



## PREVALENCE OF TEMPOROMANDIBULAR JOINT DISORDERS AMONG STUDENTS OF BVDU DENTAL COLLEGE SANGLI, INDIA

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### ABSTRACT

**Objective:** The aim of this study was to evaluate the prevalence of temporomandibular disorders among students of BVDU dental college, Sangli, India.

**Methods:** A Total of 413 dental students of BVDU dental college, Sangli, India were voluntarily participated in this study. Data about the signs and symptoms of TMD and the risk factors were collected using a printed pre-evaluation questionnaires and clinical examinations.

**Results:** out of 413 students with 29.1% were falling in the age group of 21 years. Maximum participants were females (77%). History of trauma (42.5%) & Psychological stress (30.5%) were major factors of TMJ disorders. 7.5% cases had TMJ noise on opening of jaw. 3.9% cases had discomfort in opening of the jaw while 1.9% had discomfort during side to side movements of the jaw. 4.1% cases had history of locked jaw on opening. 8% cases experienced muscles fatigue during mastication while 5.1% cases had pain in the nape of neck.

**Conclusions:** Early diagnosis and prevention of future complications associated with TMDs is key for successful TMD treatment and any pathological damage to the site

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### INTRODUCTION

The term temporomandibular joint (TMJ) disorders refers to a cluster of conditions characterized by pain in the TMJ or its surrounding tissues, functional limitations of the mandible, or clicking in the TMJ during motion. TMJ disorders are common and often self-limited in the adult population. However, only few with TMJ symptoms require treatment and even fewer develop chronic or debilitating symptoms. (Buescher 2007)  
Causes of TMJ disorders include parafunctional habit, emotional stress, anxiety, 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. Several studies have shown high prevalence and variability of TMJ disorders which are diagnosed by associating signs and symptoms. (Nomura 2007, Habib 2016)

The aim of this cross-sectional survey was to investigate the prevalence of signs and symptoms of temporomandibular disorders (TMD) in dental students through questionnaire and which would provide information important for the early diagnosis and management of TMJ disorders.

### MATERIALS AND METHODS

#### Study Design

This cross-sectional survey was carried out at Bharati Vidyapeeth deemed university Dental College, Sangli, India in between May 2016 and December 2016. We have obtained Ethical committee clearance from the institutional review board before start of this survey. All registered dental students of college (total 413) were voluntarily involved in the survey. Questionnaires and a cover letter stating the instructions, rationale, and purpose of the survey were distributed among all students from the dental College. Students who were willing to participate in the study filled the questionnaire by hand and returned it in person. Participants were not given a time limit for completing the questionnaire. The Questionnaire included questions (as shown in the Table 1) regarding demographic information, past medical, dental, TMJ, and facial trauma histories, the nature of pain, jaw joint and muscular symptoms, stress, parafunctional habits, chewing pattern and any other deleterious habits.

#### Statistical Analysis

Data obtained were analysed using SPSS software Version 16. Descriptive statistics will be employed.

