

PREVALENCE AND SEVERITY OF TEMPOROMANDIBULAR DISORDERS (TMD) IN UNDERGRADUATE MEDICAL STUDENTS USING FONSECA'S QUESTIONNAIRE

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ABSTRACT

Objective was to assess the prevalence and severity of TMD in undergraduate medical students. It was a cross sectional descriptive study based on Fonseca's Questionnaire. It was conducted in four medical disciplines (Dentistry, Medicine, Pharmacy & Physical therapy) of The University of Faisalabad. All study participants were full time students and were females. Self-reported questionnaire was distributed among students and they were given detailed explanation to fill it. After collection of forms, scoring was done according to given standard method and data was entered in SPSS and statistical test of Chi-squared was applied. One hundred and thirty seven (137) students were enrolled and completed questionnaire of the study. 11(7.9%) students were observed with No TMD, 62(44.3%) with mild TMD, 62(44.3%) with moderate TMD and 5(3.6%) students with severe TMD (Fig 1). Difference among age groups was significant ($p \leq 0.047$) for three questions (Q2, Q, 5, Q10) There was no statistically significant difference regarding prevalence of TMD among all four disciplines of students. Regarding severity of TMD, it was observed that MBBS students were more in category of severe TMD as compared to other disciplines.

It was concluded that the mean level of stress and TMD is almost equivalent in different disciplines of professional education with a variation in its level of severity which is 2 times more in MBBS students as compared to other students. There was no significant difference regarding prevalence of TMD in four groups of study.

INTRODUCTION

Temporomandibular disorders (TMD) are a matter of interest from last many decades as it has various etiological factors and treatment modalities.¹ TMD is found to be associated with mental stress especially

in students of undergraduate level.² A study reported 2.65 times greater incidence of developing TMD in patients having mental stress as compared to non-stressed persons.³ Many factors including occlusal disharmony, masticatory muscle fatigue, oral habits, emotional stress, and early loss of teeth and malfunction of structures adjacent to TMJ contribute to the TMD.⁴ According to a study aging has a significant effect on TMD.⁵ Unilateral chewing and bruxism also leads to TMD which presents in form of limitation of jaw moments and clicking sounds from TMJ.^{3,6} Different studies have reported different prevalence of TMD because of variation in study design and non-standardized methods used for diagnosis of TMD.⁷ Comparative analysis of these studies is also difficult because of different baseline and follow up study parameters.⁸

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Early diagnosis and treatment of TMD is very important because it is a progressive disease which gets worse with the passage of time.⁹ If it is treated in early stage then prognosis is good. At late stages it becomes irreversible because of damage to TMJ.⁷ Variety of symptoms is an important characteristic of diagnosis of TMD¹⁰. A theory advocated the association of joint inflammation with the presence of pain mediators (substance P), inflammatory mediators (cytokins and interleukins) and tissue necrosis factor (TNF) in synovial fluid of joint.^{11,12} Their effects multiply with the passage of time. That is why the early diagnosis and treatment is very important in TMD cases. A researcher reported stress, bruxism, early loss of teeth and gender to be main factors of TMD.¹³ In females, TMD problem is three times more prevalent as compared to male population.¹⁴

No study based on stress related TMD in undergraduate medical students in Pakistan has been found in electronic as well as in manual literature search carried out by the authors. The aim of the current study was to assess the prevalence and severity of TMD in undergraduate students of various medical disciplines and to compare the severity level between them.

METHODOLOGY

A Cross sectional study based on Fonseca's Questionnaire 15 was conducted in Dentistry Department of The University of Faisalabad in July 2013. 137 Undergraduate students from Dentistry, Medicine, Pharmacy & Physical therapy department of The University of Faisalabad showed interest to be part of the study. The eligibility criteria for enrollment was (i) full time students of university (ii) able to give informed consent about participation in study (iii) no previous history of orthodontic treatment. The age range of study participants was 18-25 years. Written consent form was taken from subjects who participated in this study voluntarily. Students with history of systemic, musculoskeletal or neurological disorders were not included.

Data Collection

All enrolled students were given the study questionnaire (Fonseca's Questionnaire) and were briefed about procedure of filling it. They filled them and returned these to researchers. All questionnaires data were coded and entered in SPSS program.

