular Disorders (DC/TMD) is widely recognized as the standard for evaluation, offering a structured, dual-axis approach to assessing both physical symptoms and psychosocial influences. Knowledge of such diagnostic frameworks, combined with clinical competence and confidence, is essential for providing comprehensive and evidence-based care.

Final-year dental students, being on the threshold of independent clinical practice, are expected to possess sufficient theoretical understanding and practical readiness to diagnose and manage common orofacial complaints, including TMD. However, research from various regions has highlighted inconsistencies and gaps in undergraduate dental education related to TMD. Limited curricular emphasis, restricted clinical exposure, and insufficient hands-on training contribute to inadequate awareness and low confidence levels among dental students. As a result, students may struggle to recognize early symptoms or provide appropriate management, potentially affecting patient outcomes.

In India, with its large and diverse population, the burden of orofacial conditions such as TMD is substantial. Ensuring that graduating dental professionals have adequate knowledge and positive attitudes toward TMD is therefore essential for strengthening clinical care and reducing long-term morbidity. Western Maharashtra, home to several established dental institutions, provides an ideal setting for evaluating educational preparedness among final-year students.

Given these considerations, assessing the current level of awareness and attitude toward TMD among final-year dental students becomes crucial. Such information can help identify knowledge gaps, inform curricular improvements, and guide targeted training programs aimed at enhancing competency in TMD diagnosis and management. Understanding students' perceptions and preparedness can ultimately contribute to improved patient care and elevate the standards of dental education.

The present study aims to assess the awareness, knowledge, and attitude toward temporomandibular disorders among final-year dental students in Western Maharashtra and to explore factors that may influence these parameters.

AIM AND OBJECTIVES

Aim

The primary aim of this study is to comprehensively assess the level of awareness, theoretical knowledge, and attitude towards temporomandibular disorders (TMD) among final-year dental students in Western Maharashtra. The study seeks to evaluate how well-prepared these students are to recognize, diagnose, and manage TMD-related conditions as they transition into independent clinical practice.

Objectives

Primary Objectives

1. To assess the level of awareness regarding temporomandibular disorders (TMD) among final-year dental students. This includes evaluating students' understanding of fundamental concepts such as the etiology, signs and symptoms, clinical features, and risk factors associated with TMD.
2. To evaluate the attitude of final-year dental students toward the diagnosis and management of TMD. This involves determining their perception of the importance of TMD in dental practice, confidence in handling TMD cases, and willingness to update their knowledge or seek further training.

Secondary Objectives

3. To assess students' awareness of diagnostic methods and management options for TMD.

This includes evaluating familiarity with diagnostic criteria such as DC/TMD, imaging modalities, and conservative and advanced management strategies.

4. To determine the association between awareness levels and demographic factors such as age, gender, institution type, and prior exposure to TMD-related lectures, workshops, or clinical postings.
5. To identify gaps in knowledge and attitude that may necessitate improvements in the undergraduate dental curriculum. The findings will help pinpoint specific areas of deficiency and inform recommendations to enhance TMD-related teaching and clinical exposure.
6. To provide evidence-based insights that can support curriculum strengthening and promote better preparedness among future dental professionals for timely diagnosis, management, and patient education regarding TMD.

MATERIALS AND METHODS

Study Design

This study was designed as a cross-sectional, descriptive, questionnaire-based survey aimed at assessing the awareness, knowledge, and attitude towards temporomandibular disorders (TMD) among final-year dental students in Western Maharashtra.

Study Setting

The study will be conducted in selected dental colleges located in Western Maharashtra. Data collection will take place within the academic environment of these institutions. The survey will be administered either digitally (Google Forms) or through printed questionnaires based on each institution's feasibility.

Ethical Approval

Prior to the commencement of the study, approval will be obtained from the Institutional Ethics Committee (IEC) of the participating institution(s). All study procedures will adhere to the ethical principles outlined in the Declaration of Helsinki. Informed consent will be obtained from all participants before they complete the questionnaire.

