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Prevalence and Severity of Temporomandibular Joint Disorders in New Students of the Abu Ubaidah bin Al-Jarrah Mahad Foundation

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ABSTRACT

Temporomandibular disorders (TMD) can be defined as a clinical problem which comprises of various signs and symptoms, such as pain in the temporomandibular joint or the masticatory muscles, limits in the range of motion, deflection, and clicking/crepitation. The etiology and pathophysiology of TMD has been viewed as multifactorial and complex, few factors were trauma, stress, parafunctional habits, psychological factors, hereditary and occlusal. This community service aimed to assess the prevalence and severity of TMD in freshmen students of Mahad Abu Ubaidah bin Al-Jarrah in 2022 using the Fonseca Anamnestic Index. Community service participants were 157 new students, of which 52.9% were female, and 47,1% were male. Based on the severity, 26,7% were symptom free, 46,5% had mild symptoms, 19,8% had moderate symptoms, and the remaining 7% had severe symptoms. Based on gender, most of the male participants were TMD free, while most female participants had mild TMD symptoms. In conclusion, in this community service showed high prevalence of TMD where only 26,7% of the total participants were TMD free, and the rest had TMD symptoms. Based on gender, TMD symptoms were found more in female participants. Fonseca Anamnestic Index is a useful tool in early detection of the signs and symptoms of TMD.

Keyword: fonseca anamnestic index, temporomandibular joint temporomandibular disorder,

ABSTRAK

Gangguan temporomandibula (TMD) dapat diartikan sebagai masalah klinis dengan tanda dan gejala yang menyertai, seperti nyeri pada sendi temporomandibular (TMJ) atau otot pengunyahan, pembatasan gerakan rahang, penyimpangan/ defleksi saat membuka mulut, dan terjadinya bunyi klik atau krepitasi. Etiologi dan patofisiologi TMD telah dianggap multifaktorial dan kompleks, terdiri dari trauma, stres, kebiasaan parafungsional, faktor psikologis, keturunan, dan oklusal. Pengabdian masyarakat ini bertujuan untuk melihat prevalensi TMD dan keparahannya pada mahasiswa baru Yayasan Mahad Abu Ubaidah bin Al-Jarrah tahun 2022 dengan menggunakan kuesioner Fonseca. Peserta pengabdian kepada masyarakat sebanyak 157 mahasiswa baru, sebagian besar responden adalah wanita dengan persentase sebesar 52,9% dan pria 47,1%. Berdasarkan tingkat keparahannya, sebanyak 26,7% bebas gejala, 46,5% bergejala ringan, 19,8% bergejala sedang, dan 7% sisanya bergejala berat. Berdasarkan jenis kelamin, sebagian besar peserta laki-laki bebas TMD, sedangkan sebagian besar peserta perempuan mengalami gejala TMD ringan. Kesimpulannya, di pengabdian masyarakat ini menunjukkan prevalensi TMD yang tinggi dimana hanya 26,7% dari total peserta yang bebas TMD, dan sisanya mengalami gejala TMD. Berdasarkan jenis kelamin, gejala TMD lebih banyak terjadi pada peserta perempuan. Fonseca Anamnestic Index membantu dalam deteksi dini tanda dan gejala gangguan sendi temporomandibula.

1. Introduction

Temporomandibular disorder (TMD) is a condition caused by the dysfunction of the temporomandibular joint (TMJ) which causes chronic recurrent pain in the muscle and the supporting structure of the TMJ [1]. As a clinical problem which comprises of various signs and symptoms, such as pain in the temporomandibular joint or the masticatory muscles, limits in the range of motion, deflection, and clicking/crepitation [2].

TMD symptoms were mostly exhibited by adults aged 2-40 years old. When it exhibits more serious conditions, such as pain or jaw immobility, TMD will affects the quality of life and forces its patients to seek medical assistance [3]. Awareness of patients towards TMD and the reason of looking for professional assistance are different from one patient to another [2]. The high prevalence and high healing rate of TMD is important to identify TMD and it/s complex etiology [3].