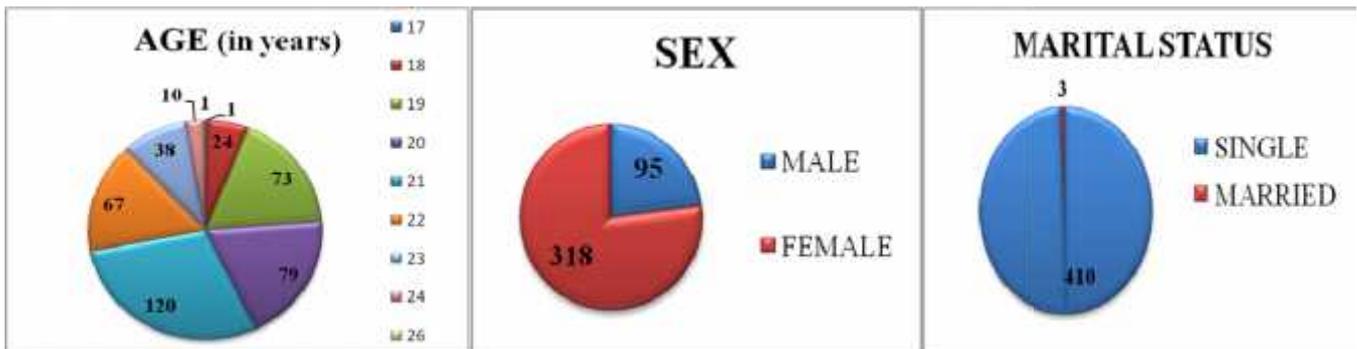
**Table 1** Questionnaire for students

NAME: _____		QUESTIONNAIRE		MARITAL STATUS: Single/Married	
RESIDENCY: _____		AGE: _____		SEX: _____	
1.	History of trauma/accident:	Yes/No	(if yes, please specify)		
2.	History of dental treatment:	Orthodontic/Conservative/Prosthodontic treatment			
7.	History of infection in ear:	Yes/No			
8.	History of disorders in joints other than TMJ (e.g. Arthritis):	Yes/No			
9.	Any congenital abnormalities:	Yes/No			
<b>PAIN:</b> Is pain experienced during?					
1.	Talking:	Yes/No	2) Chewing: Yes/No	3) Yawning: Yes/No	4) other activities:
<b>NATURE OF PAIN:</b>					
1.	Pain occurs	spontaneously/during activities			
2.	Is the pain	continuous/intermittent			
3.	Does the pain	gradualy increase in intensity/proximal			
4.	Pain is worse in	morning/afternoon/night			
5.	Is the pain of	short duration/long duration			
<b>JAW, JOINT AND MUSCULAR SYMPTOMS:</b>					
1.	Is there any noise or clicking during jaw?	Yes/No			
2.	Is there any discomfort while opening or closing of jaw?	Yes/No			
3.	Is there any discomfort during sleep or while Mastication of the jaw?	Yes/No			
4.	Has your jaw ever locked while opening?	Yes/No			
5.	Do you get tired while chewing?	Yes/No			
6.	Do you have pain on nose or stiff neck?	Yes/No			
<b>SLEEP:</b>					
1.	Do you consider yourself/friend (in your person)?	Yes/No			
2.	Do you often feel	tired and depressed/irritated/hungry/frustrated			
3.	Do you sleep disturbed at night?	Yes/No			
4.	Do you have frequent headache?	Yes/No			
<b>ANY TELETEROSTIC HABITS?</b> Yes/No (If yes then specify)					
<b>CHWING HABITS:</b> unilateral/bilateral (If unisateral habit, what is the reason?)					
<b>PASSED UNUSUAL HABITS:</b> present/absent					
1) Lip biting/chalk biting 2) Nail biting 3) Clenching of jaw 4) Thumb sucking					

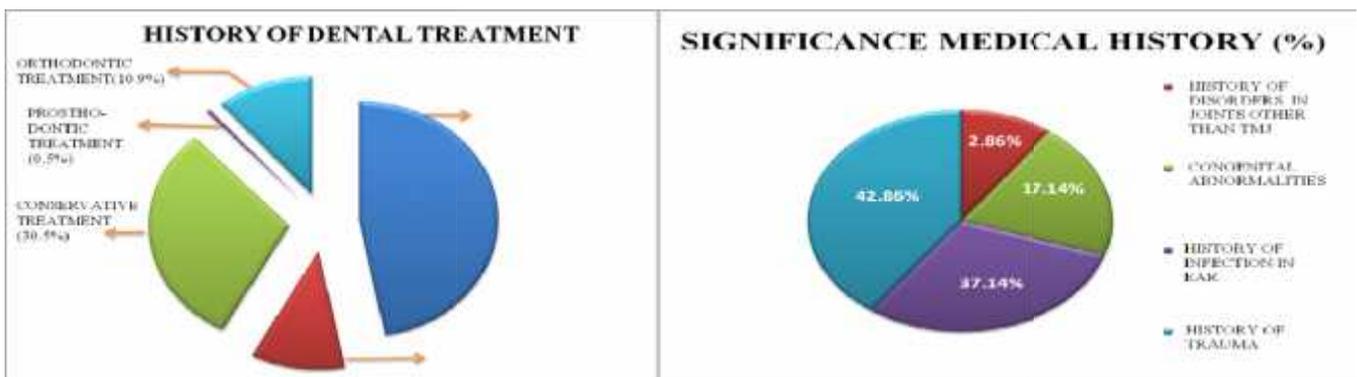
**RESULTS**

In this study, total 413 Participants ranged in age from 17 to 26 years old and 29.1% students were falling in the age group of 21 years. Maximum participants were females (77%) and unmarried. (99.3%). (Figure-1)

3.1% students had history of infection in ear. 0.2% had disorders of joints other than that in TMJ whereas 1.5% subjects had congenital abnormalities. (Figure 2)



