DESCRIPTIVE RETROSPECTIVE EPIDEMIOLOGICAL STUDY FOR TEN YEARS ON PATIENTS WITH TEMPORO-MANDIBULAR DISORDERS

Nawale bou Farhat* | Amine Zoghbi**

Abstract

The aim of the present paper is to carry out a retrospective epidemiological study over a period of ten years on patients with temporo-mandibular disorders (TMD), referred to the TMD and Orofacial Pain Unit, the department of Fixed Prosthodontics, at the Faculty of Dental Medicine of Saint Joseph University, Beirut. This study focuses on the prevalence of sex, age, etiologies and risk factors, as well as the different diagnoses and pathologies of temporo-mandibular joints (TMJ), and the different treatments considered depending on each case studied.

All the patients' files examined at the TMD and Orofacial Pain Unit between 2006 and 2016 were gathered and reviewed thoroughly.

237 patients of mean age 33.41 ± 14.65 years (amplitude: 11-73 years) participated in the study. The vast majority of participants (79.3%) were women. The purpose of the visit in the entire sample was mainly pain (62.9%), with more women than men consulting because of pain (women: 66.7% v / s men: 47.9%) ($p = 0.016$).

Headache was the most common symptom that was reported (55.7%). Other symptoms included: backache, neckache, posture problems and vertigo.

Clenching of the jaws was the most commonly reported risk factor by participants (45.7%). No significant difference was noted between women and men ($p > 0.05$). Difference in physical examination was also not significant between men and women ($p > 0.05$).

Muscle tension (35.2%), spasm (25.4%) and disc displacement (40.4%) were the most commonly reported diagnoses.

The most frequent treatments offered to patients consisted in the stabilization splint (22.4%), medications (18.1%) and the retro-incisal plan (17.7%).

Despite its limitations, the present work reflects a general view of our population. Further studies may lead to the creation of a general test that can be adopted systematically for the detection of TMD disorders.

Keywords: Temporo-mandibular disorder – temporo-mandibular joint – pain - headache.

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ÉTUDE ÉPIDÉMIOLOGIQUE DESCRIPTIVE RÉTROSPECTIVE DE DIX ANS SUR DES PATIENTS ATTEINTS DE TROUBLES TEMPORO-MANDIBULAIRES

Résumé

Il s'agit d'une étude épidémiologique rétrospective menée sur une période de dix ans sur des patients atteints de troubles temporo-mandibulaires (TMD) référés à l'Unité de TMD et de douleur oro-faciale du département de prothèses fixées de la Faculté de médecine dentaire de l'Université Saint Joseph, Beyrouth. Cette étude porte sur la prévalence du sexe, de l'âge, les étiologies et les facteurs de risque, les différents diagnostics et pathologies des articulations temporo-mandibulaires (ATM) ainsi que sur les différents traitements envisagés en fonction des cas étudiés.

Tous les dossiers des patients examinés à l'unité de TMD et de douleur oro-faciale entre 2006 et 2016 ont été rassemblés et examinés de manière approfondie.

237 patients d'âge moyen 33,41 ± 14,65 ans (amplitude: 11 à 73 ans) ont participé à l'étude. La grande majorité des participants (79,3%) étaient des femmes. Le but de la visite dans l'ensemble de l'échantillon était principalement la douleur (62,9%) ; le pourcentage de femmes (66,7%) ayant consulté pour une douleur était supérieure à celui des hommes (47,9%) ($p = 0,016$).

La céphalée était le symptôme le plus souvent signalé (55,7%). Les autres symptômes incluaient : dorsalgies, cervicalgies, problèmes de posture et vertiges.

Le resserrement des mâchoires était le facteur de risque le plus souvent signalé par les participants (45,7%). Aucune différence significative n'a été notée entre les femmes et les hommes ($p > 0,05$). La différence dans l'examen physique n'était pas non plus significative entre les hommes et les femmes ($p > 0,05$). La tension musculaire (35,2%), les spasmes (25,4%) et le déplacement discal (40,4%) étaient les diagnostics les plus fréquemment rapportés.

Les traitements les plus fréquents proposés aux patients ont été l'attelle de stabilisation (22,4%), les médicaments (18,1%) et le plan rétro-incisal (17,7%).

Malgré ses limites, le présent travail reflète une vision générale de notre population. Des études ultérieures pourraient aboutir à l'élaboration d'un bilan général pouvant être systématiquement adopté pour la détection des troubles du TMD.

Mots-clés: trouble temporo-mandibulaire - articulation temporo-mandibulaire - douleur - mal de tête.