Fonseca's Questionnaire was used to assess Temporomandibular Disorders (TMD) in undergraduate female medical students. (Table 1) This questionnaire was proposed by Fonseca in 1992 and is commonly used to classify TMD severity because it is good in obtaining relevant data.^{16,17} This questionnaire covers multi dimensions and provides a true picture of TMD. It is composed of 10 questions, which includes checking for the presence of pain in the temporomandibular joint, head & back, while chewing, parafunctional habits,

movement limitations, joint clicking, perception of malocclusion & sensation of emotional stress. Study participants were briefed that 10 questions asked could be answered with "yes", "sometimes" & "no" and only one answer should be marked for each question. There was no certain time limit for filling the forms. It means students did not answer the questions under any influence. For detailed analysis of TMD severity, the answers "yes", "no" and "sometimes" from each question was summed up and the total was multiplied by the value attributed to each answer: ten, five, and zero, respectively. The final value was compared to the clinical index and the volunteers were classified per TMD degree, Fonseca's questionnaire score was categorized on proposed TMJ severity scale.² (Table 1)

RESULTS

Out of 200 interested students, 137 students returned filled questionnaires and the response rate of the study was 68.5%. The study revealed that out of total 137 students, 11(7.9%) students were observed with No TMD, 62(44.3%) with mild TMD, 62(44.3%) with moderate TMD and 5(3.6%) students with severe TMD. When TMD severity level of different disciplines was compared, MBBS students were more in severe level as compared to the other disciplines. (Fig 1)

Regarding age, students were categorized in two different groups, group 1 was of ≤ 20 years of age and group 2 was of >20 years of age. Comparison of mean scores of answers showed a significant difference ($p \leq 0.047$) among age groups in 3 questions (Q2, Q5, Q10) (Fig 2) (Table 1) However there was no significant difference in mean scores of Fonseca's questionnaire while comparing students of all disciplines. (Fig 3)

We could not analyze the difference between genders as the whole data was collected from a female university and no male student was enrolled there.

DISCUSSION

This study evaluated the prevalence and severity of TMD in undergraduate medical students. As etiology and associated factors of TMD are in debate so it's a need to assess its prevalence in community.

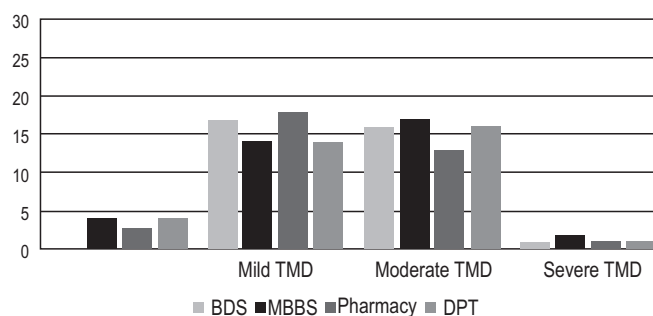


Fig 1: Comparison of TMD Severity Among Different Medical Disciplines

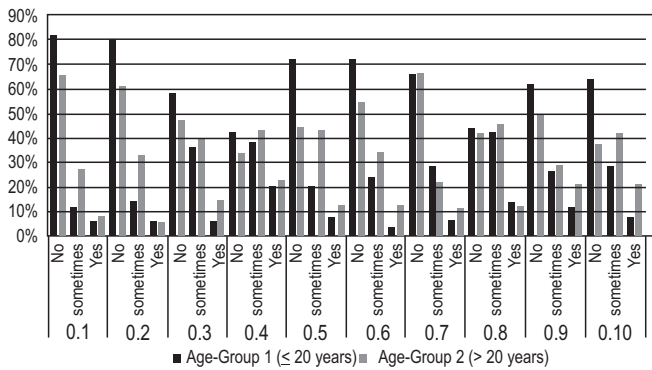


Fig 2 Frequency of TMD Among Age Groups

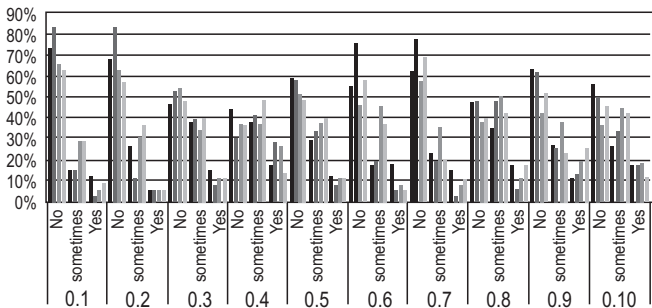


Fig 3: TMD Among Four Medical Disciplines

Fonseca’s questionnaire was used to assess the TMD level. This is a self-administered questionnaire and it is easy to collect information through this in short period of time without the influence of investigator.¹⁸ Previous studies regarding TMD used different methods and parameters to assess TMD. Some studies used

physical examination^{19,20} as a tool to assess TMD and some relied on just questionnaire.^{14,21,22}

