



PREVALENCE AND SEVERITY OF TEMPOROMANDIBULAR DISORDERS SIGNS AND SYMPTOMS AMONG STUDENTS OF THE AHRAM CANADIAN UNIVERSITY (ACU)

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ABSTRACT

Objectives: This study aimed to investigate the prevalence of temporomandibular disorder (TMD) among students of (Ahran Canadian University).

Methods: Information about the symptoms of TMD and the possible risk factors were collected using specifically designed questionnaires and the collected data sets were treated statistically using the SPSS and chi-square test.

Results: The most reported TMD symptom in this study was masticatory muscles tension, followed by clicking while the least common one was TMJ locking. Nearly two-third of the students (58.9%) had no symptoms of TMD and (41.4%) of the students had TMD symptoms, among them 43.4% had only one symptom and 56.6% had multiple TMD symptoms.

Conclusions: TMD is of a high Prevalence among students of the Ahran Canadian University especially medical colleges students due to high studying stresses that play a big role in the development and/or progression of TMD.

KEYWORDS: (TMD). (MPDS)

INTRODUCTION

According to the American Dental Association, TMD is defined as a group of orofacial disorders characterized by pain in the preauricular area, temporomandibular joint (TMJ), or muscles of mastication, limitations, and deviations in

mandibular range of motion, and TMJ sounds during jaw function ⁽¹⁾. Patients with (TMD) usually suffer from masticatory and cervical muscle pain, TMJ pain and/or sounds, and incoordination of mandibular movements beside mandibular range of motion limitation ⁽²⁾. The multifactorial TMD etiology is related to emotional stress, occlusal interferences,

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teeth loss, postural deviation masticatory muscular dysfunction, internal and external changes in TMJ structure, and the Various associations of these factors^(3, 4). TMD can affect any patient regardless of age including Children⁽⁵⁾ or gender with varying signs and symptoms⁽⁶⁾. However, due to the variation in symptoms among different patients and in the same patient at different times, the diagnosis of this clinical entity may be difficult⁽⁷⁾.

The reported prevalence of TMD among different general populations is high. Cross-sectional prevalence studies⁽⁶⁻⁹⁾ have reported that approximately 40–87% of the participants had one or more TMD findings, and approximately 33% had at least one sign or symptom. The Pain is the most important symptom in temporomandibular joint dysfunction (TMD) for both the patient and the clinician, and is the main reason why patients with TMJ disease seek medical help. According to some researchers,⁽⁶⁻⁸⁾ it is commonly accepted that TMD is of multifactorial origin and is best thought of as the result of a combination of occlusal, neurophysiologic, and psychological factors. Low self-esteem was associated with more prevalent TMD findings. Psychological and emotional features are obviously linked with the prevalence of TMD findings. Based on psychometric differences, it is currently justified to subcategorize patients with myofascial pain dysfunction into a myogenic pain group and a TMJ-related pain group⁽⁸⁾.

Prevalence of symptoms is variable, and almost always TMD is diagnosed by associating signs and symptoms. A large number of epidemiological studies have been conducted on the epidemiology of TMDs on patient and non-patient populations. Studies have revealed that around 60-75% of the subjects will manifest one TMD sign and 35% TMD symptom, and TMD signs are present in 50-75% of the population at some moment in life^(9, 10).

The prevalence rates of TMJ disorders are higher among younger persons. TMJ disorders are

at least twice as prevalent in women as men, and women using either supplemental estrogen or oral contraceptives are more likely to seek treatment for these conditions⁽¹⁰⁾, also individuals with low self-esteem are more likely to suffer from TMD⁽¹¹⁾, psychological and emotional factors are clearly involved in the development of the disorder^(12, 13) and Changes in condyle morphology, disk displacement, and mechanical disk derangements may cause TMJ clicking without pain or significant dysfunction. Some epidemiological studies have shown an increased prevalence of TMJ sounds among patients between 15 and 25 years old⁽¹³⁻¹⁵⁾.

Therefore, this study was conducted to investigate prevalence of TMD among university students of ACU, using the guidelines recommended by the American Dental Association, and to compare the prevalence of TMD among students from different faculties, in an attempt to recognize the risk groups for TMD development.

The Null hypothesis was that TMD is not prevalent among university students, and that students from different faculties have similar TMD prevalence.