Study Population

The target population consists of final-year Bachelor of Dental Surgery (BDS) students enrolled in recognized dental colleges in Western Maharashtra.

Inclusion Criteria

Final-year BDS students studying in dental colleges located in Western Maharashtra

Students willing to participate

Students present at the time of data collection

Exclusion Criteria

Students not willing to participate

Students absent during the data collection period

Incomplete or improperly filled questionnaires

Sample Size Calculation

A sample size of 200 students was determined using the formula:

$$n = \frac{z^2 pq}{l^2}$$

Where:

n = sample size

z = 1.96 (standard normal variate at 95% CI)

p = estimated proportion of awareness (50% assumed for maximum variability)

q = 1 – p (50%)

l = permissible margin of error

The final sample size was rounded to 200 to ensure adequate statistical power.

Sampling Technique

A simple random sampling method will be used to select participants from the eligible students in each institution. This reduces selection bias and increases the representativeness of the sample.

Data Collection Tool (Questionnaire)

A pre-validated structured questionnaire developed from literature and expert input will be used. It consists of the following sections:

Section A: Demographic Profile

Includes age, gender, institution name, previous exposure to TMD-related lectures/workshops, and personal history of TMD.

Section B: Awareness Section

Assesses theoretical knowledge of TMD, including:

Etiology:

Clinical features

Symptoms

Risk factors

Diagnostic criteria (e.g., DC/TMD)

Management principles

This section contains multiple-choice, single-answer questions.

Section C: Attitude Section

Evaluates student perceptions and attitudes using a 5-point Likert scale (Strongly Agree to Strongly Disagree) on:

Importance of TMD in the curriculum

Confidence in diagnosing TMD

Need for more clinical exposure

Perception of TMD underdiagnosis

Willingness for continuing education

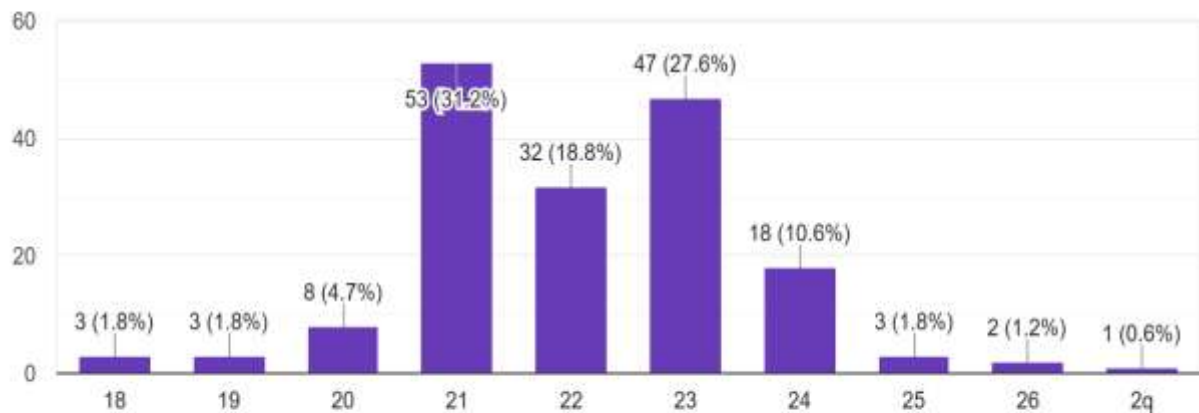
RESULTS

Section A: Demographic Profile

- Age: Majority of participants were aged between **21–23 years**
Mixed gender distribution

