

## Temporomandibular Disorders its Signs and Symptoms and Prevalence in Dental Students

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### Abstract

**Aim and Objective:** The objective of this study was to investigate the prevalence of signs and symptoms of temporomandibular disorders (TMDs) in dental students.

**Materials and methods:** A total of 100 dental students, at Patna dental college and hospital, patna, voluntarily participated in this study. After obtaining the informed consent, the participants were asked to answer the questionnaire to evaluate TMD in undiagnosed cases. Then, examination of the temporomandibular joint (TMJ) and associated structures were done.

**Results:** The present study has shown that the prevalence of signs and symptoms were 50.5 and 48% respectively, with no apparent gender difference. Joint sound was the most prevalent sign and TMJ noise being the most common symptom. Among oral parafunctional habits, lip/cheek biting and nail biting were common.

**Conclusion:** Signs and symptoms of TMD were present even in nonpatient population, such as dental students. Thorough clinical assessments with standardized test are necessary for the early diagnostic process.

**Keywords:** Temporomandibular disorders, Dental students.

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### I. Introduction

The term temporomandibular joint disorders (TMJDs) is an umbrella term, covering a number of acute and chronic problems related to the areas of head, jaw, face and neck.<sup>1</sup> In the medical community, TMJD is often called 'The Great Imposter'. This nickname stems from the difficulty that most dentists have in diagnosing TMJD because of the wide range of symptoms associated with it.<sup>2</sup> TMD is a collective term that defines a subgroup of painful orofacial disorders, involving the complaints of pain in the temporomandibular joint (TMJ) region and fatigue of the craniocervicofacial muscles, especially masticatory muscles, limitation of the mandible movement and presence of articular clicking. The etiology of TMD has multifactorial causes related to emotional stress, occlusal interferences, malpositioning or loss of teeth, postural changes, dysfunctions of the masticatory musculature and adjacent structures, extrinsic and intrinsic changes on TMJ structure and/or a combination of such factors.<sup>3</sup> The growing public interest in oral health has increased the demand for treatment of TMD. It is therefore important and valuable to have epidemiological data to estimate the proportion and distribution of these disorders in the population.<sup>4</sup> Due to high prevalence and variability of the complaints, TMD is diagnosed by associating signs and symptoms, as some characteristics may be frequent even in a nonpatient population.<sup>3</sup>

The aim of this cross-sectional epidemiological study was to investigate the prevalence of signs and symptoms of temporomandibular disorders in dental students through clinical examination and self-reported questionnaire.

### II. Materials And Methods

The study sample was derived from officially registered dental students at Patna dental college and hospital, patna. A total number of 100 (50 males and 50 females) volunteer dental students were randomly selected and their ages ranged from 18 to 30 years. Ethical committee clearance was obtained from the institutional review board. Students with all permanent dentition and no history of orthodontic treatment, were included in this study. The subjects diagnosed as having stomatognathic system impairment, clinically diagnosed TMD with treatment, and students with any gross pathology of ear were excluded. Initially, proper instructions were given to the participants about the goals and benefits of the study and informed consent form was signed. Then, the participants were asked to answer the questionnaire, to evaluate the TMD in undiagnosed cases. Questionnaire included questions (as shown in the Table 1), regarding the nature of pain, jaw joint and muscular symptoms, stress and parafunctional habits. There was no time limit for completion of questionnaire.

That way there would be no reasons for the subjects to give induced answers. Subsequently, examination of the TMJ (proper) for obvious asymmetry, tenderness, swelling in the preauricular region, noises/crepitations, path of midline of the mandible (deviation/deflection) were done and findings were registered as 'absent' or 'present'. Masticatory muscles (Masseter, temporalis, pterygoids) and accessory muscles (digastrics, sternocleidomastoid, trapezius, posterior cervical) were palpated for tenderness according to Okeson's method<sup>18</sup> and findings were registered as 'present' or 'absent'.

