



## **Assessment of Prevalence and Severity of TMJ Disorders among Dental Staff and Students in an Institutional Setup**

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### **ABSTRACT**

Temporomandibular disorders are the most common orofacial pain condition of non-dental origin. Symptoms such as tinnitus, referred otalgia, headaches, toothache and neck pain can be seen associated with the disorders. Etiology can vary from internal joint discrepancy, occlusal disturbances, parafunctional habits, dysfunction of surrounding musculature, stress and also postural changes. The study aims to assess the prevalence and severity of TMDs among the dental students and staff members. The prevalence of signs and symptoms of TMD was observed higher in females (36.7%) as compared to males (17.7%). The symptom with the highest rating

of severity was reported to be frequent headaches (53.63%), followed by clicking (33.47%), neck pain (29.03%), muscle pain (23.79%), pain in TMJ or earache (14.92%), clenching or grinding teeth (13.71%), tensed person (9.27%), and difficulty articulating the teeth (8.6%) and difficulty in mouth opening or side to side movements (6.85%). This study demonstrated the prevalence rate of TMDs in dental student and staff members using the questionnaire to be about 28% with 2% having severe symptoms that require active intervention.

### **Keywords**

Etiology, occlusal disturbances, parafunctional habits.

## INTRODUCTION

Temporomandibular disorders (TMDs) are associated with complaint of pain over the temporomandibular joint region, fatigue of the associated musculature, limitation of mandibular movement and presence of clicking. TMDs are the most common orofacial pain condition of non-dental origin. Symptoms such as tinnitus, referred otalgia, headaches, toothache and neck pain can be seen associated with the TMJ disorders. Joint clicking or popping, deviation while closing and opening and locking of the jaws are also experienced by the patient.

TMDs can affect 5 to 12% of the population<sup>1</sup> and only less than 5% of patients will seek medical treatment<sup>2</sup>. Etiology can vary from internal joint discrepancy, occlusal disturbances, parafunctional habits, dysfunction of surrounding musculature, stress and also postural changes. In one study has two important risk factors temporomandibular joint established were sleep quality and stress level<sup>3</sup>. Patients with TMD experience pain that increases in stressful conditions, while clenching or eating. Pain experienced by the patients is relieved by relaxing, heat application over the painful area, and using over-the-counter analgesics.

According to a World Health Organization (WHO) report, TMD is the third stomatological disorder, after dental caries and periodontal diseases, to be considered a populational disease<sup>4</sup>. TMDs when diagnosed and treated at an early stage have better prognosis, with increased severity and late intervention the prognosis also deteriorates.

Several diagnostic methods have been developed for TMDs where Fonseca's anamnestic index (FAI) is a relevant questionnaire. The Fonseca's questionnaire is

modeled on the anamnestic index that was initially developed together with other clinical indexes by Helkimo<sup>5,6</sup> in 1974. The wide prevalence and range of complaints in temporomandibular disorders and the presence of some qualities may be frequent even in the non patient community, TMDs are diagnosed by correlating signs and symptoms.

So, we conducted a study to assess the prevalence and severity of TMDs among the dental students and staff members of Institute of Dental Sciences, Bareilly, U.P.

## MATERIAL AND METHODS

The study aims to assess the prevalence and severity of TMDs among the dental students and staff members of Institute of Dental Sciences, Bareilly, U.P (Fig 1). The present study also evaluates the most common symptoms associated with TMDs

A total of 248 participants of dental college including undergraduate, postgraduate students and faculty members were provided with the questionnaire. Prior to answering the questions, the volunteers received instructions about the study and its objective. Among the 248 respondents 169 were female and 79 were male.

### Inclusion Criteria

Undergraduate, Postgraduate dental students and faculty members of Institute of Dental Sciences, Bareilly.

### Exclusion Criteria

People unwilling to participate in the study.

## PROCEDURE

All participants were informed about the study aims, brief information regarding TMDs was given along with instructions regarding the questionnaire was provided.

Then, the questionnaire was given to the patients to fill so as to classify the severity of TMDs in the study population. It is composed of 10 questions, which include checking for the presence of pain in TMJ, head and back, while chewing, parafunctional habits, movement limitations, joint clicking, perception of malocclusion, and sensation of emotional stress.

The volunteers were informed regarding questions should be answered with “yes”, “no”, and “sometimes” and that only one answer should be marked for each question.

The sum of the scores of the individual questions was used and the severity of the disorder was classified into the categories “no TMD,” “mild TMD,” “moderate TMD,” and “severe TMD.” The analyses were performed using SPSS version 22.0 (IBM SPSS Statistics for Windows, Version 22.0; IBM Corp., Armonk, NY, USA). Pie charts, tables, and bar graphs were used to summarize the collected data.