**Figure 1** Distribution of participants according to Age, Sex and Marital status



**Figure 2** Percentage distribution of Dental & Medical histories.

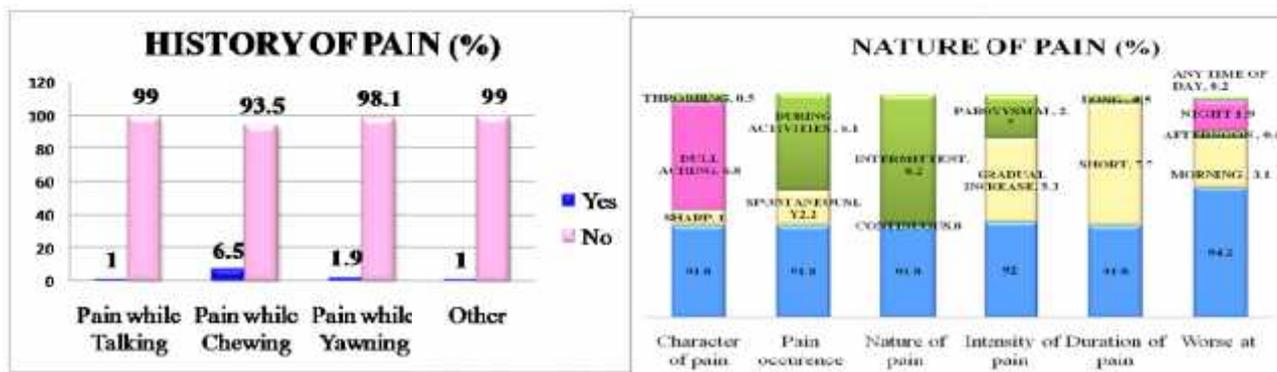
With respect to past dental history, 10.9% students had undergone orthodontic treatment, 30.5% conservative & endodontic treatment and 0.5% Prosthodontic treatment. 11.1% students had undergone more than one type of treatment. With respect to past medical history, 3.6% students gave a history of trauma in the orofacial region and it is the highest (42.6%) among all significant medical histories.

**Incidence of TMJ Pain among the students:** (Graph 1)

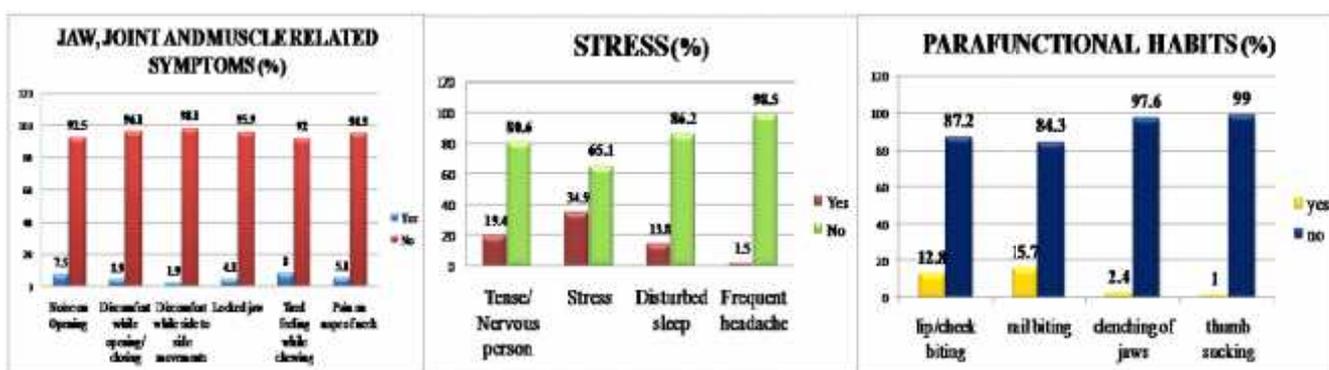
Significant incidence of TMJ Pain was reported by participants while talking (1.0%), chewing (6.5%), yawning (1.9%) and 1% of participants were experienced pain at rest. The nature of pain experienced was of sharp, lacinating and dull aching type in 1%, 6.8% and 0.5% of cases respectively. 2.2% cases experienced pain spontaneously while 6.1 % during activities. 8.2% participants stated that the pain was intermittent. In

5.3% cases, gradual increase in intensity of pain was observed; other 2.7% had paroxysmal intensity. 3.1% cases stated that pain was worse in the morning and 7.7% cases had it for a short duration of time.

These outcomes are in agreement with some studies. (Pesqueira 2010, Bonjardim 2009). The fear from exams and the stresses from work and studying inside the faculty of dentistry were suggested to be a cause of this finding. People



Graph 1 Percentage distribution Incidence of TMJ Pain among the students



Graph 2 Percentage distribution Incidence of TMJ dysfunction, stress & parafunctional habits among the students

**Incidence of TMJ disorders among the students:** (Graph 2)

Under jaw, joint and muscular symptoms, 7.5% cases had TMJ noise on opening of jaw. 3.9% cases had discomfort in opening of the jaw while 1.9% had discomfort during side to side movements of the jaw. 4.1% cases had history of locked jaw on opening. 8% cases experienced muscles fatigue during mastication while 5.1% cases had pain in the nape of neck. 19.4% cases considered themselves as a tense/nervous person. 34.9% cases experienced various forms of stress, 13.8% cases had disturbed sleep at night and 20.6% cases had frequent headache. 1.5% cases had deleterious habits. 7% cases reported unilateral chewing habit whereas rest chew bilaterally. Students reported Parafunctional habits- lip/cheek biting (12.8%), nail biting (15.7%) clenching of jaws (2.4%) and thumb sucking (1%).