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* DDS,
Univ. Diploma in Occlusodontics
Master's in Esthetic and Prosthetic Dentistry,
Saint-Joseph University, Beirut, Lebanon
nawalebf@gmail.com

** Head of Dpt of Fixed Prosthesis
Saint-Joseph University, Beirut, Lebanon

Introduction

The temporomandibular joint (TMJ) is located just in front of the external auditory canal. It consists mainly of the temporal bone and the mandible, contains an intra-articular disc in the joint capsule and its contractile tissues are the masticatory muscles [1]. It is covered by a dense fibrocartilage formed between the mandibular condyle and the temporal bone [2]. The mandibular condyle and the glenoid fossa of the temporal bone form the basis of the TMJ. Along the large temporal articular surface, each mandibular condyle has a large range of motion, both rotational and translational [2].

Temporo-mandibular disorder (TMD) is a term used to define a subgroup of orofacial pain disorders in the TMJ area, fatigue of the craniocervical-facial muscles (especially the masticatory muscles), the limitation of mandibular movement and TMJ clicking [3].

TMD is a major public health problem affecting approximately 5% to 12% of the population. It is the second most common musculoskeletal condition (after chronic low back pain) leading to pain and disability. Conditions related to pain can have an impact on a person's daily activities, psychosocial functioning, and quality of life [4].

TMD etiologies are various including age, sex, occlusion, ligamentous hyperlaxity, trauma, parafunctional habits, bruxism, psychological factors, genetic factors, orthodontic treatment and posture.

The aim of this work was to carry out a retrospective epidemiological study, over a period of ten years, on patients with TMD referred to the Fixed Prosthesis Department at the Faculty of Dental Medicine of Saint Joseph University, Beirut. This study focused on the prevalence of sex, age, etiologies and risk factors, as well as the different diagnoses and pathologies of TMJ, and the different treatments considered depending on each case.

	Men (N=48)	Women (N=189)	Total (N=237)	P
Pain	23(47.9%)	126(66.7%)	149(62.9%)	0.016
Joint noise	3(6.2%)	1(0.5%)	4(1.7%)	0.027
Bruxism	14(29.2%)	30(15.9%)	44(18.6%)	0.034
Limitation	7(14.6%)	23(12.2%)	30(12.7%)	0.632
Blocking	5(10.4%)	13(6.9%)	18(7.6%)	0.375
Ear buzzing	0(0.0%)	3(1.6%)	3(1.3%)	1.000
Clicking	21(43.8%)	58(30.7%)	79(33.3%)	0.086

Table 1: Purpose of consultation by gender.

Materials and methods

All the patients' files that were examined at the TMD and orofacial pain department between the years 2006 and 2016 were gathered and reviewed thoroughly.

Cases lacking information were rejected and only those providing useful information about the patient were kept.

These files contained several sections. First, there is a detailed interrogation on the general state of health of the participants, the purpose of visit, the symptoms experienced by the patient and their history as well as the associated factors. Second, there is a clinical examination part that includes palpation of painful areas, dynamic mandibular tests, auscultation of TMJ, and static, dynamic and kinetic occlusal examination. Third, there is the diagnosis section and treatment plan. Finally, graphs of pain evolution, range of mouth opening, and psychological state are included.

The criteria studied were integrated into a Microsoft Office Excel sheet. For each criterion a 0 or 1 has been assigned to indicate either its presence or absence in the examined patient. All the criteria already mentioned are considered as "inclusion criteria", with the exception of evolution graphs due to the lack of values in most cases.

Statistical analysis

Statistical Package Software for Social Sciences (SPSS for Windows, Chicago, USA, version 24.0) was used for statistical analysis of data. The used significance threshold corresponds to $p \leq 0.05$. Mean and standard deviation were used for the quantitative variables, while numbers and percentages were used for the qualitative variables. Exact Fisher tests and Chi-square tests were conducted for the statistical comparison of percentages.

Results

Purpose of visit

The sample consisted of 237 patients of mean age 33.41 ± 14.65 years (amplitude: 11-73 years). The vast majority of participants (79.3%) were women. The purpose of the visit to the TMD and Orofacial Pain Unit in the entire sample was mainly pain (62.9%), followed by clicking (33.3%) and then bruxism (18.6%). More women than men consulted because of pain (women: 66.7% v/s men: 47.9%) ($p = 0.016$). On the other hand there were more men than women consulted for a noise, (men: 6.2% v/s women: 0.5%) ($p = 0.027$) or bruxism (men: 29.2 % v/s women: 15.9%) ($p = 0.034$). The reason for the consultation is shown in the table 1.