**Table 1:** Questionnaire for dental students

1. Is there any discomfort while opening or closing the jaw? Yes/no
2. Is the pain Constant/ periodic
3. Is the pain of Short duration (seconds or minutes)/ long (hours or days)
4. Does the pain occur Spontaneously, certain activities cause pain
5. Pain is worse at Morning/ afternoon/ night
6. Is the pain Sharp/ lancinating/ dull aching/ throbbing
7. Does the TMJ click or pop on opening or closing? Yes/no
8. Has the jaw ever locked or dislocated on opening? Yes/no
9. Do you get tired/muscular pain while chewing? Yes/no
10. Do you consider yourself a tense (nervous) person? Yes/ no
11. Do you have any health problems which haven't responded to treatment? Yes/ no
12. Is your sleep disturbed in the night? Yes/ no
13. Bruxism Present/ absent
14. Thumb sucking Present/ absent
15. Nail biting Present/ absent

### III. Results

The prevalence of TMD signs and sex differences are shown in Table 2. In this study, 50.5% of subjects had at least one sign of TMD. The most frequent sign was TMJ sounds (45.5%), and least frequent sign was TMJ tenderness (3.5%). Accessory muscle tenderness was 13 and 5% for females and males, respectively.

Percentage distribution of TMD symptoms according to the gender. Around 48% of the whole sample reported at least one symptom of which, TMJ noise was 36%, the most frequent symptom and jaw locking was 3.5% the least frequent symptom. Pain on the nape was significantly more frequent in females 16% than males 6%. Shows that among parafunctional habits, lip/cheek biting and nail-biting were the most frequent findings.

**Table 2:** Percentage distribution of TMD signs according to gender

Signs of TMD	Females (50)	Males (50)	Total (100)	p-value*
TMJ sounds	47	44	45.5	NS
Deviated/deflected path of midline of the mandible	36	29	32.5	NS
Masticatory muscle tenderness	9	13	11	NS
TMJ tenderness	5	2	3.5	NS
Accessory muscle tenderness	13	5	9	*
At least one sign	55	46	50.5	NS

### IV. Discussion

This study evaluated the prevalence of signs and symptoms of TMD in dental students through a self-reported questionnaire and clinical examination. The prevalence of signs and symptoms were 50.5 and 48% respectively. These results are in agreement with similar results reported by Nilner M (1981).<sup>5</sup> The lack of sex differences in reported symptoms and a clinical sign of TMD

as revealed by this study tends to agree with other investigations (Nilner and Lassing<sup>1981</sup>; Glass et al <sup>1993</sup>). The large frequency ranges for signs and symptoms of TMD previously described in reviews and meta-analysis are apparently based on very different samples (e.g. random vs nonrandom, patient vs nonpatient, different ages, age ranges, sample size, ratio of gender distribution) and different (e.g. kind of variable, method of data collection).<sup>6</sup>

TMJ sounds are often an indication of mechanical interferences with the joint. In the present study, most prevalent sign of TMD was TMJ sound 45.5% with no apparent gender difference. This is in agreement with the reports by Ogura<sup>7</sup> and Widmalm.<sup>8</sup> TMJ sounds have been found to be significantly more common in girls than boys (Farsi NM),<sup>9</sup> this was not confirmed in this study or in other previous reports (Nilner M).<sup>10</sup>

Methods and criteria for recording joint sounds differ in the various reports and thus, combined with natural fluctuations, are possible reasons for wide range of joint sounds.<sup>11</sup> In this study, deviated/deflected path of midline of the mandible was 32.5%. Prevalence of TMJ tenderness was 3.5% and masticatory muscle tenderness was 11%, which appears to be low in this study. Accessory muscle tenderness was 13% in females and 5% in males with significant gender difference. It has been stated that sex differences could probably be explained by mental factors, i.e. young females seem to present a lower pain threshold.<sup>12</sup> Reported symptoms from the questionnaire revealed that 48% of the subjects had at least one symptom of TMD. The TMJ noise was 36%, the highest prevalent symptom, similar to the study done by Chuang SY (2002).<sup>13</sup> Pain during chewing was 16.5%, the next common symptom. Other symptoms, TMJ pain (11.5%), difficulty in jaw opening (5.5%), were low in occurrence. Pain on the nape was 16% in females and 6% in males, with significant gender difference. Other parafunctional habits such as thumb sucking and bruxism were low in occurrence. Through self-reported questionnaire, this study also evaluated the prevalence of stress in dental students which was 54% in females and 44% in males without significant gender difference.

The lack of international standards, different kinds and qualities of examination method, play a role for different estimations and reports on TMD. The prevalence of TMD is not still well known and more studies and comparisons are necessary to allow better understanding of the pathological aspects so as to address effective and therapeutic measures.

## V. Conclusion

Based on the results above presented, it was concluded that clinical signs and symptoms of TMD were present in dental students. The diagnostic process of TMDs has to be primarily based on a thorough clinical assessment performed by a trained operator and conducted in accordance with the standardized tests. Further studies are required on larger sample size to compare TMD with different age groups and different population, psychosocial and psychiatric assessment of TMD patients.

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