DOI: https://doi.org/10.54393/pjhs.v4i10.997

PAKISTAN JOURNAL OF HEALTH SCIENCES

https://thejas.com.pk/index.php/pjhs

Volume 4, Issue 8 (August 2023)

Original Article

Frequency of Temporomandibular Joint Dysfunction among Undergraduate University Students: A Cross Sectional Study

Tamknat Ilyas[1], Asma Wadood[1], Rabia Jawa[1], Sidra Ali[1], Rahat Ayub[1] and Sania Maqbool[2]

[1]Department of Physical Medicine & Rehabilitation SHS at University of Management & Technology, Lahore, Pakistan
[2]Sadaan Hospital Lahore, Pakistan

ARTICLE INFO

Key Words:
TMJ, TMJD, Anxiety, Depression, Medical Students

How to Cite:
Ilyas, T., Wadood, A., Jawa, R., Ali, S., Ayub, R., Maqbool, S., & Qamar, S. (2023). Frequency of Temporomandibular Joint Dysfunction among Undergraduate University Students: A Cross Sectional Study: Frequency of Temporomandibular Joint Dysfunction . Pakistan Journal of Health Sciences, 4(10).
https://doi.org/10.54393/pjhs.v4i10.997

***Corresponding Author:**
Saddiqa Qamar
Department of Physical Therapy SHS, University of Management & Technology, Lahore, Pakistan
siddiqaqamar16@gmail.com

Received Date: 17th August, 2023
Acceptance Date: 25th October, 2023
Published Date: 31st October, 2023

ABSTRACT

Temporomandibular joint dysfunction (TMJD) is an umbrella term covering pain and dysfunction of the muscles of mastication (jaw muscles). Disorder of temporomandibular Joint is one of the most common health problems. It is a term used to cover a number of multiple clinical issues related to temporomandibular joint, muscles of mastication and teeth. The trio that effects the arrangement and balance of TMJ, dental occlusion and muscles of mastication revolves mainly around "psychological, postural and structural elements. **Objective**: To find out Frequency of TMJD among undergraduate university students. **Methods**: Cross-sectional survey was conducted in duration of 3 months after approval of synopsis across University of Management and Technology (UMT). Self-designed questionnaire and TMJ dysfunction questionnaire was used. The sample size of this study was 200 calculated by Rao software. It took 9 months' time period to complete the study. Random sampling technique has been used in this study to collect the data. SPSS version 21 was used to analyze data, frequency tables and bar charts were made. **Results:** Results showed that 63.5% (n=127) were considered themselves chronically fatigued and 77% (n=154) grinded their teeth at night. 64% (n=128) of the students were from health sciences background. This shows the association of prevalence of TMJDs and stress in university students. **Conclusions:** Study showed high frequency of TMD amongst students due to chronic fatigue, overload of study, poor ergonomics, and working hours, which are associating risk factors for TMD. Stress management & good ergonomics strategies are required.

INTRODUCTION

Temporomandibular Joint is a type of synovial joint and its function relies upon integrity of the structures [1]. Normal functioning of TMJ is affected by different factors including external and internal changes. For example: mechanical , psychological , occupational and habits [2].Disorder of temporomandibular Joint revolves mainly around "psychological , postural and structural elements of TMJ [3]. Disorders of TMJ in people and their response to it differs worldwide and has three categories like Pain in muscles controlling jaw function and tenderness caused by myofascial syndrome, degenerative joint disorder and displacement of meniscus (with or without dislocated jaw [4]. Clinical manifestations of TMJ pain include myofascial pain, stiffness of jaw, difficulty in movement, struggled chewing, pain in opening and closing of mouth, disturbance in teeth articulation [5]. Tension headache, earaches pain of cervical region, migraine and neck pain are also seen along with the manifestations of the TMJ pain [6]. Orofacial and preauricular pain along with TMJ bruit function and disc displacement are also seen in TMJ disorder [7].Stress, bruxism and early loss of teeth and gender are considered to be the main elements of TMJ disorders [8]. TMJ problems are mostly seen in females. It is observed that TMD are three times more common in females than in