Symptoms described during the clinical examination

Headache was the most common symptom (55.7%), followed by neckache (55.0%) and backache (50.8%) and chewing pain (45.7%). Note that headache (women: 60.8% v s men: 32.5%; p = 0.001), backache (women: 49.2% v/s men: 25.0%; p= 0.005), neckache (women: 60.8% v/s men: 30.0%, p <0.001), posture problems (women: 25.4% male v/s: 7.5%, p = 0.014) and vertigo (women: 47.5% male v/s: 25.0%; p= 0.009) were more frequently reported by women. Other symptoms were further described during the clinical examination and are presented with the history of the occlusal problem in table 2.

Associated factors

Clenching of the jaws was the most common risk factor reported by participants (45.7%), followed by grinding of teeth (43.0%) and joint pain after dental care (38.0%). The difference was not significant between women and men (p> 0.05). Associated factors as reported by participants are presented in table 3.

Physical examination

The results of the clinical examination of the participants are described in table 4. No significant difference was noted between men and women when it came to pain, clicking, horizontal instability and the presence of interference due to laterality (p> 0.05).

Diagnosis

Muscle tension (35.2%), spasm (25.4%) and disc displacement (40.4%) were the most commonly reported diagnoses. Muscle tensions were more frequent among women compared to men (women: 38.6% v/s men: 20.0%, p= 0.037). On the other hand, the problems of disc displacement were more frequent among men (men: 48.6% male v/s 38.6%, p= 0.001). Similarly, for condylar subluxations, they are more frequent in men (men: 14.3% v/s women: 3.8%, p= 0.030). Diagnoses of TMJ problems are presented in table 5.

	Men (N=48)	Women (N=189)	Total (N=237)	p
Chronic history*	6(12.8%)	29(15.7%)	35(15.1%)	0.619
Acute history*	1(2.2%)	26(14.1%)	27(11.7%)	0.024
Intermittent history*	0(0.0%)	0(0.0%)	0(0.0%)	-
ENT history*	0(0.0%)	4(2.2%)	4(1.8%)	0.337
Blocking history*	0(0.0%)	5(2.8%)	5(2.3%)	0.282
Dental pain*	14(35.0%)	74(40.9%)	89(39.8%)	0.491
Facial pain L*	12(30.0%)	77(42.5%)	89(40.3%)	0.143
Facial pain R*	10(25.0%)	67(37.0%)	77(35.0%)	0.149
Ear pain L*	9(22.5%)	69(38.1%)	78(35.3%)	0.061
Ear pain R*	9(22.5%)	68(37.8%)	77(35.0%)	0.067
Ear buzzing L*	9(22.5%)	51(28.2%)	60(27.1%)	0.638
Ear buzzing R*	7(17.5%)	57(31.5%)	64(29.0%)	0.077
Vertigo*	10(25.0%)	86(47.5%)	96(43.4%)	0.009
Mouth breathing*	10(25.0%)	66(36.5%)	76(34.4%)	0.167
Neck pain*	12(30.0%)	110(60.8%)	122(55.0%)	<0.001
Posture problem*	3(7.5%)	46(25.4%)	49(22.2%)	0.014
Back pain*	10(25.0%)	89(49.2%)	99(50.8%)	0.005
Headache*	13(32.5%)	110(60.8%)	123(55.7%)	0.001
Swallowing discomfort*	6(15.0%)	49(27.1%)	55(24.0%)	0.110
Pain chewing L*	14(35.0%)	87(48.1%)	101(45.7%)	0.133
Pain chewing R*	12(30.8%)	67(37.0%)	79(35.9%)	0.461

Table 2: Gender differences in described symptoms.
* Missing values.

TMJ treatments

The treatment options suggested to patients with TMD are presented in Figure 1. The most frequent treatments offered to patients included the stabilization splint (22.4%), medications (18.1%) and the retro-incisal plan (17.7%). Behavioral counseling was transmitted to only 14.8% of participants. Psychotherapy has not been prescribed.

Discussion

The review of the patient's files permitted to gather information concerning mainly the purpose of examinations, the signs and symptoms and the treatment options.