SUBJECTS AND METHODS

A questionnaire was distributed randomly to students belonging to medical and non-medical colleges; the completed questionnaire contained the following items regarding the different symptoms of TMD, and the possible risk factors:

- Do you suffer from joint pain?
- Do you hear joint sounds?
- Do you have pain in or around the ears?
- Do you have headaches, neck or shoulder pain?
- Have you ever had joint locking? If yes, how many times?
- Do you have pain on chewing?

- Have you ever had trauma to head and neck area? If yes, how many times?
- Do you have stress, or under stressful conditions?
- Do you have arthritis?

Students were asked to check items that were most relevant to their conditions.

Data was entered to Statistical Package for the Social Sciences (SPSS, Microsoft Excel 2016)) and chi-square test was used for statistical analysis. Probability values were set at ≤ 0.05 .

Fonseca’s Questionnaire ⁽³²⁾ was used to determine the associations between the TMD symptoms (pain in or about the ears, clicking, TMJ locking and pain on chewing and muscles tension) and risk factors.

RESULTS

The study sample consisted of 404 students studying at the Ahram Canadian University (ACU). Ethical approval for all stages was granted by the ACU research ethics committee. All volunteers that agreed to be in the study signed the informed consent form. There were 235 males and 169 Females and

their age range was between 18 and 23 years old. The sample comprised 196 (48.5%) medical study field students: 114 (28.2%) of dental college and 82 (20.2%) of pharmacy college and beside 208 (51.5%) non-medical study field students; 138 (34.2%) of mass communication college, 32 (7.9%) of computer sciences college, 28 (6.9%) of business college and 10 (2.4%) of engineering college.

The prevalence of various symptoms of TMD in the study population is shown in (Fig.1,2) and (Table.1) the most reported TMD symptom is masticatory muscles tension in medical study field (71.6%) followed by clicking (70.7%) non-medical study field students, and the least common was TMJ locking in both. Nearly two-third of the students (58.9%, 238/404) had no symptoms of TMD and 17.8% (72/404) of the (41.1% 166/404) students who had TMD symptoms (Fig. 3) had at least one symptom, the prevalence ranged from 43.3% (72 students) who had only one symptom to 56.6% (94 students) who had multiple TMD symptoms (Fig. 4). All results in (Table 1) between medical and non-medical schools were not statically significant except for clicking which was statically significant between both fields.

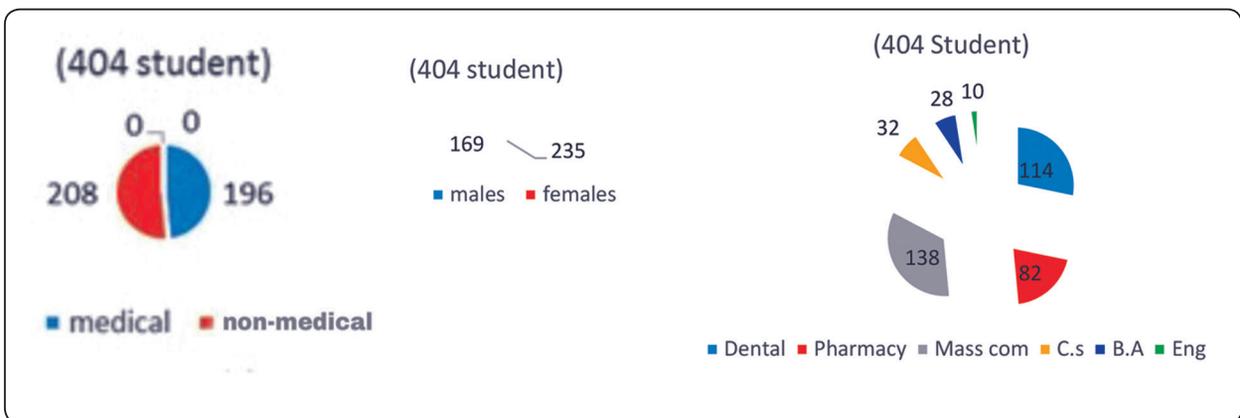


Fig. (1)

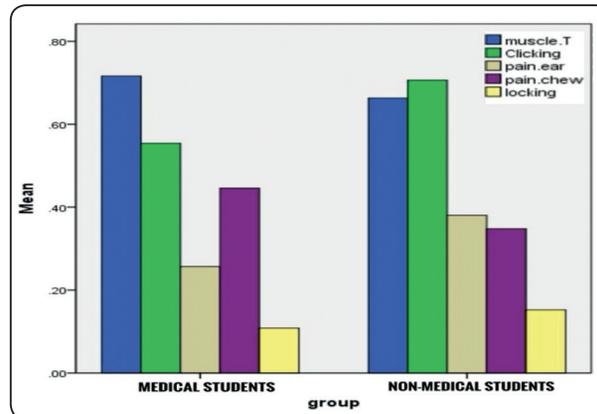


Fig. (2) a histogram showing prevalence of TMD symptoms in the investigated sample.