<b>Score</b>	<b>Categories</b>
0 - 15	No TMD
20 - 40	Mild TMD
45 - 65	Moderate TMD
70 - 100	Severe TMD

**Table 1**

**RESULTS**

A total of 248 participants were included in the study of age >18 years. The prevalence of signs and symptoms of TMD was observed higher in females(36.7%) as compared to males (17.7%). The severity of signs and symptoms of TMDs prevalence observed was higher in 30 to 40 age group of years. Among all the participants examined,172 participants had no TMD (69%), 64 participants had mild TMD (26%), 8 patients had moderate TMD (3%), and 4

participants had severe TMD (2%).The symptom with the highest rating of severity was reported to be frequent headaches (53.63%), followed by clicking (33.47%), neck pain (29.03%), muscle pain (23.79%), pain in TMJ or earache (14.92%), clenching or grinding teeth (13.71%), tensed person(9.27%), and difficulty articulating the teeth (8.6%) and difficulty in mouth opening or side to side movements (6.85%).

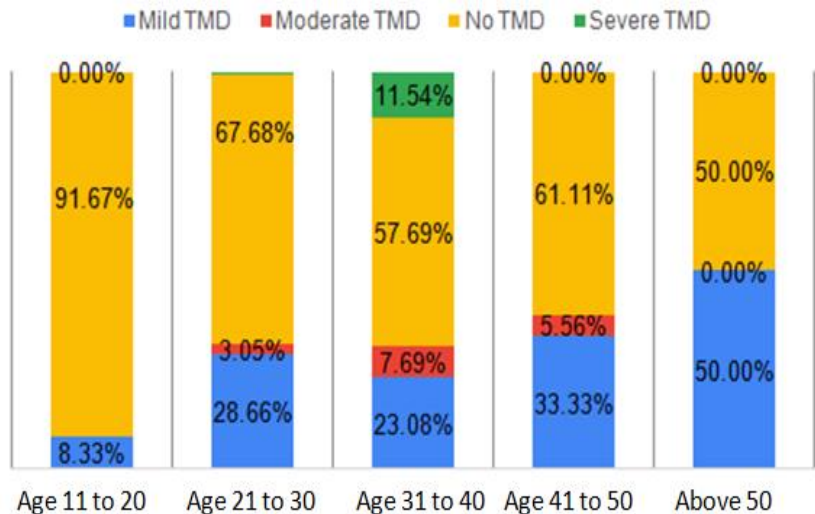


Fig. 1: Age groups illustrating severity of TMDs

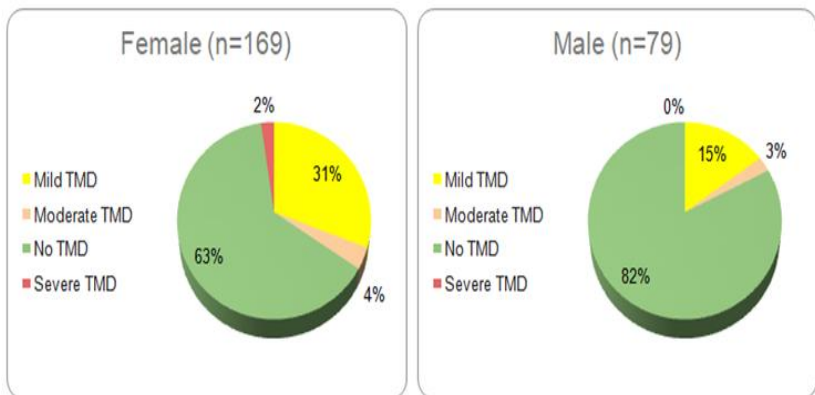


Fig 2: Severity of TMDs in different gender groups

Age Group	With symptoms	Without symptoms
10-20	8.3%	91.67%
20-30	32.3%	67.60%
30-40	43.3%	57.69%
50 and above	50.6%	50%