**DISCUSSION**

Present study provides the prevalence of signs and symptoms of TMD in dental students based on a self-reported questionnaire and clinical examination. Young age students are selected for sample size is selected because signs and symptoms of TMDs appear most commonly in such young age. Some studies (de Oliveira 2006; Nomuraet 2007) suggest females have a greater risk of TMD than males. In our study, maximum (77%) female students were included; therefore, our TMD prevalence estimate was appropriate. Our study also focused on the impact of relevant medical and dental histories on the prevalence of TMDs in students. Out of these, participants with history of psychological stress were having some degree of TMD dysfunction ranging from light to severe.

with TMD have been shown to have higher levels of anxiety, depression, somatization and sleep deprivation, and these could be considered important risk factors for the development of TMD. (Orlando 2007)

The present study revealed significant incidences of TMJ sound, jaw pain, pain on movement of the jaw and parafunctional habits among the students. It has been suggested that uncoordinated contraction of the two heads of the lateral pterygoid muscle are responsible for the TMJ sounds which was the most prevalent sign in students. Parafunctional habits and emotional stress also major reason for fatigue and pain felt in the jaw of participants. (Kassab 2015) The incidence of TMJ pain and muscle tenderness among participants was significant which is in agreement with reports by other studies. (Hegde 2011)

Difference in the estimations and findings of TMDs was found in various studies due lack of international standards and qualities of examination methods of TMJ all over world. (De Bont 1997)

**CONCLUSION**

Although our study provided significant information regarding the prevalence and severity of TMDs in young students of BVDU dental college, Sangli, long-term clinical studies should be conducted in this region. Early diagnosis and prevention of future complications associated with TMDs is key for successful TMD treatment and any pathological damage to the site.

## References

- Buescher JJ. 2007 Temporomandibular Joint Disorders. *Am Fam Physician.* 76(10): 1477-82
- Nomura, K., Vitti, M., Oliveira, A.S., Chaves, T.C., Semprini, M., Sie´sere, S., Hallak, J.E., Regalo, S.C., 2007. Use of the Fonseca's questionnaire to assess the prevalence and severity of temporomandibular disorders in Brazilian dental undergraduate. *Braz. Dent. J.* 18 (2), 163-167.
- Habib SR, Al Rifaiy MQ, Awan KH, Alsaif A, Alshalan A, Altokais Y 2015, Prevalence and severity of temporomandibular disorders among university students in Riyadh. *The Saudi Dental Journal* 27, 125-130
- de Oliveira, A.S., Dias, E.M., Contato, R.G., Berzin, F., 2006. Prevalence study of signs and symptoms of temporomandibular disorder in Brazilian college student. *Braz. Oral Res* 20 (1), 3-7.
- Pesqueira, A.A., Zuim, P.R., Monteiro, D.R., RibeiroPdo, P., Garcia, A.R., 2010. Relationship between psychological factors and symptoms of TMD in university undergraduate students. *Acta Odontol. Latinoam.* 23 (3), 182-187.
- Bonjardim, L.R., Lopes-Filho, R.J., Amado, G., Albuquerque Jr., R.L., Goncalves, S.R., 2009. Association between symptoms of temporomandibular disorders and gender, morphological occlusion, and psychological factors in a group of university students. *Indian J. Dent. Res.* 20, 190-194.
- Orlando B, Manfredini D, Salvetti G, Bosco M 2007. "Evaluation of the effectiveness of biobehavioral therapy in the treatment of temporomandibular disorders: a literature review". *Behavioral Medicine.* 33 (3): 101-18.
- Kassab M, Bakry A, Salem W, 2015 'The incidence of temporomandibular joint disorders among dental students in aljouf university, KSA' *International Invention Journal of Medicine and Medical Sciences* , Vol. 2(1) pp. 5-11.
- Hegde S, Mahadev R, Ganapathy KS, Sujatha D, Patil B, 2011'prevalence of signs and symptoms of Temoromandibular Disorders in Dental Students' *JIAOMR* 23(3):S316-319
- De Bont LG, Dijkgraaf LC, Stegenga B. Epidemiology and natural progression of articular temporomandibular disorders. *Oral Surg Oral Med Oral pathol Oral Radiol Endod* 1997; 83:72-76

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