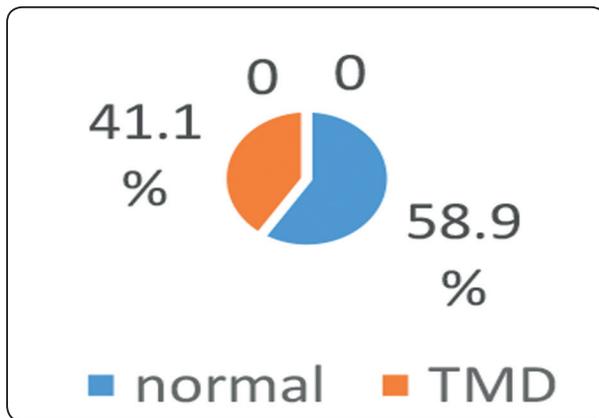


Fig. (3)

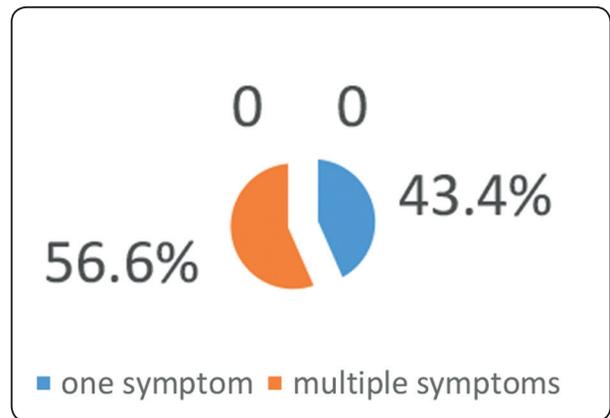


Fig. (4)

TABLE (1) TMD symptoms among students of The ACU < 0.05 showed statistically significant difference.

		Medical students		Non-Medical students		
		Count	%	Count	%	
Muscle tension	no	21	28.4%	31	33.7%	0.46 NS
	Yes	53	71.6%	61	66.3%	
Clicking	no	33	44.6%	28	29.3%	0.04 S
	Yes	41	55.4%	64	70.7%	
Pain around the Ear	no	55	74.3%	57	62.0%	0.09 NS
	Yes	19	25.7%	35	38.0%	
Pain during Chewing	no	42	55.4%	60	65.2%	0.19 NS
	Yes	32	44.6%	32	34.8%	
locking	no	66	89.2%	79	84.8%	0.4 NS
	Yes	8	10.8%	13	15.2%	

TABLE (2) Factors associated with TMD symptoms among students of ACU

TMD risk factors	Medical students (74)	Non-medical students (92)	Total students (166)
Gender)	(%52.7) (39) M (%47.3) (35) F	(%25) (23) M (%75) (69) F	(%37.3) (62) M (%62.7) (104) F
Faculty)	(%68.9) (51) Dentistry (%31.1) (23) Pharmacy	(%65.2) (60) Mass-comm (%15.2) (14) Computer-science (%11.9) (11) Business (%7.6) (7) Engineering	(%44.5) (74) Medical (%55.5) (92) Non-medical
Stress)	(%56.7) (42)	(%55) (51)	(%56) (93)
trauma)	(%14.8) (11)	(%17.3) (16)	(%16.2) (27)
Arthritis)	(%10.8) (8)	(%19.1) (13)	(%12.6) (21)