Age

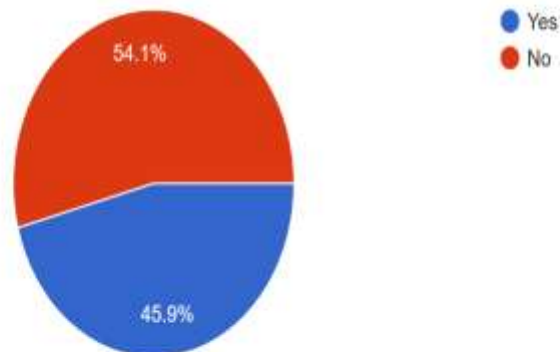
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- Previous exposure to TMD-related lectures/workshops: **46% had attended TMD-related lectures/workshops**, while **54% had no prior exposure**

1. Have you attended any lectures/workshops on TMD?

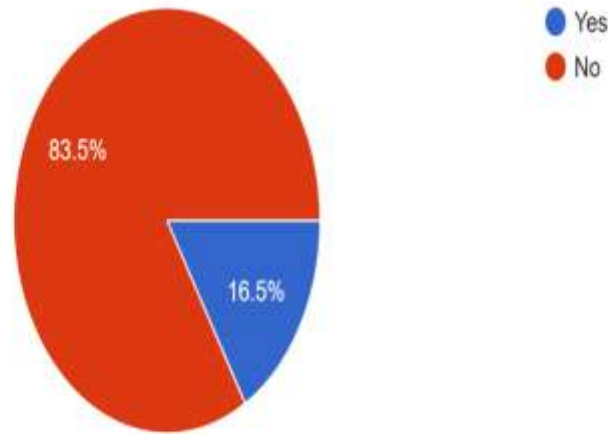
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- Personal history of TMD: Only **16%** reported a personal history of TMD

2. Do you have any personal history of TMD?

170 responses



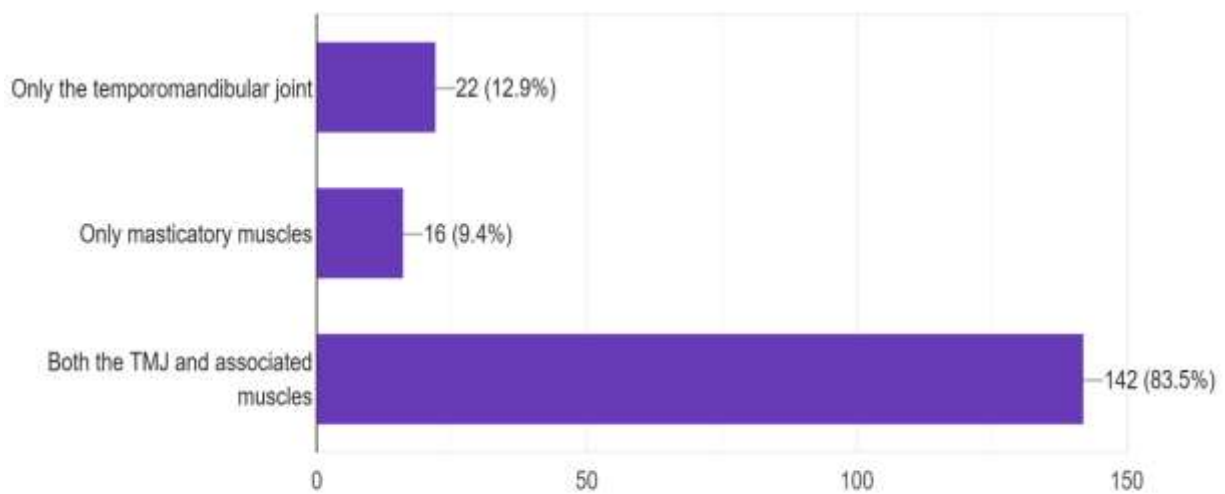
Section B: Awareness Section

Assesses theoretical knowledge of TMD, including:

- Etiology: **80%** correctly identified that TMD affects both TMJ and masticatory muscles