Concerning the purpose of consultation, the results showed a majority of women consulting for TMJ problems. Previous studies have shown a higher prevalence of TMD among women than men [5, 6], and this can be due to the

	Men (N=40)*	Women (N=181)*	Total (N=221)*	P
Face trauma	5(12.5%)	29(16.0%)	34(15.4%)	0.576
Neck trauma	3(7.5%)	19(10.5%)	22(10.0%)	0.773
Joint pain after dental care (R and/ or L)	12(30.0%)	72(39.8%)	84(38.0%)	0.249
Joint pain after dental care R	9(22.5%)	62(34.3%)	71(32.1%)	0.150
Joint pain after dental care L	7(17.5%)	56(30.9%)	63(28.5%)	0.088
Orthodontic treatment	6(15.0%)	24(13.3%)	30(13.6%)	0.771
Milling	2(5.0%)	30(16.6%)	32(14.5%)	0.060
Jaw clenching	19(47.5%)	82(45.3%)	101(45.7%)	0.801
Teeth grinding	13(32.5%)	82(45.3%)	95(43.0%)	0.139
Stomach sleeping position	9(22.5%)	48(26.5%)	57(25.8%)	0.599
Stress	6(16.2%)	32(18.1%)	38(17.8%)	0.787

Table 3: TMD associated factors as reported by the two genders.

presence of estrogen receptors in the TMJ that modulate ligament laxity [7]. A study conducted in Spain to determine the prevalence of signs and symptoms of temporomandibular disorders and associated variables over the last two decades in samples of adults and elderly, showed that women have a higher TMD prevalence than men [8].

Moreover, pain that is the most common reason of consultation is more expressed by women. This result goes in line with other studies that evaluated the reported difference in pain between men and women, and found high clinical pain scores in women with multiple diseases or acute inflammatory conditions, including sinusitis and joint diseases [9].

However, human research models are strongly influenced by sociocultural variables that have little to do with a biological difference in the threshold of pain or sensation between women and men [10]. These sociocultural variables influence the social interaction between subjects and their experimenters, which may affect the way they relate to the experience of pain, leading to biased or confounded data [10]. For example, women are more likely to see a doctor and report pain as a symptom, which can lead to an overestimation of gender differences [10.

The most frequently reported symptom was headache. To support this result, a significant correlation was found between headaches and TMD. In 2018, the third edition of the International Classification of Headaches (ICHD-3) defined headaches attributed to TMD (TMDH) as ones that are caused by a disorder of the structures of the temporomandibular region [11]. The diagnostic criteria included evidence of causality as demonstrated by at least two of the following criteria [12]:

1. Headache developed temporally in relation to the onset of TMD or led to its discovery;

2. Headache is aggravated by jaw movement, jaw function (eg, chewing) and / or parafunction (eg, bruxism);

3. Headache is caused by physical examination by palpation of the temporal muscle and / or passive jaw movement [12].

TMDH has been classified as one of the 12 most common types of TMD [12]"container-title":"Journal of Oral & Facial Pain and Headache","page":"6-27","volume":"28","issue":"1","source":"PubMed","abstract":"AIMS: The original Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD. Thus, an increase in the prevalence of primary headaches (particularly migraine) has been observed in patients with diagnosed TMD [13]"container-title":"Pain Research and Management","genre":"Research article","abstract":"Headache is a common problem in the population, which decreases the quality of life and makes everyday functioning difficult. It often coexists with typical symptoms of temporomandibular disorders. The objective of the study was to clarify whether there is a relationship between the presence of headache in young volunteers and the mastication muscle tone. Material and Method. Volunteers aged 18 years who underwent general dental examination, clinical evaluation, and examination using the dual-axis diagnostic system Research Diagnostic

	Men (N=37)*	Women (N=177)*	Total (N=214)*	p
Static pain > Dynamic pain	2(5.4%)	19(10.7%)	21(9.8%)	0.542
Static pain < Dynamic pain	1(2.7%)	11(6.2%)	12(5.6%)	0.696
Static pain = Dynamic pain	2(5.4%)	8(4.5%)	10(4.7%)	0.685
Early clicking R	2(5.4%)	21(12.1%)	23(11.0%)	0.381
Intermediate clicking R	2(5.4%)	12(6.9%)	14(6.7%)	1.000
Belated clicking R	3(8.3%)	16(9.2%)	19(9.1%)	1.000
Alternative clicking R *	2(5.6%)	7(4.0%)	9(4.3%)	0.655
Crepitation R *	0(0.0%)	6(3.5%)	6(2.9%)	0.593
Subluxation R *	1(2.7%)	11(6.2%)	12(5.6%)	0.533
Double clicking at opening R *	4(11.1%)	10(5.8%)	14(6.7%)	0.269
Early clicking L *	2(5.4%)	12(6.9%)	14(6.7%)	1.000
Intermediate clicking L *	1(2.8%)	16(9.3%)	17(8.2%)	0.317
Belated clicking L *	5(13.9%)	17(9.8%)	22(10.5%)	0.549
Alternative clicking L *	1(2.8%)	6(3.5%)	7(3.3%)	1.000
Crepitation L *	0(0.0%)	1(0.6%)	1(0.5%)	1.000
Subluxation L *	0(0.0%)	1(0.6%)	1(0.5%)	1.000
Double clicking at opening L *	1(2.8%)	4(2.3%)	5(2.4%)	1.000
MIP dynamics : horizontal instability sliding R *	0(0.0%)	1(0.6%)	1(0.5%)	1.000
MIP dynamics : horizontal instability sliding L *	1(2.9%)	8(5.9%)	9(4.6%)	1.000
MIP dynamics : horizontal instability sliding FRONT *	1(2.9%)	4(2.5%)	5(2.4%)	1.000
MIP dynamics : horizontal instability sliding BACK *	0(0.0%)	0(0.0%)	0(0.0%)	-
MIP dynamics : horizontal instability important sliding *	1(2.9%)	1(0.6%)	2(1.0%)	0.326
MIP dynamics : horizontal instability mild sliding *	0(0.0%)	6(3.7%)	6(3.1%)	0.593
MIP dynamics : loss of posterior wedging *	2(5.7%)	6(3.7%)	8(4.1%)	0.635
Lateral excursion kinetics : working side interference *	0(0.0%)	4(2.5%)	4(2.0%)	1.000
Lateral excursion kinetics : non-working side interference *	2(5.7%)	7(4.3%)	9(4.6%)	0.664