In the current study, the level of TMD severity was assessed using the questionnaire alone, 7.9% (11) students were TMD free while 44.3% (62) students were having mild TMD and the same numbers of students 44.3% (62) were having moderate TMD. 3.6% (5) students were facing severe level of TMD. Out of total 140 students, only 11 (7.9%) were TMD free while remaining had some sort of TMD.

An important point to be noted in this study was total female students. Studies for our society showed that females had more TMD because of more mental stress.⁵ In western societies where females have equal opportunities did not show different results for TMD. Another theory stated that greater prevalence of TMD in females is due to genetic make-up of females which is associated with TMD.²³ In previous studies, different parameters were used to assess TMD prevalence and level of severity. A study from Peshawar, Pakistan, showed female predominance in TMD where 74% persons having TMD were females.¹² In another study from Pakistan, authors observed the relation between TMD, stress and depression. They stated that 30 patients of TMD had depression and 30% had chronic pain.⁸

Pedroni et al.²⁰ used anamnestic questionnaire as well as clinical assessment to diagnose TMD. According to their observations 68% study participants were having TMD. Out of them 84% were females. Garcia et al. reported 61% prevalence of TMD in undergraduate students.²⁰ In a study conducted on Brazilian students,

TABLE 1: FONSECA’ QUESTIONNAIRE

Question	Response		
	No	Sometimes	Yes
1 Is it hard for you to open your mouth?	—do—	—do—	—do—
2 Is it hard for you to move your mandible from side to side?	—do—	—do—	—do—
3 Do you get tired /muscular pain while chewing?	—do—	—do—	—do—
4 Do you have frequent headaches?	—do—	—do—	—do—
5 Do you have pain on the nape or stiff neck?	—do—	—do—	—do—
6 Do you have earaches or pain in craniomandibular joints?	—do—	—do—	—do—
7 Have you noticed any TMJ Clicking while chewing or when you open your mouth?	—do—	—do—	—do—
8 Do you clench or grind your teeth ?	—do—	—do—	—do—
9 Do you feel your teeth do not articulate well?	—do—	—do—	—do—
10 Do you consider yourself a tense (nervous) person?	—do—	—do—	—do—
Clinical index classification of Fonseca’ Questionnaire			
1 Total between 0 and 15 points	No TMD		
2 Total between 20 and 40 points	Mild TMD		
3 Total between 45 and 65 points	Moderate TMD		
4 Total between 70 and 100 points	Severe TMD		

researchers reported 9 times greater prevalence of TMD in females as compared to males⁵. More than 50% of study participants had TMD and majority was females.⁵

A study from Brazil evaluated 200 undergraduate students for severity of TMD. 2.45% of them were having severe TMD, 13.93% had moderate level of TMD, 83.60% had mild TMD and 39% were disease free.²¹ In a study about TMD in patients with complete dentures, Gray et al. observed 160 patients using complete dentures. 43.13% patients had TMD of any level. 1.26% patients had severe TMD, 40% were having mild disorder and 56.87% were disease free.² In a study from Iran, prevalence of TMD was found to be 22.1% among medical and dental college students.³ In our study, 74 (52.8%) students considered themselves as tense people, 80 (57.2%) students reported to clench or grind their teeth, 88 (62.8%) students had frequent headache and 64 (50.7%) students had stiff neck. This was in agreement with a study done in Brazil where undergraduate students presented almost the same percentages.²

The mean values of answers were almost the same for all four medical disciplines and in terms of prevalence of TMD, no statistical significant difference was observed between students of BDS, MBBS, Pharmacy and DPT.

CONCLUSION

It is concluded from the current study that the prevalence of stress and TMD was almost equivalent in different disciplines of professional education with mild variation in its level of severity which was almost 2 times greater in MBBS students as compared to students of other medical disciplines (BDS, Pharmacy and DPT). There was no significant difference in mean scores of questionnaire in four groups of study. It means almost same types of circumstances are faced by all four disciplines of professional education.

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