



PREVALENCE OF TEMPOROMANDIBULAR DISORDERS AMONG UNDERGRADUATE DENTAL STUDENTS IN A DENTAL HOSPITAL AT PONDICHERRY - A CROSS SECTIONAL STUDY

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ABSTRACT

Aim: The aim of the study was to estimate the prevalence of symptomatic and asymptomatic cases of Temporomandibular Disorders (TMD) among undergraduate dental Students in a dental college at Pondicherry.

Materials & Method: Undergraduate Students of Indira Gandhi Institute of Dental Sciences, Pondicherry from first year to interns were included as subjects for complete TMJ examination. The symptoms were assessed using TMJ symptom intensity scale.

Results: The study comprised of 83 male and 306 female subjects (n = 389). Of these, 21.68% of male and 47.71% of female had symptomatic TMD. The common symptoms observed were headache (25.7%), followed by clicking joint sound (13.1%) and jaw pain (8.9%). TMD symptoms were found to be higher among the first year students whereas Interns had the lowest prevalence of TMD.

Conclusion: The higher prevalence of TMD among the first year students can be attributed to the difficulty experienced by them to cope up with the stress of the professional course initially and being parted from the family. This article stresses the need for early diagnosis and prompt intervention for TMD among dental students.

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INTRODUCTION

The term temporomandibular disorders (TMD) refers to disorders of masticatory muscles and/or temporomandibular joints (TMJ) and associated structures. Temporomandibular joint (TMJ) syndrome was originally described by Costen in 1934. Symptomatic TMD is characterized by pain which is usually experienced in the masticatory muscles, pre-auricular area, and/or TMJ. It may also present with clicking, popping, grating, or crepitus joint sounds. Despite the fact TMD occur in about 60-70% of the general population, only one in four

people are actually aware of symptoms and resort to treatment. Occasionally, severe TMD are also accompanied by headache and facial pain which need immediate treatment.⁽¹⁾

In 1983, Laskin *et al* defined TMD as a group of orofacial disorders characterized by pain in the preauricular area, TMJ, or muscles of mastication, limitations and deviations in mandibular range of motion, TMJ sounds during jaw function.⁽²⁾ Multiple etiologies of TMD include occlusal trauma, malocclusion, habits and posture, hard foods, dental treatment, bruxism, stress and psychosocial factors.⁽³⁾ TMD occur in about 60-70% of the general population with a female

to male ratio of 4:1. The international prevalence of TMD ranges between 5% - 12%; whereas Indian prevalence is 2 to 3 times more, ranging from 26% - 50%. Students are stressed with multiple factors including academic pressure, an uncertain future, social, emotional, physical, financial and family problems which affect their learning ability and academic performance.⁽⁴⁾

Worldwide, there is a growing correlation between the stress and pain severity of TMD among college and university students.⁽⁵⁾ Hence the present study was done to assess the prevalence of TMD among dental students.

MATERIALS AND METHOD

The cross sectional study was conducted between July to September 2013 at Indira Gandhi Institute of Dental Sciences, Puducherry after obtaining clearance from Institutional Review Board and Institutional Ethical Committee. The undergraduate students from first year to internship were included in the study. Students who underwent and undergoing medical, prosthodontic and orthodontic treatment during the study were excluded. After obtaining informed consent, the students were screened for both symptomatic and asymptomatic temporomandibular disorders.

A self designed questionnaire containing nine closed ended questions including TMD symptoms was distributed to the students (Table 1).

Table 1 TMJ Symptom Questionnaire

S.No	Symptoms	Yes	No
1.	Do you have frequent or regular headaches?		
2.	Are your jaw muscles sore or tender?		
3.	Are your joints sore or tender when you eat or chew?		
4.	Do your joints make any noise such as snapping, clicking, or popping?		
5.	Do your joints lock when you are trying to open or close?		
6.	Do you have any teeth that are sensitive, aching, or uncomfortable?		
7.	Have you ever worn a splint or nightguard?		
8.	Are you taking or have you taken any medication for these symptoms? If yes: What medication		
9.	Have you ever seen a dentist or a TMJ specialist for treatment of any of the above symptoms?		