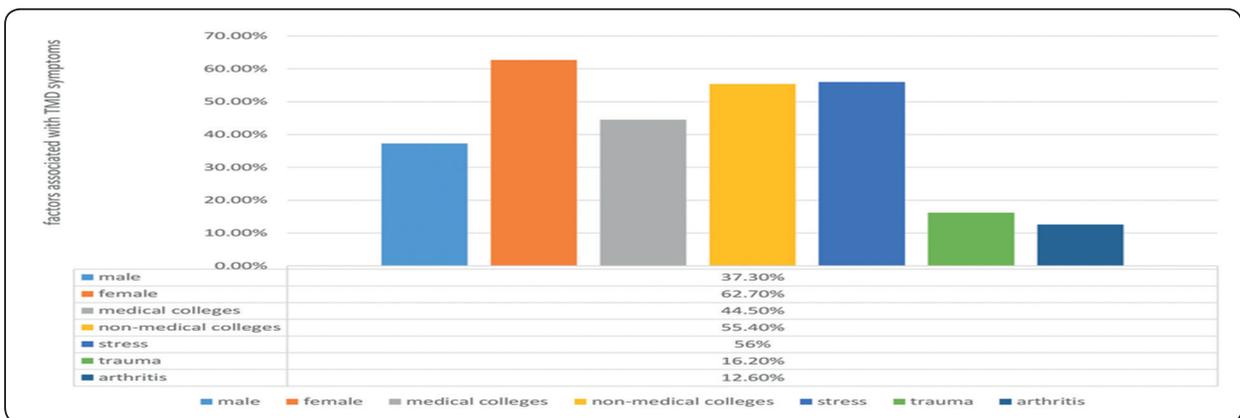


Fig. (5)

DISCUSSION

This study showed that TMD findings were common among the study sample of Ahram Canadian University. This is in harmony with findings of previous studies on Brazilian⁽¹⁵⁾ and Jordanian⁽¹⁶⁾ university students. Factors associated with TMD symptoms in the study sample are shown in (Fig 5) and (Table.2). The prevalence of TMD symptoms in the study population was not affected by age. Muscles tension was significantly highest in students of medical field study (71.6%) due to high studying load leading to increased tension that affect them psychologically expressed by Para-functional

habits like clenching and grinding the main cause of muscles tension. While clicking was the highest in students of non-medical study field (70.7%) secondary to muscle spasm that causes TMJ disk displacement beside trauma and malocclusion. A high percentage of studying stresses was common in both medical (56.7%) and non-medical colleges (55%). All the TMD symptoms were significantly more prevalent in students who had stress, positive history of trauma to the jaw, head or neck, or positive history of Colleges (12.6%). Students studying in the medical schools had significantly the highest risk in developing TMDs compared with students studying in non-medical Colleges; however the results of

the present investigation showed that Symptoms of TMD were remarkably prevalent among the 404 students sample representative of the student community at the Ahram Canadian University.

This study is in disagreement with results reported on a sample of university students in Brazil demonstrated that pain in or around the ears was the most common symptom in the sample^(15,17). This study demonstrated that muscle tension was the most common symptom in the sample investigated, Clicking was the second most common symptom, whereas, other studies demonstrated that clicking is the most common symptom^(2,18,19). The results of the present study indicated that age variations within the investigated student sample had no significant effect on TMD symptoms. This finding supported a previous study that investigated the age effect on TMD on a large sample of 7008 subjects⁽²⁰⁾, but contrasted the findings of other studies which reported either an increase in symptoms with age in a sample of 2255 subjects⁽²¹⁾ or a decrease with age in a sample of 920 subjects⁽²²⁾. The disagreement among the previously reported studies may be related to sample size or its demographic distribution.

It is accepted that TMD symptoms are more common in females^(23,24,25). Trauma had a significant effect on developing TMD among the investigated sample; this is similar to previous findings which linked head and neck trauma with TMD symptoms, mainly as: joint pain, limitation of mouth opening and masticatory muscle tenderness^(26,27,28). Students in non-medical colleges had a significantly higher risk of developing TMD; a possible explanation is that non-medical colleges' schools students in the Ahram Canadian University entailed a greater study stress and general anxiety. This study demonstrated a significant relationship between psychological and emotional factors and TMD. This finding is in agreement with those of previous reports^(29,30,31) which arrived at similar conclusion.

Students in medical schools were at a significantly higher risk of developing muscle spasm whereas clicking was more common among students of non-medical colleges' students. A possible explanation is that Students of the medical schools are more aware than others of the commonality of the TMJ click in the population and its relationship to TMD, thus they would seek an early treatment of significant symptoms like trismus, joint locking, and pain on chewing and in or around the ears. The results of this investigation highlight the need for additional research to shed more light on the risk factors and findings related to TMD. This will facilitate drawing adequate guidelines for prevention and management of TMD. Also, the findings of this study support the idea of conducting regular examinations for university students in order to allow early diagnosis and prompt management of TMD.

CONCLUSION

TMD is of a high Prevalence among students of the Ahram Canadian University and its associated symptoms are frequent among students of medical schools, which signify the role of stress in the development and/or progression of TMD and more studies are required to identify risk factors associated with TMD to establish measures for prevention and treatment.

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