



Study of Prevalence of Temporomandibular Disorders among Undergraduate Students

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Abstract

Temporo-mandibular joint function has been extensively studied for more despite extensive investigation, the complicated etiology of TMJ dysfunction has remained a mystery for more than a century. Temporomandibular disorder (TMD) is a sub - class of painful orofacial conditions characterized by complaints of pain in the region of the temporomandibular joint (TMJ), difficulty concentrating craniocervicofacial muscles, especially mastication muscles, limitations of mandibular movement, and the presence of articular clicking. Emotional stress, occlusal interferences, tooth loss, postural deviation, muscles of mastication neuromuscular both internal and external dysfunction anomalies in Temporo-mandibular joint anatomy, and the multiple interrelationships between these factors all contribute to the complicated etiology of TMD.

Aim: Determine the prevalence of temporomandibular joint disorder between college students. The sample for this sectional potential study consisted of 691 college students (339 male and 352 female). Self-reported questionnaires were used to determine the incidence and severity of TMJ disorders. By virtue of the quantity and frequency of notable replies, the rankings were upgraded to an intensity ranking. Results: 56.6% of students reported some level of TMD, including 39.7% with mild TMD, 12.2% with moderate TMD, and 4.6% with severe TMD. Historically, no significant correlation between gender and TMD severity was observed.

Conclusion: This student population exhibited a high prevalence of TMD; however, the majority of cases were mild. The statistical significance of the association between TMD severity and gender is no longer proven. Despite having TMD. The students had little knowledge of their conditions.

Introduction:

Temporomandibular disorders are a subset of traumatic dentofacial disorders characterized by problems of hurt In the temporomandibular joint (TMJ), the tension of the cranial, neck, and facial muscles, particularly the masticatory muscles, the restriction of mandibular movement, and the existence of an articular click. TMJ disorders can be caused by severe trauma, immune-mediated disease of the system, tumor cells expansion, psychological pain, occlusal interventions, dental misplacement or loss, postural changes, disorder of the muscles of mastication and nearby structures, and extrinsic and intrinsic changes in the maxillary joint. Temporal; The structure, non-functional movements of the lower jaw, bruxism behaviors, or a combination of all of these (1,2,3). TMJ alterations and worsening of preexisting TMJ issues have been linked to prosthodontic rehabilitation, orthodontic therapy, and mandibular fractures (4). Due to the TMJ's innate adaptability, the TMJ undergoes morphological changes during pregnancy, jaw displacement, and decompression as a result of the aforesaid procedures. (5)

The prevalence of TMJ issues ranges from 20% to 50%, which may be attributable to ethnic variances, sample, criterion, and information collection methods (6-8). The screening of the population for TMDs is always a worry and a challenge for researchers. Assessments of TMDs have included Personality questionnaires, medical evaluation index, physical assessment in clinics, recognized instrument procedures for diagnosis, and behavioral or psychological assessment. (9,10). Research Diagnostic Criteria for TMDs is the most prevalent and essential tool for detecting TMDs (11).

This has been applied in various clinical and epidemiological studies, however patient presence is necessary for evaluation. In light of this, further instruments for testing TMDs have been developed. The Fonseca Anamnestic Index has been presented as a low-cost,

user-friendly screening tool for TMDs in non-patient populations (12). A simple questionnaire would accelerate the application process and reduce its cost. This facilitates epidemiological studies and therapy monitoring. A questionnaire would also generate a severity index with less examiner influence and less measurement variation.(13)

Fonseca's questionnaire possesses the qualities of a multidimensional test. Ten questions investigate the prevalence of TMJ, head and back pain during chewing, parafunctional behaviors, movement constraints, joint clicking, perception of malocclusion, and psychological stress. This study seeks to conduct a cross-sectional epidemiology study to investigate the prevalence and severity of TMDs among students using Fonseca's questionnaire. The significance of the medical and dental histories of individuals in connection to TMDs was also investigated. If volunteers were described, Al-Hadi University College students would gain a greater grasp of the disease's prevalence, early detection, and treatment.

Methods:

The study was carried out between 02.05.2022 and 02.06.2022.

Using an anonymous questionnaire, the necessary information was gathered. The questionnaire was adapted from earlier research (14- 16). The survey has also been translated into Arabic for students who cannot read English. The questionnaire was created electronically on the Google website (google form application) the questionnaire design was simple and brief to be easy from undergraduate students from the departments of dentistry, anesthesia techniques, and medical laboratories at Al-Hadi University College. Baghdad, Iraq. The link was sent to Students wishing to participate in the study filled out the questionnaire electronically and sent it.