TMJ symptom intensity scale (Table 2) ⁽⁶⁾ was also given to them to measure the nature of pain, jaw locking, clicking, muscular symptoms, head ache which was followed by examination of TMJ by a dentist and the findings were recorded (Table 3).⁽⁷⁾

Table 2 TMJ Symptom Intensity Scale (SFS) [6]

1.Jaw pain	YES	NO	Never	0	1	2	3	4	5	6	7	8	9	10	Most intense pain
2.Painful jaw clicking	YES	NO	Never	0	1	2	3	4	5	6	7	8	9	10	Most intense pain
3.Jaw locking	YES	NO	Never	0	1	2	3	4	5	6	7	8	9	10	Can barely open mouth
4.Headaches	YES	NO	Never	0	1	2	3	4	5	6	7	8	9	10	Most intense pain
5.Upper shoulder /muscle /neck pain	YES	NO	Never	0	1	2	3	4	5	6	7	8	9	10	Most intense pain
6.Dizziness	YES	NO	Never	0	1	2	3	4	5	6	7	8	9	10	Most intense dizziness
7.Ringing in the ears	YES	NO	Never	0	1	2	3	4	5	6	7	8	9	10	Most intense ringing

The data was subjected to statistical analysis using SPSS software version 19. Percentage of symptomatic and asymptomatic TMD was calculated. Chi-square test was used to determine the associations between the TMD symptoms (Head ache, clicking, jaw pain, TMJ locking and midline

shifting) and independent factors; p value of < 0.001 was considered as statistically significant.

Table 3 Examination of Temporomandibular Disorder [7]

SI NO	Examination of Temporomandibular Disorder	YES	NO
1.	Facial asymmetry		
2.	Swelling over the temporomandibular region		
3.	Masseter & Temporal muscle hypertrophy		
4.	Mouth Opening	Restricted	Non restricted
		With Pain	Without pain
5.	Deviation of mandible	Left	Right
6.		Midline shift	
7.	Clicking sound	Audible	Auscultation
8.	Pain in joints or muscles with tooth clenching		
9.	Tenderness of Masticatory muscles		
10.	Tenderness of Temporomandibular joints		
11.	Tenderness of Neck muscle and accessory muscle of the jaw		
12.	Tenderness of lymphnodes		
13.	Intra auricular tenderness		

RESULTS

The percentage distribution of TMD symptoms and sex distribution are shown in (Table 4). The present study comprised of 83 male and 306 female (n= 389). Among the study group, 21.68% male and 47.71% female were symptomatic.

Table 4 According To Sex Distribution (n-389)

Gender	Total	symptomatic
Female	306	146(47.71%)
Male	83	18 (21.68%)

The most frequently reported TMD symptom intensity in this study was headache (25.7 %), clicking sound (13.1%), jaw pain (8.9%), jaw locking (2.5%) and painful jaw clicking (3.8%) [Figure1].

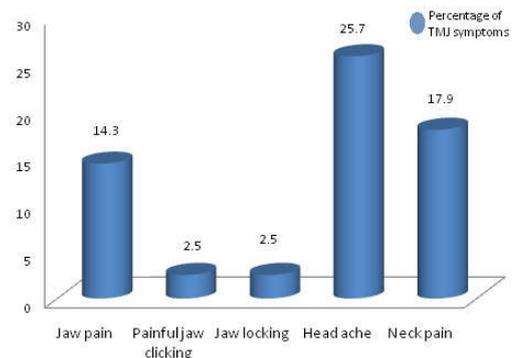
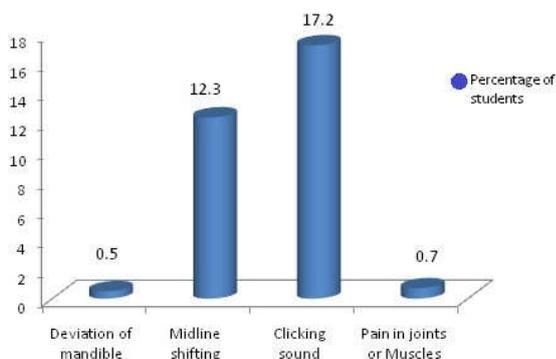