3. TMD affects:

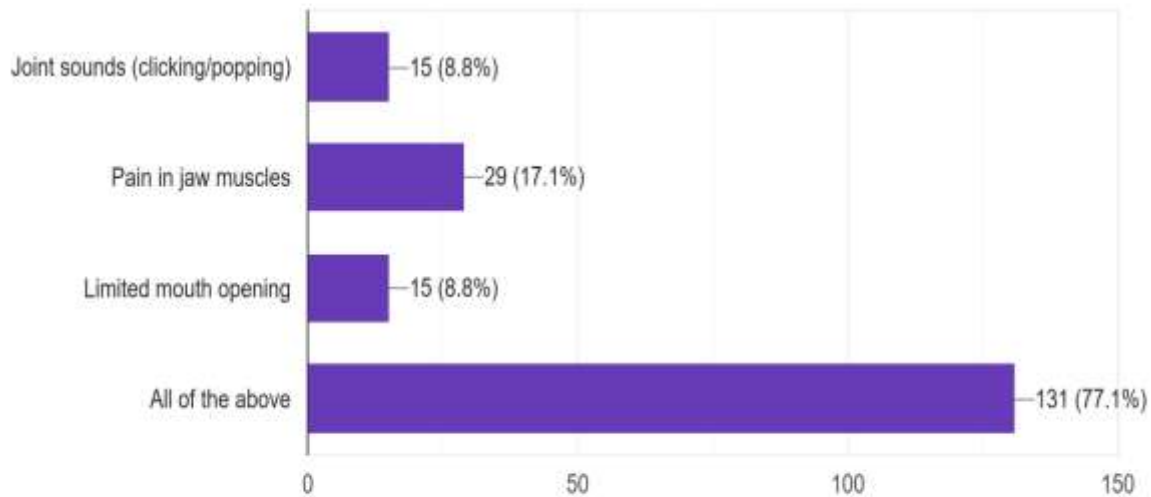
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- Symptoms: **72%** recognized all common symptoms (pain, clicking, restricted opening)

