

Original article

A Study on Temporomandibular Joint Disorders Among Nepalese Preclinical Students Studying at KMCTH

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ABSTRACT

Background: TMJ is a complex structure with multiple pathological problems both from diagnosis and treatment point of view, the incidence of which is increasing day by day. TMJ dislocation may occur spontaneously following over opening of the mouth to its extreme positions such as during a yawn, hefty laugh or mastication of large hard objects. TMJ disorders are associated with adverse habits like betel nut chewing, smoking, deep bite, open bite dentition and attrition of teeth.

Aims and Objective: To access the TMJ problems, gender discrimination between male and female for TMJ disorders and its association with adverse habits among Nepalese Preclinical Students at Kathmandu Medical College Teaching Hospital.

Materials and Methods: It was an observational study conducted among 300 individuals (150 Males, 150 Females) from MBBS and BDS first and second year preclinical students studying at Kathmandu Medical College Teaching Hospital (KMCTH), Duwakot. Measurements variables were mouth opening in mm., TMJ clicking on wide opening of mouth, deviation of chin on opening mouth and open and deep bite condition of dentition.

Results: The average of the mouth opening in case for male individuals was 48.3 mm. The average of the mouth opening in case for female individuals was 42.22 mm. 22% (33) of male individuals had right & 18% (27) of male individuals had left TMJ clicking of the joints. 19.33% (29) of female individuals had right & 15.33% (23) of female individuals had left TMJ clicking of the joints.

Conclusion: The average of the mouth opening in male was greater than female. Temporomandibular Joint Disorders (TMD) is of high prevalence among preclinical students studying at Kathmandu Medical College Teaching Hospital (KMCTH).

Keywords: Temporomandibular Joints (TMJ), Temporomandibular joint Disorders (TMD), Mouth Opening, Clicking

1. INTRODUCTION

The Temporomandibular Joint (TMJ) is a synovial joint between the articular fossa of temporal bone above and the mandibular condyle which is a bicondylar variety of synovial joint. The Temporomandibular joint (TMJ) is much more stable with the teeth in occlusion than when the jaw is open. The TMJ between the articular fossa of temporal bone above and the mandibular condyle is bicondylar variety of synovial joint [1-3]. Articular Disc is anatomically attached to the tubercles of the head of the mandible. Detached disc can

produce a clicking sound in the joint called Clicking Jaw or Clicking of TMJ [4]. Dislocation occurs when the capsule and the lateral ligament are sufficiently relaxed to allow the condyle to move to a point anterior to the articular eminence when opening the mouth. Muscle spasm locks the jaw in this position making it impossible for the patient to close the jaw [5]. TMJ Disorder (TMD), dislocation and subluxation is very common clinical entity. The right and left joint helps in mastication and in the opening and closing the mouth. The unique feature of this articulation is that

a single bone mandible articulates bilaterally with right and left mandibular fossa of temporal bone^[6]. Moreover its cranial components are immobile while the lower component mandible alone is mobile. TMD is an important dental health problem in all over the world. In one survey of adults in the united kingdom, the orofacial pain prevalence was 26 percent with 6 percent reporting pain in TMJ and 6 percent reporting preauricular pain^[7]. Thus this study is focused on finding the TMJ problems among Nepalese Preclinical Students at Kathmandu Medical college Teaching Hospital, Duwakot with the discrimination between male and female.

2. METHODS

The study was conducted from April 2016 to September 2016 after obtaining ethical clearance from Institutional Research Committee (IRC), KMCTH. An observational study was conducted among 300 preclinical students (150 males, 150 female) from MBBS and BDS first and second year students studying at Kathmandu Medical College Teaching Hospital (KMCTH), Duwakot. Data was collected from them by a self designed questionnaire in a written form from the respondents to obtain the necessary socio demographic information on age and gender. An examination was performed to observe TMJ disorders with the help of mouth mirror, probe, metallic divider and calibrated metallic scale. Measurement was taken at free time of students without hampering the study time. Tenderness on TMJ while opening & closing the mouth was also evaluated. Healthy individual who gave consent were included in the study. Students with chronic and debilitating diseases were excluded from the study. Similarly, individuals who did not give consent and who were foreigners were excluded

from the study. Measurement Variables were mouth opening in millimeter (mm), presence or absence of TMJ clicking, deviation of chin, dislocation of TMJ, etc. Data collected was compiled in Microsoft Office excel 2007 and further analyzed by SPSS version 20. Mean and Standard Deviation were calculated. The independent t-test, was used to determine the correlation, between the study variables. P value <0.05 was considered as statistically significant.

3. RESULTS:

The average of the mouth opening in male was significantly greater than female individuals. ($P < 0.05$). 22% (33) of Male individuals had right & 18% (27) of Male individuals had left TMJ clicking of the joints. 19.33% (29) of Female individuals had right & 15.33% (23) of Female individuals had left TMJ clicking of the joints (Table 2). 2% (3) of male & 0.66% (1) of female had clicking on both side of TMJ joints with difficulties in speech. 3.33% (5) of male & 2% (3) of female had open bite with tenderness on palpating at TMJ and difficulties in phonation. 1.33% (2) of male & 2.66% (4) of female had deep bite with attrited teeth on lower anteriors. They also reported of occasional sensitivity with cold foods, cold drinks & taking ice-cream. 2.66% (4) of both male and females had gummy smile of more than 2mm of gingival display with unaesthetic look. 6.66% (10) of male & 5.33% (8) of females had visible deviation of jaw to right side while 5.33% (8) of male & 4.66% (7) of females had visible deviation of jaw to left side leading to asymmetry of face. TMJ disorders was seen among 38.66% of the study subjects whereas 61.34% of the study subjects were found normal (Figure 1). Among the study population, 65 males and 53 females had TMJ clicking (Figure 2).