The questionnaire contained Fonseca's 10 questions (12)

1-Do you have any mouth opening restrictions?

2-Is it difficult for you to lateralize your mandible?

3-Do you get muscle ache during chewing?

4-are you suffer from frequent headaches?

5-are you experience discomfort in or around your ears, cheek, or temple?

6-Have you experienced clicking in your Temporo-mandibular joint while eating or putting something in your mouth?

7-Consider yourself a nervous individual?

8-Do you grip or bite your teeth?

9-Do you suppose your teeth are unable to communicate clearly?

10-Do you suffer from neck discomfort or stiffness?

Participants were instructed to select one of the following options: yes, no, or sometimes. The value of 'yes' was 10, 'sometimes' was 5, and 'no' received a value of 0. Table 1 depicts the classification of students based on the sum of the values for each question.

Statistical Methods

On the data obtained, both descriptive and inferential statistics and frequency analysis were performed using SPSS version #20. The significance of each question was evaluated using the Chi-square test at a significance threshold of 0.05.

Results:

Six hundred ninety-one completed surveys were obtained, with 339 male students and 352 female participants responding to the questions. There were 204 (29.5%) answers from the department of Anaesthesia Technique, 87 (12.6%) from the department of medical labs, 393 (56.6%) from the department of Dentistry, and 8 (1.2%) from other departments. The average age of participants was 21.94 SD plus 1.81 years. Based on Fonseca's questionnaire, Table 2 depicts the number and proportion of participants with varied

degrees of TMJ dysfunction. The results have shown more than half of students 56.6 % of students reported some level of TMD: 39.7 % mild TMD; 12.2 % moderate TMD; 4.7% % severe TMD. The study revealed that of three hundred students, 300 (44.3%) not showing any symptoms of TMDs. About (391) 45.7% of the populace had some type of TMD problem, in our study six hundred ten students 610 (88.2%) have been free of difficulty in mouth opening, about 20 (2.9%) of the populace had a challenge in mouth opening, whilst 61 (8.9%) someday struggling from limitation in mouth opening. 65 (9.4%) had muscular ache for the duration of chewing, 514 (74.3%) free of ache and 20.2%. Problems experience occasionally. 19 (28.6%) of college students had regularly occurring headaches, neck aches, and toothaches whilst 399 (57.7%) free of pain. 76 (11%) go through aches around the ears, cheek, and temple. 127 (18.3%) seen T.M.J. clicking whilst chewing or opening the mouth and 108 (15.6%) feeling sometimes. The response of the students to Fonseca's 10 questions are introduced in Table 3. All the responses for every query confirmed a statistically extensive distinction ($p < .05$) via the chi-square test.

Discussion:

This cross-sectional study examined the prevalence and severity of TMDs using the Anamnesis Index created by Da Fonseca et al. (1994) in college students at ALhadi university college in Baghdad, Iraq. The screening of the population for TMDs is a difficulty for researchers, and several devices for TMD diagnosis have been introduced in the scientific literature, but there are no standard diagnostic criteria. (17) proposed the Research Diagnostic Criteria for TMDs because to the desire to adopt a generally acknowledged tool.

Jha, N., et al (2022) Using medical diagnostic imaging, video images, radionics characteristics, jaw movement monitoring, electronic medical records (EMR), and biomarkers, artificial intelligence solutions have been developed

to assist physicians with the diagnosis of TMDs. These factors may lead to improved diagnostic precision. According to the researchers, DC/TMD consists of a reliable and valid screening questionnaire as well as diagnostic algorithms for the most prevalent pain-related TMD. Despite their advantages, the RDC/TMD and DC/TMD are unwieldy instruments that require a person's presence for the diagnosis of TMDs and are difficult to

utilize on large samples (20). The use of the Anamnestic Index by Da Fonseca (1994) for detecting signs and symptoms of TMDs has the benefit of being simple to use by both general practitioners and epidemiologists. Thus, the Anamnestic Index would serve as a preliminary tool for tracing TMDs; once the affected population is identified, a more in-depth inquiry involving a full clinical examination and diagnostic equipment can be done to confirm the diagnosis. In a review of the literature about the validity of utilizing a questionnaire to diagnose the severity of TMDs, questionnaires were found to be reliable. The prevalence of TMDs, as determined by Da Fonseca's (1994) Anamnestic Index, differs between research. Over fifty-six percent of our study participants experienced mild to severe TMDs. In published research, the prevalence of TMDs was observed a 34% prevalence (18,19), Yan, Z. et al. (2022)

(20) found a 52.7% prevalence.