The etiology and pathophysiology of TMD has been viewed as multifactorial and complex, few factors were trauma, stress, parafunctional habits, psychological factors, hereditary and occlusal [3]. Studies had shown that improper posture, stress, and sleep disorders were the risk factors of TMD [4]. Symptoms of TMD were clinical manifestations of TMJ felt subjectively and difficult to measure. In the studies of TMD prevalence, myofascial pain was concluded as a diagnostic sign found mostly in TMD cases. Other symptoms were jaw stiffness, locked jaw, reduced movement, clicking and deviation of the articulation. Few symptoms affect beyond the musculoskeletal system, such as nonotologic otalgia, dizziness, tinnitus, and tooth pain. TMD can also be manifested as tension pain in the head area, migraine, and neck pain [1].

Sudden changes in occlusion because of muscular changes and pain in the TMJ were factors that encourages patients to seek for medical assistance. However, other studies had also shown signs and symptoms of TMD in healthy individuals [2]. Due to its complex nature, early identification of TMD may attribute to early intervention which will improve the quality of life of patients [3]. Based on the various reasons mentioned, in this community service authors would like to assess the prevalence and severity of TMD using Fonseca Anamnestic Index.

2. Methods

This community service conducted a survey using the Fonseca Anamnestic Index among freshmen students of Mahad Abu Ubaidah bin Al-Jarrah in 2022. Community service participants were 157 new students, of which 52.9% were female, and 47,1% were male. Prevalence and severity of TMD were assessed using the Fonseca Anamnestic Index. The Index was commonly used to assess the severity of TMD with classification as follows: mild, moderate, and severe TMD.

Fonseca Anamnestic Index comprises of 10 questions with answers using the 3-point scale format (no, sometimes, and yes). This questionnaire will evaluate the pain in TMJ, head and the back, pain during mastication, parafunctional habits, limited jaw movement, clicking, occlusal prevention and stress. For every item asked the index, a score will be calculated with allocation follows: "Yes" 10 points, "Sometimes" 5 points, and "No" 0 point. The scores from each item will be calculated to get the total score. The total score of each participant will be divided into 4 categories, such as: 0-15 points no TMD, 20-40 points mild TMD, 46-65 points moderate TMD, and 70-100 points severe TMD. Ethical clearance was obtained, and informed consent was asked to each participant in this community service. Data obtained was analyzed using SPSS.

3. Results and Discussion

Authors conducted a survey using the Fonseca Anamnestic Index among freshmen students of Mahad Abu Ubaidah bin Al-Jarrah in 2022. Prevalence and severity of TMD were assessed using the Fonseca Anamnestic Index. The Index was commonly used to assess the severity of TMD with classification as follows: mild, moderate, and severe TMD. Fonseca Anamnestic Index comprises of 10 questions with answers using the 3-point scale format (no, sometimes, and yes). This questionnaire will evaluate the pain in TMJ, head and the back, pain during mastication, parafunctional habits, limited jaw movement, clicking, occlusal prevention and

stress. For every item asked the index, a score will be calculated with allocation follows: "Yes" 10 points, "Sometimes" 5 points, and "No" 0 point. The scores from each item will be calculated to get the total score. The total score of each participant will divide into 4 categories, such as: 0-15 points no TMD, 20-40 points mild TMD, 46-65 points moderate TMD, and 70-100 points severe TMD. Ethical clearance was obtained, and informed consent was asked to each participant in this community service. Datas obtained were analyzed using SPSS.

Participantss had no difficulty opening their mouths (70,1%) and difficulty in moving their jaws (72,1%). As many as 40,8% sometimes feel tired or have muscle pain when chewing but do not hear a "click" sound when chewing or opening their mouth wide (59,9%) but sometimes experience headaches (51%). There were 40,1% of participants who did not experience pain or neck tension and pain in the ear area. More than half of the participants (64,3%) did not feel that the maxillary and mandibular teeth were not in good contact when chewing. As much as 42% of participants feel anxious easily but do not have bad habits of grinding their teeth while sleeping and unconscious clenching (80,3%).