Table 1: Mouth opening parameters in the study population (N= 300).

	N	Range mm	Minimum mm	Maximum mm	Mean	SD
Mouth opening	300	33.00	25.00	58.00	45.273	5.318

Table 2: Mouth Opening Status in millimeter (mm) in Males & Females.

In millimeter	Sex	N	Mean	SD	Students t-test
Mouth opening	Female	150	42.246	4.698	P < 0.05
	Male	150	48.300	4.029	

Table 3: Distribution of TMJ clicking including open and deep bites in the study population (N=300).

Parameter	Male (n=150)	Female (n=150)	Total
Right TMJ clicking	22% (33)	19.33 % (29)	20.66 % (62)
Left TMJ clicking	18 % (27)	15.33 % (23)	16.66 % (50)
Both sides clicking	2% (3)	0.66 % (1)	1.33 % (4)
Open bite	3.33 % (5)	2 % (3)	2.66 % (8)
Deep bite	1.33 % (2)	2.66 % (4)	2 % (6)
Right jaw deviation	6.66 % (10)	5.33 % (8)	6 % (18)
Left jaw deviation	5.33 % (8)	4.66 % (7)	5 % (15)

Figure 1: Distribution of TMJ disorders among study subjects. (N=300)

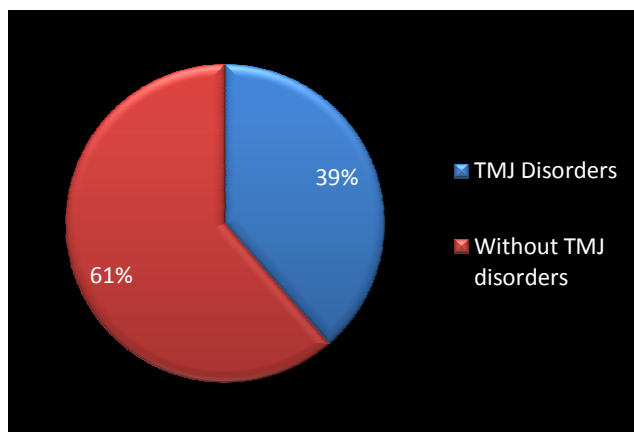
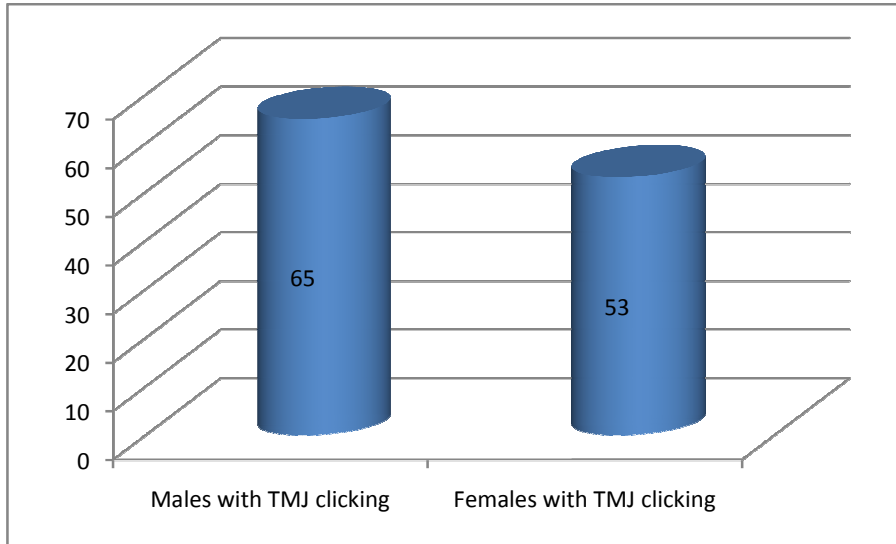


Figure 2: Distribution of TMJ clicking among males and females. (N=300)



4. DISCUSSION:

The results of the present research showed that the temporomandibular joint disorders were remarkably prevalent in 116 (38.66%) students among 300 students sample representative of student community at Kathmadu Medical College Teaching Hospital (KMCTH). The investigations in the present study revealed 20.66% (62) had Right TMJ clicking and 16.66%(50) had Left TMJ clicking. Similar results of TMD severity were also found by the study done by Otuyemi^[8] (2000)30% Conti PC ^[9] (1996) 42% ,Chang^[10] (1992) 41% Bonjardim^[11] (2009) 50%. However Pedroni et al (2003) found 68% of the study subjects with TMD disorders. Schiffman (1990) 75%, Grosfeld et al (1985) 72% related a greater amount of subjects with TMD ^[12,13,14]. The cause for difference could be due to racial, social, food habits and ethnical background of the sample size. According to the results of this study, there is a greater prevalence of

TMD in male students than in female students. In this study, 22% of Right TMJ Clicking in males and 19.33% in female students were found. Similarly 18% of male and 15.33% of female students were having left TMJ clicking on opening and closing the mouth. These results are not in consistent with those of Magnusson et al ^[12], Kuttilla et al ^[13], where no sex differences were found.

5. CONCLUSION:

The average of the mouth opening in male was greater than female. Temporomandibular Joint Disorders (TMD) is of remarkably prevalent among preclinical students studying at Kathmandu Medical College Teaching Hospital (KMCTH). The result showed a greater rate of students without Temporomandibular Joint Disorders (60% of male, 62.66% of female). Awareness about TMJ disorders and its associated factors are still inadequate even among medical students.

Acknowledgements:

I acknowledge to all the participants of the study without whom this study would not have been successful.

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