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males [9]. Emotional and psychological factors play an important role in the progression of the disorder [10]. Fatigue and sleep disturbances also seen in this disorder [11]. Some studies have shown that, on observing patients with TMJ disorder, they were not suffering from depression although this disorder can be related to anxiety but not depression [12]. The causes of mental health problems include poor grades in academics and disability. Moreover, other factors causing tension includes financial problems, being female and in age from 18 to 34 years [13]. Once the experiments were done in stress condition and electromyographic activity of muscles of mastication was observed. As a result, we came to know that chewing activity is more in stress situation and becomes less when a person is completely in ease [14]. Dysfunction of the muscles of jaw and pain in TMJ is mainly due to muscle hyperactivity caused as a result of stress [15]. Headaches, Lock-jaws, pain in opening mouth, difficulty in chewing, one sided deviation of lips, and difficulty in yawning all are the symptoms of TMDs. In fact, debating over anything for a certain period of time leads to increase in the intensity of pain in TMJ [16]. The aim of this study was to know the prevalence of TMD disorders in students of university. The relationship of stress and the presence of TMD in students is the focus of this study. This study will also help in setting a baseline for the importance of knowing the co-relation between stress and prevalence of TMD. Questionnaire is used to assess the information about TMD in a population. This study will further help to know the risk factors of the development of TMDs in students and how to overcome this disorder in future.

METHODS

Study design was Cross sectional study. Study duration was 3 months after approval of synopsis. Data was collected from University of Management and Technology (UMT). Simple Random Sampling technique was used. Sample size was 200 university students calculated by Rao software, who met the inclusion criteria and the students having TMJ pathology and trauma of TMJ or with previous history of neurological symptoms are excluded. Self-designed and TMJ dysfunction questionnaire was used as data collection procedure.

RESULTS

Table 1 shows the demographics of the participants.

Table 1: Demographics of participants

Age	18-15 (55%), 26-35(45%)
Gender	F: 126 (63%), M: 74(37%)
Department	P (29%), SBE (7%), SHS (64%)

Table 2 depicts that 74% (n=148) don't have grating, clicking in either or both jaws when they chew. While 26% (n=52) have grating, clicking or popping sensation when they chew.

Table 2: Do you have a grating, clicking or popping sound in either or both jaws when you chew?

Sound on chewing	Frequency (%)
No	148 (74.0%)
YES	52 (26.0%)
Total	200 (100.0%)

Table 3 showed that 75% (n=150) don't have sensation of stuffiness, pressure or blockage, ringing, hissing or buzzing in ears. On the other hand, 25% (n=50) feels sensation of stuffiness, pressure or blockage, ringing, hissing or buzzing.

Table 3: Do you have sensations of stuffiness, pressure or blockage, ringing, hissing, or buzzing in your ears?

Sensations in ears	Frequency (%)
No	150 (75.0%)
YES	50 (25.0%)
Total	200 (100.0%)

Table 4 depicts that 90.5% (n=181) don't have their jaw painful or locked when they wake up in the morning. While 9.5% (n=19) have their jaw painful or locked when they wake up in the morning.

Table 4: Is your jaw painful or locked when you wake up in the morning?

Painful jaws	Frequency (%)
No	181 (90.5%)
YES	19 (9.5%)
Total	200 (100.0%)

93.5% (n=187) don't have difficulty in chewing. While 6.5% (n=13) have difficulty in chewing depicted in Table 5.

Table 5: Do you have difficulty chewing?

Difficulty chewing	Frequency (%)
No	187 (93.5%)
YES	13 (6.5%)
Total	200 (100.0%)

Figure 1 showed that 89.5% (n=179) don't find it hard to move their jaw side to side, forward or backward. While 10.5% (n=21) find it hard to move their jaw side to side, backward and forward.