The literature on scholastic stress and its effects on the health of college students is reviewed. College is a prerequisite for reading about the intellectual health of adolescents. Students regularly endure positional adjustments, such as moving away from home for the first time, living with other students, and experiencing diminished personal supervision. These modifications may also increase the risk of depression (20,21). It is widely accepted that psychological factors have a role in the genesis and recovery of TMDs. Particularly, a high rate of exposure to distressing life events and elevated levels of anxiety and stress-related symptoms have been reported in TMDs patients(21).

40.4% n=280 of the respondents in our survey responded affirmatively to the question "Do you consider yourself a tense (nervous) person?" These results are consistent with (22), who argued that stress and anxiety play a crucial role in TMDs, acting as a predisposing or disrupting factor. However, it is difficult to assess a variable like as stress or anxiety, and although efforts have been made to determine the prevalence of stress among TMDs patients, there is a need for more research.

Although the current study provided some data regarding the incidence and severity of TMDs in young male and female Iraqi college students, there is a need for long-term medical research in this area. The key to successful TMDs treatment is early diagnosis and prevention of potential complications.

Conclusion:

TMD is a complex symptom produced by numerous poorly understood reasons. Harmony and equilibrium between the masticatory system and function are essential for maintaining the health of the TMJ complex. If something upsets this equation, the body attempts to rectify it, but only to a limited extent; when the incorrect functions persist, symptoms arise. Therefore, we may conclude (based on our research) that greater emphasis should be placed on educating patients on how to avoid activities that are detrimental to TMJ, as patient education is also a crucial component of effective TMJ therapy. Increasing young people's awareness of the symptoms of primary TMJ illnesses and the significance of treating them immediately to prevent their progression necessitates the development of new treatment strategies.

Abbreviation

TMJ: Temporomandibular joint.
TMD: Temporomandibular disorder.
(DC) : Diagnostic Criteria.
(RDC): Research Diagnostic Criteria .
(EMR): Electronic medical records.
(FAI): Fonseca Anamnestic Index.

Table 1. Classification of TMD intensity depending on Fonseca's Anamnestic Index

None TMD	rating 0 and 15
Bright TMD	Rating 20 and 40
Medium TMD	Rating 45 and 65
SERIOUS TMD	Rating 70-100

Table 2. Classification of TMJ Diseases based on the Fonseca Anamnesis Index.

Fonseca's Classification	N (%)	Male	Female
None TMD	300(44.3%)	178(52%)	122(35.6%)
Bright TMD	275(39.7%)	123(38%)	152(43.1)
Medium TMD	83(12%)	27(7%)	56(15%)
Serious TMD	33(4%)	11(3%)	22(6.3%)
Total	691	339	352

Table 3 Response of the students to Fonseca's 10 questions (n=691)

s.no	Questions	yes N(%)	No N(%)	Sometimes N(%)	p value
1	Do you have any mouth opening restrictions?	20(2.9%)	610(88.2%)	61(8.9%)	.000
2	Is it difficult for you to lateralize your mandible?	27(3.9%)	623(90.2%)	41(5.9%)	.005
3	Do you suffer from frequent headaches?	198(28.6%)	307(44.4%)	187(27%)	.009
4	Do you have pain on the nape or stiff neck?	138(19.9%)	399(57.7%)	154(22.4%)	.048
5	Do you experience discomfort in or around your ears, cheek, or temple?	76(11%)	514(74.3%)	101(14.7%)	.005
6	Do you grip or bite your teeth?	73(10.5%)	535(77.3%)	83(12.2%)	.000
7	Do you suppose your teeth are unable to communicate clearly?	143(20.6%)	477(69%)	71(10.4%)	.004
8	7-Do you Consider yourself a nervous individual?	280(40.4%)	192(37.8%)	219(31.7%)	.048
9	Do you suffer from neck discomfort or stiffness?	65(9.4%)	499(72.2%)	127(18.4%)	.003
10	Have you experienced clicking in your TMJ while eating or putting something in your mouth?	127(18.3%)	456(65.9%)	108(15.6%)	.090

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