Table 2: Symptoms of TMDs in different age groups

	Male(79)	Female(169)
With symptoms	17.7%	36.7%
Without symptoms	82.3%	63.3%

Table 3: Symptoms of TMDs in different gender groups

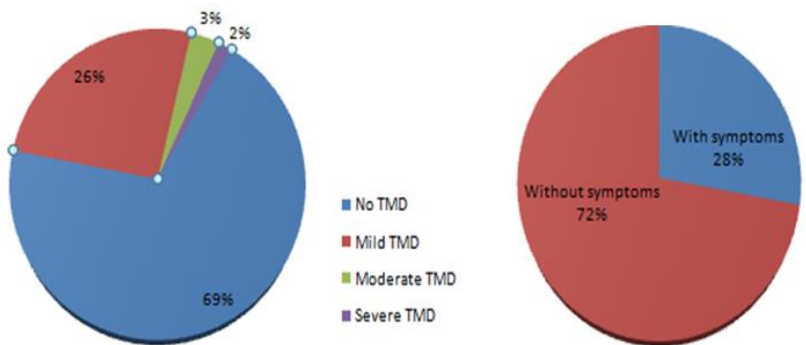


Fig 3: Prevalence of TMDs among total respondents

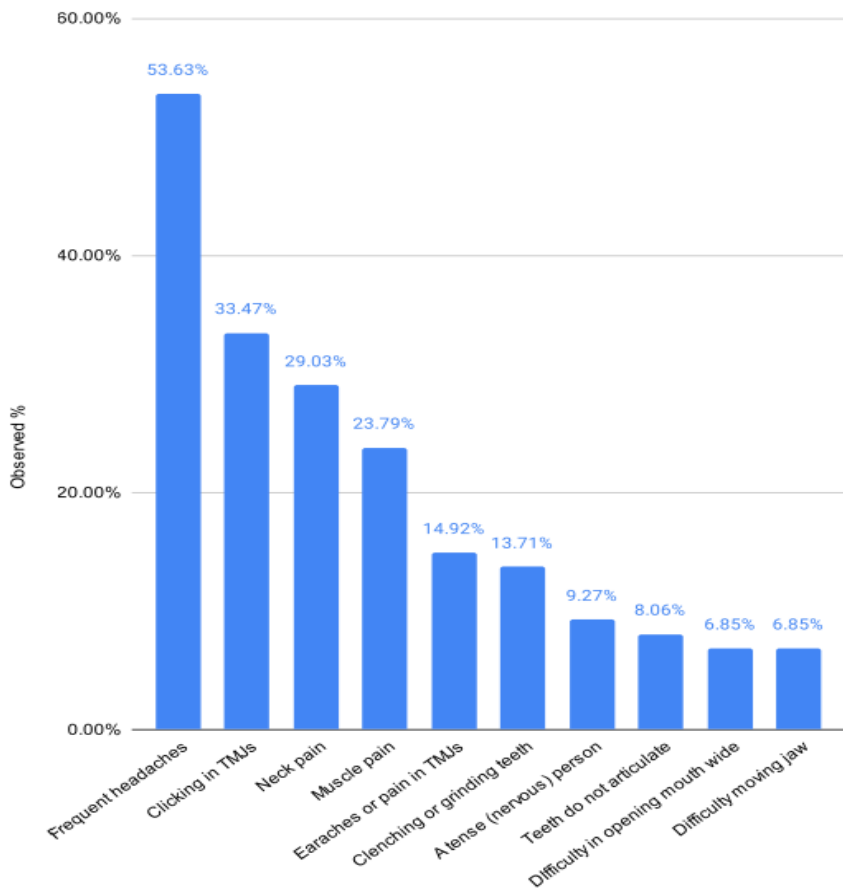


Fig 4: Frequency of different symptoms observed

## DISCUSSION

TMDs are a group of disorders when intervened at an early stage have a better prognosis. The levels of tissue necrosis factor, tissue inflammatory mediators, and pain mediators increase over time thus, affecting the prognosis of the disease. More recent research recognizes that TMD is not caused by a single factor but is a complex disorder with overlapping comorbidities of physical signs and symptoms, as well as changes in behaviors, emotional status, and social interactions as manifestations of general central nervous system dysregulation<sup>7</sup>.

In this study with 248 participants 70 were male and 169 were female which showed prevalence of TMDs in females 36.7% as compared to male 17.7% this was seen in similarity with study conducted by Ozdinc SP et al the female predominance is 75% and 64% of the male students showed some degree of TMD<sup>3</sup>. In adults, the sex ratio is approximately 2:1 (women:men) in population-based studies and 4:1 or more among clinical cases of TMD pain<sup>8</sup>. Since TMD pain is more frequent in females, some have suggested that female sex hormones, such as estrogen, are involved in pain modulation<sup>9</sup>. The prevalence of TMDs among age group observed in the study increased with increasing age with increased severity of symptoms in age group of 3<sup>rd</sup> decade of life. In total of 248 respondents 26% had mild TMD, 3% had moderate TMD and 2%, participants had severe TMD whereas in a study conducted by Nomura et al 35.78% had mild TMD, 11.93% moderate and 5.5% severe TMD<sup>10</sup>.

The identification of TMD severity symptoms in epidemiologic studies can be crucial for identifying TMD patients in study samples or for differentiating

volunteers with TMD who actually require treatment<sup>13</sup>. It enables to identify unrecognized signs that could result in wear or a more serious condition of the stomatognathic system using a condensed questionnaire.