Table 1. Total distribution of answers from the Fonseca's Anamnestic Index.

Fonseca's Anamnestic Index	No	Sometimes	Yes
Is it hard for you to open your mouth?	110 (70.1%)	38(24.2%)	9(5.7%)
Is it hard for you to move your mandible from side to side?	114(72.6%)	29(18.5%)	14(8.9%)
Do you get tired /muscular pain while chewing??	53(33.8%)	64(40.8%)	40(25.5%)
Have you noticed any TMJ clicking while chewing or when you open your mouth?	94(59.9%)	47(29.9%)	16(10.2%)
Do you have frequent headaches?	46(29.3%)	80(51.0%)	31(19.7%)
Do you have pain on the nape or stiff neck?	63(40.1%)	61(38.9%)	33(21.0%)
Do you have earaches or pain in craniomandibular joints?	80(51.0%)	42(26.8%)	35(22.3%)
Do your feel your teeth do not articulate well?	101(64.3%)	34(21.7%)	22(14.0%)
Do you consider yourself a tense (nervous) person?	46(29.3%)	66(42.0%)	45(28.7%)
Do you clench or grind your teeth?	126(80.3%)	19(12.1%)	12(7.6%)

When viewed by gender, many participants as many as 32.4% of men did not have TMD symptoms, while most participants as many as 50.6% of female participants had mild TMD symptoms. (Table 2).

Table 2. Gender distribution of freshmen students classifed based on TMD severity.

Gender	TMD Severity				Total n(%)
	No TMD n(%)	Mild TMD n(%)	Moderate TMD n(%)	Severe TMD n(%)	
Male	24 (32,4%)	31 (41,8%)	16(21,6%)	3 (4,02%)	74 (47,1%)
Female	18 (21,7%)	42 (50,6%)	15(18%)	8 (9,7%)	83 (52,9%)
Total	24 (32,4%)	31 (41,8%)	16(21,6%)	3 (4,02%)	74 (47,1%)

In this community service, 46,5% of participants experienced mild TMD symptoms, 19,8% experienced moderate TMD and 27% experienced severe TMD. Similar results by Umniyati H [5] That showed out of 225 respondents, 50,7% had temporomandibular disorders. Seventy-five percent of the population might experience sign and symptoms of Temporomandibular joint disorder in their lifetime [6].

Based on gender, female participants experienced more temporomandibular joint disorders than men, which aligned with Nomura et al. Karthik et al. and Bevilaqua-Grossi et al. which shows similar findings where women experienced more temporomandibular joint disorders compared to male respondents.5 This may be related to the physiological characteristics of women, namely hormonal, muscle structure, and connective tissue which are different from male respondents [7].

Participants in this community service who had difficulty moving their jaws were 72,1% and the highest symptom was followed by difficulty opening the mouth as much as 70,1%, 51% experienced headaches, with more than half of the participants not realizing that their teeth were not in good contacts during mastication. These results align with Komura et al. with a percentage of 65,52% of participants experiencing clicking when opening their mouth, and 61,21% of participants experiencing headaches and neck pain [8]. These datas are essential because they show the importance of early diagnosis of temporomandibular joint disorders. Patient occlusion shows that most participants will exhibit symptoms of temporomandibular joint disorders in their lifetime [7]. In this community service, participants are students who will use their stomatognathic system in

the long term and in daily life but do not realize that they have temporomandibular joint disorders. The Fonseca Anamnestic Index makes it easier for patients and medical professionals to recognize early symptoms and take preventive/interceptive actions before the disorder becomes very severe.

4. Conclusions

This community service shows a fairly high prevalence of TMD where in terms of severity, most of the participants experienced mild TMD, which was 46.5%. Based on gender, TMD is most experienced by the female sex. Fonseca Anamnestic Index helps in early detection of signs and symptoms of TMD.

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