4. Common symptoms of TMD include:

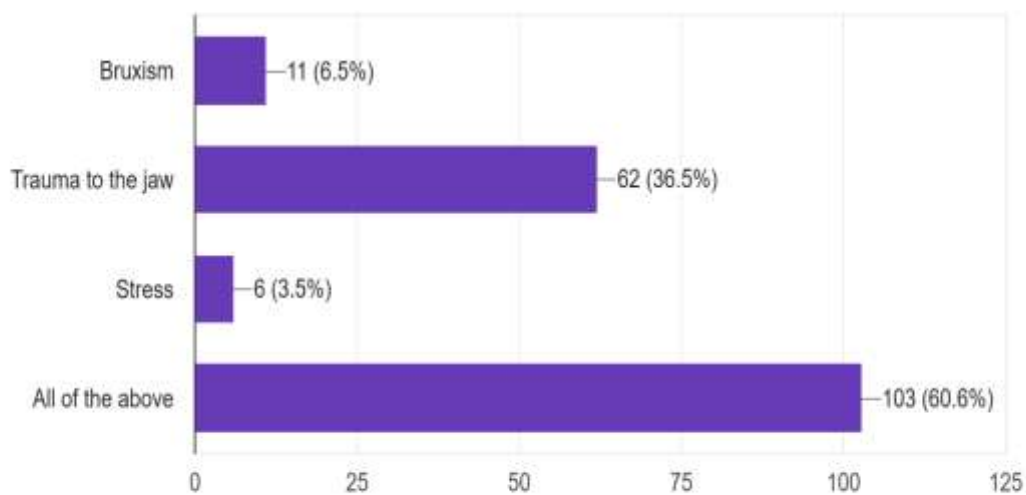
170 responses



- Risk factors: **57%** correctly identified all risk factors

5. Which of the following is a known risk factor for TMD?

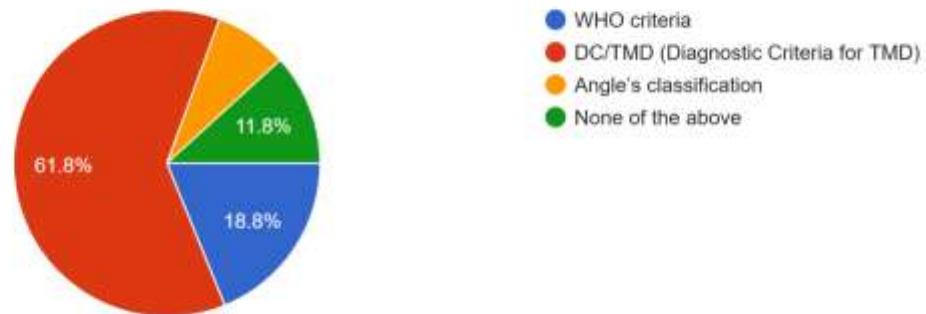
170 responses



- Diagnostic criteria (e.g., DC/TMD): **62%** were aware of DC/TMD diagnostic criteria

6. Which diagnostic criteria are standard for TMD?

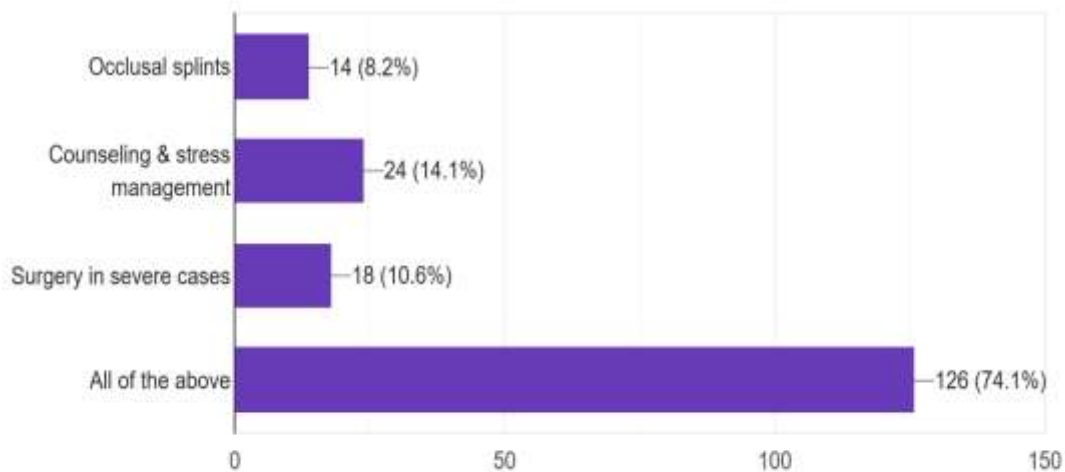
170 responses



- Management principles:
-

9. TMD management involves:

170 responses



Knowledge Gaps Identified:

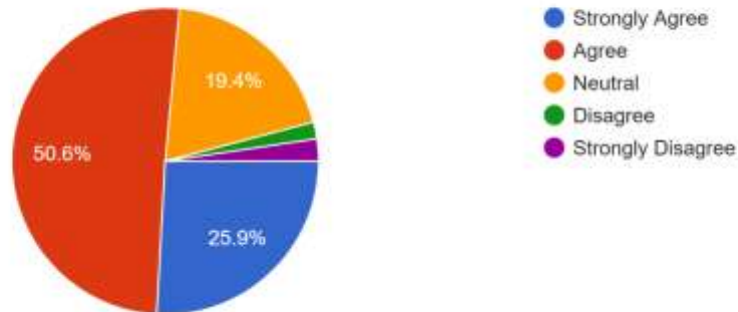
- 54% were unsure about bruxism association
- 45% were unsure about occlusal interferences
- **73%** correctly identified comprehensive management approaches

Section C: Attitude Section

- Evaluates student perceptions and attitudes using a 5-point Likert scale (Strongly Agree to Strongly Disagree) on:
- Importance of TMD in the curriculum: **76%** agreed that TMD should be emphasized in the dental curriculum