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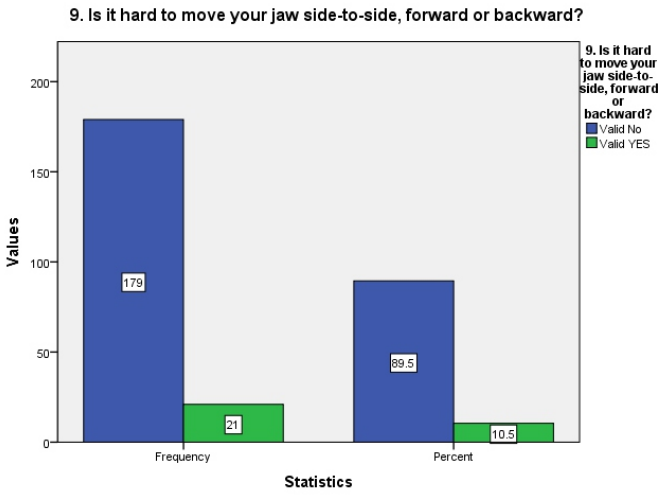

Figure 1: Percentage and frequency of participants with difficulty to move their jaw side to side, forward or backward

Figure 2 showed that 89.5% (n=179) don't have their jaw deviated to left or right when wide open. While 10.5% (n=21) have their jaw deviated to left or right when wide open.

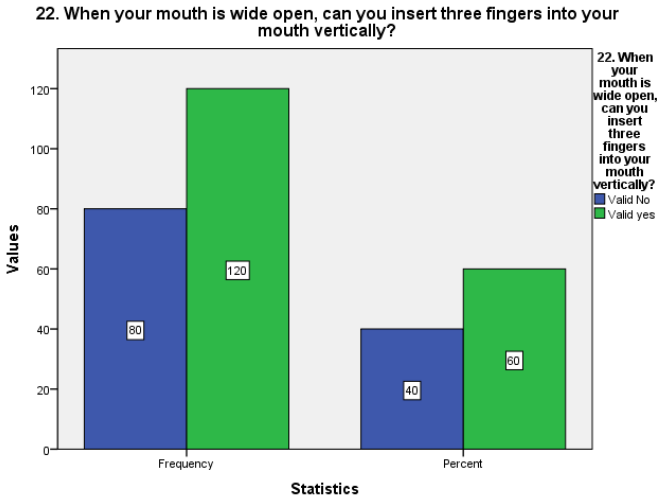

Figure 2: Percentage and frequency of participants with jaws deviated to left or right when wide open

DISCUSSION

According to research done on undergraduate students at Taibah University, there is no significant relation of dizziness or faintness with TMD dysfunction on students while our result showed that 57% (n=114) feels dizzy or faint. While 43%(n=86) don't feel dizzy or faint [17]. A study done in 2021 in CMH & IOD showed that only 25% (n= 150) has TMJ restricted range where they cannot insert three fingers into their mouth vertically while rest 75% (n=450) insert while our result showed greater percentage of restriction that is 60% (n=120) can insert three fingers into their mouth vertically. While 40% (n=80) cannot insert three fingers into their mouth vertically [18]. Similar to existing studies done in university of Jordan which showed that due to a greater study load students are subjected to high level of stress, anxiety and other psychological issues. This effects their posture and their sleeping habits as well. This included the pain around ear, joint locking and trismus were more common in the students of science [19]. Our study showed that grinding of teeth habit was most prevalent and students felt stressed is secondary cause. A study done on undergraduate students of UOL shows that 234 (57.6%) of the students feel nauseated while our result showed that 66% (n=132) don't feel nauseated for no apparent reason. While 34% (n=68) feel nauseated for no apparent reason. [20].

CONCLUSIONS

This study showed high frequency of TMD amongst students due to chronic fatigue, overload of study, poor ergonomics, and working hours, which are associating risk factors for TMD. Stress management & good ergonomics strategies are required.

Authors Contribution

Conceptualization: TI, RA
Methodology: AW, SM
Formal analysis: RJ, SQ
Writing-review and editing: SA, SM, SQ

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

Source of Funding

The authors received no financial support for the research, authorship and/or publication of this article.

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