Figure 1 TMJ symptom intensity scale

The most frequent sign observed on TMJ examination was clicking sound in 17.2%, followed by midline shifting in 12.3% [Figure 2]. Highest symptom (68%) were found among the first year students whereas interns had the lowest prevalence (17.7%) of TMD (Table 5). The most frequently reported TMD symptom in this study were head ache (17.9%) followed by clicking sound (11.5%) Joint locking, Pain on chewing (2.5%) (Table 6). All the TMD symptoms were more prevalent in female students than male students and showed statistical significance. p <0.001

Table 5 According to the Distribution of Year of Study (n=389)

Year	Total no of students	No of symptomatic students	Percentage (%)
First	100	68	68
Second	80	25	31.25
Third	92	29	31.5
Fourth	72	38	52.7
Interns	45	4	8.8

**Figure 2** Examination of Temporomandibular disorder**Table 6** According To TMJ Symptom Questionnaire

Symptoms	No of students	Percentage
Clicking sounds	45	11.5
Head ache	70	17.9
Pain in and around ear	5	1.2
Joint locking	10	2.5
Pain on chewing	10	2.5

DISCUSSION

In the present study, out of 83 males and 306 females (n=389), we observed that 47.71% females had a higher degree of TMD signs and symptoms than that of males (21.68%). These values are consistent with the study done by Bonjardim *et al* with a sample of 196 patients, in which women (57.43%) had a higher prevalence of TMD signs and symptoms when compared to men (42.11%).⁸ In a study done by Garcia *et al* (1997) using a sample of 122 students, 61% had some degree of TMD signs and symptoms, out of which 68.85% were women. Similar results were found with Conti *et al* (68%) as both the authors used the same questionnaire to evaluate the TMD.⁽⁴⁾

Weinberg and Sandstron *et al* (1988) believed that males can easily handle stress factors than females. The presence of estrogen receptors in the TMJ and the possible role of exogenous hormones have also been suggested to be important for gender difference.⁽⁴⁾ Other parameters such as lower muscle structure and pain threshold need to be further investigated.

The present study revealed 83.54% of the students were free of TMD symptom. 14.53% had mild pain, 2.05% had moderate pain and 0.51% had severe pain and a statistically significant difference was observed with respect to the severity of TMJ Intensity scale. (Chi-square: 967.6; p < 0.001). The results were consistent with the study done by Conti *et al* which revealed that 58.71% of subjects were asymptomatic, 34.84% had mild TMD signs and symptoms; 5.81% had moderate and 0.65% had severe TMD signs and symptoms. Mild degree of TMD was also in agreement with the studies done by Dekon *et*

al (2002), Pedroni *et al* (2003), Oliveira AS (2006) and Bonjardim *et al* (2007).⁽⁴⁾

The most frequently reported TMD symptom intensity in this study were headaches (25.7%) followed by clicking sounds (13.1%), jaw locking (2.5%) and painful jaw clicking (10%) and jaw pain (8.9%).

The most frequent sign observed was clicking sound (17.2%) during the TMJ examination followed by midline shifting (12.3%) in the present study. This result is consistent with the study done by Shiau YY, Chang C (1992).⁽⁹⁾ First year dental students had highest prevalence of TMD (68%) whereas interns had the lowest prevalence of TMD (17.7%). This increased prevalence among first year dental students maybe attributed due to separation from home and difficulty in coping with professional course. According to Fernandes (2007), the prevalence of TMD among dental students was significantly higher than non dental students and early diagnosis of the dysfunction is of prime importance. Anxiety, which starts during graduation years, brings repercussions in academic performance and increases risk for other diseases.⁽¹⁰⁾

The higher prevalence of TMD among females might be related to gender physiological differences, such as hormonal variations and fluctuations, biological differences, differences in social display rules. Females are socialized to express pain more openly than males.⁽¹⁰⁾

Beaton *et al* and Niemi *et al* found higher level of stress symptoms among the TMD patients when compared to healthy subjects.⁽⁴⁾ Stress is associated with psychological disturbances, such as anxiety and depression, there appears to be a relationship between stress and degree of TMD.

CONCLUSION

Early detection and intervention for TMD are essential for dental students. Stress due to dental curriculum, separation from parents need to be analyzed further and students should be taught different stress management techniques to improve their ability to cope with a demanding professional course.

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