The questionnaire along with a thorough clinical examination can help in diagnosis of TMDs for an early intervention. It was also seen in the present study the 72% of the participants did not have any temporomandibular disorders whereas only 28% participants did not have any symptoms associated with temporomandibular disorders. Adults and adolescents with TMD commonly report neck and back pain they are 2.6–5 times more likely to have low-back pain compared to individuals without TMD pain<sup>11,12</sup>.

The participants 53.63% in this study reported frequent headache, clicking in 33.47%, experience 29.03% participants experience neck pain or stiffness and least common symptom reported was difficulty in moving jaw in 6.85% participants. This was found in contrast to study conducted by Nomura et al. among Brazilian students and found 76.72% considered themselves tensed, 65.52% reported TMJ clicking and 61.21% neck pain<sup>10</sup>. Pain and tenderness upon palpation of the pericranial muscles and TMJ are the most common clinical signs and they do often coexist<sup>14</sup>

The general adult population has a significant treatment demand for TMD, which varies depending on diagnosis, criteria, and age. Studies suggest that the treatment need is approximately 15% of the population whereas available data indicate that only a minority of patients with TMD pain receives treatment<sup>13,14</sup>.

## CONCLUSION

This study demonstrated the prevalence rate of TMDs in dental student and staff members using the questionnaire to be about 28% with 2% having severe symptoms that require active intervention.

The questionnaire was able to categorize participants as having mild, moderate, or severe TMD based on the severity of their symptoms. Future researchers can consider undertaking of longitudinal studies among dental staff and students in order to track changes in the prevalence and severity of TMD over time, which could directly affect the health of health professionals who can seek the right treatment at the earlier stage of disease.

## REFERENCES

1. Fernandez-de-las-Penas C, Svensson P. Myofascial Temporomandibular disorder. *Curr Rheumatol Rev*. 2016;12(1):40–54
2. Aceves-Avila FJ, Chavez-Lopez M, Chavira-Gonzalez JR, Ramos-Remus C. Temporomandibular joint dysfunction in various rheumatic diseases. *Reumatismo*. 2013;65(3):126–30
3. Ozdinc SP, Ata HM, Selcuk HM, Can HBM, Sermenli NM, Turan FNP. Temporomandibular joint disorder determined by Fonseca anamnestic index and associated factors in 18- to 27-year-old university students. *Cranio*. 2020;38(5):327–332. <https://doi.org/10.1080/08869634.2018.1513442>
4. Pihut M, Szuta M, Ferendiuk E, Zeńczak-Więckiewicz D. Differential diagnostics of pain in the course of trigeminal neuralgia and temporomandibular joint dysfunction. *Biomed Res Int*. 2014;2014:563786
5. Helkimo M. Studies on function of the masticatory system. Index for anamnestic and clinical dysfunction and occlusal state. *Swed Dent J* 1974;67(2):101–121
6. The International Classification of Headache Disorders, 3rd edition (beta version). *Cephalalgia* 2013; 33: 629–808
7. Von Korff M, Dworkin SF, Le Resche L, et al. An epidemiologic comparison of pain complaints. *Pain* 1988; 32: 173–183.
8. LeResche L, Mancl L, Sherman JJ, et al. Changes in temporomandibular pain and other symptoms across the menstrual cycle. *Pain* 2003; 106: 253–261
9. Nilsson IM, List T and Drangsholt M. Headache and co-morbid pains associated with TMD pain in adolescents. *J Dent Res* 2013; 92: 802–807
10. Nomura K, Vitti M, Oliveira AS, Chaves TC, Semprini M, Siéssere S, et al. Use of the Fonseca’s questionnaire to assess the prevalence and severity of temporomandibular disorders in Brazilian dental undergraduates. *Braz Dent J* 2007;18:163-7
11. Plesh O, Adams SH and Gansky SA. Temporomandibular joint and muscle disorder-type pain and comorbid pains in a national US sample. *J Orofac Pain* 2011; 25: 190–198.
12. Nilsson IM, List T and Drangsholt M. Prevalence of temporomandibular pain and subsequent dental treatment in Swedish adolescents. *J Orofac Pain* 2005; 19: 144–150
13. Schiffman EL, Truelove EL, Ohrbach R, et al. The research diagnostic criteria for temporomandibular disorders. I: Overview and

methodology for assessment of validity. *J Orofac*

*Pain* 2010; 24: 7–24

14. Al-Jundi MA, John MT, Setz JM, et al. Meta-analysis of treatment need for temporomandibular disorders in adult nonpatients. *J Orofacial Pain* 2008; 22: 97–107