10. TMD is an important condition that should be emphasized in dental curriculum.

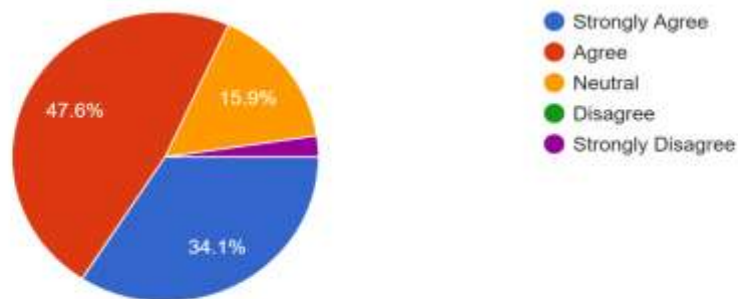
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- Confidence in diagnosing TMD
- Need for more clinical exposure: **82%** expressed need for more clinical exposure

11. I would like more clinical exposure to TMD cases during my training.

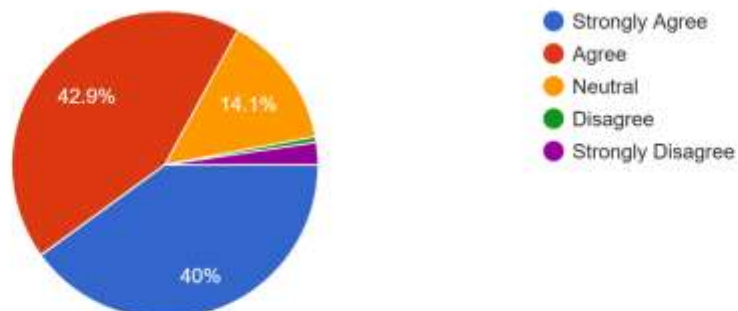
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- Perception of TMD underdiagnosis: **83%** believed TMD is underdiagnosed

13. TMD is often underdiagnosed in clinical practice.

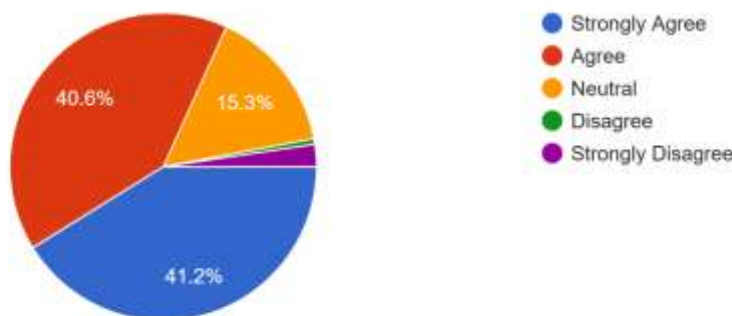
170 responses



- Willingness for continuing education: **82%** showed willingness to update knowledge post-graduation

14.I plan to update my knowledge regarding TMD after graduation.

170 responses



DISCUSSION

The present study evaluated the awareness and attitude toward temporomandibular disorders among final-year dental students in Western Maharashtra.

The findings indicate that students possess **adequate fundamental knowledge**, particularly regarding symptoms and general management of TMD. This reflects satisfactory theoretical exposure during undergraduate training.

However, significant gaps were observed in understanding **etiological factors such as bruxism and occlusal interferences**, suggesting limited depth in clinical knowledge. This may be attributed to insufficient clinical exposure and lack of hands-on training in managing TMD cases.

More than half of the participants had **not attended any workshops or lectures on TMD**, further emphasizing the need for structured academic and clinical training programs.

Encouragingly, the attitude toward TMD was highly positive. Most students recognized its importance in clinical practice and expressed a strong willingness to gain further knowledge and clinical experience. This highlights an opportunity for curriculum enhancement.

These findings are consistent with previous studies that report variability in TMD awareness among dental students due to differences in educational exposure.

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