Table 4: Physical examination of patients and gender differences.

	Men (N=35)*	Women (N=158)*	Total (N=193)*	p
Muscle tension	7(20.0%)	61(38.6%)	68(35.2%)	0.037
Spasm	5(14.3%)	44(27.8%)	49(25.4%)	0.095
Retrodiscitis	0(0.0%)	6(3.8%)	6(3.1%)	0.594
Capsulitis	0(0.0%)	4(2.5%)	4(2.1%)	1.000
Disc displacement	17(48.6%)	61(38.6%)	78(40.4%)	0.001
Early reducing disc displacement	4(11.4%)	13(8.2%)	17(8.8%)	0.518
Mild reducing disc displacement	2(5.7%)	16(10.1%)	18(9.3%)	0.536
Belated reducing disc displacement	5(14.3%)	15(9.5%)	20(10.4%)	0.371
Intermittent non reducing disc displacement	0(0.0%)	9(5.7%)	9(4.7%)	0.368
Recent non reducing disc displacement	1(2.9%)	3(1.9%)	4(2.1%)	0.554
Ancient non reducing disc displacement	5(14.3%)	5(3.2%)	10(5.2%)	0.019
Condylar subluxation	5(14.3%)	6(3.8%)	11(5.7%)	0.030
Condylar luxation	3(8.6%)	10(6.3%)	13(6.7%)	0.708
Arthrosis	0(0.0%)	4(2.5%)	4(2.1%)	1.000
Osteoarthritis	1(2.9%)	0(0.0%)	1(0.5%)	0.181
Adherence	0(0.0%)	0(0.0%)	0(0.0%)	-
Ankylosis	0(0.0%)	0(0.0%)	0(0.0%)	-
Fracture	0(0.0%)	1(0.6%)	1(0.0%)	1.000

Table 5: TMD diagnosis by gender.

Criteria for Temporomandibular Disorders (RDC/TMD. In addition, some published studies have shown that headaches and TMD are co-morbid diseases, that the presence of one increases the frequency of the other at a rate greater than that expected if they occurred together simply by chance [14, 15], that the treatment of TMD associated with headaches facilitates the treatment of headaches in a variable percentage of cases [14], that the higher the number of signs/symptoms of TMD, the higher the frequency of migraine headaches and vice versa [16].

Regarding neck and back pain, which are the following symptoms, a study was conducted to determine whether people with TMD had more signs of cervical dysfunction than healthy subjects. In fact, the control group was systematically the least impaired and the group with moderate/severe TMD was the most impaired [17]. These results suggest that the more dysfunction and pain are identified in the temporomandibular region, the higher are the rates of dysfunction on a number of cervical musculoskeletal function tests [17]. All of this provides evidence that painful TMD is closely related to some musculoskeletal defects in the spine, suggesting that the spine should be examined in these patients as a potential contributing factor [17]. In addition, a strong relationship between neck disability and TMD has been identified [18]. A subject with a high degree of TMD has an increase in the Neck Disorder Index (NDI) of about 19 points compared to NDI in a person without TMD [18].

Then, to verify the presence of ear pain and vertigo as true symptoms of TMD, a prospective observational study was conducted to assess the correlation between temporomandibular disorders and otological signs and other symptoms. Of the otological

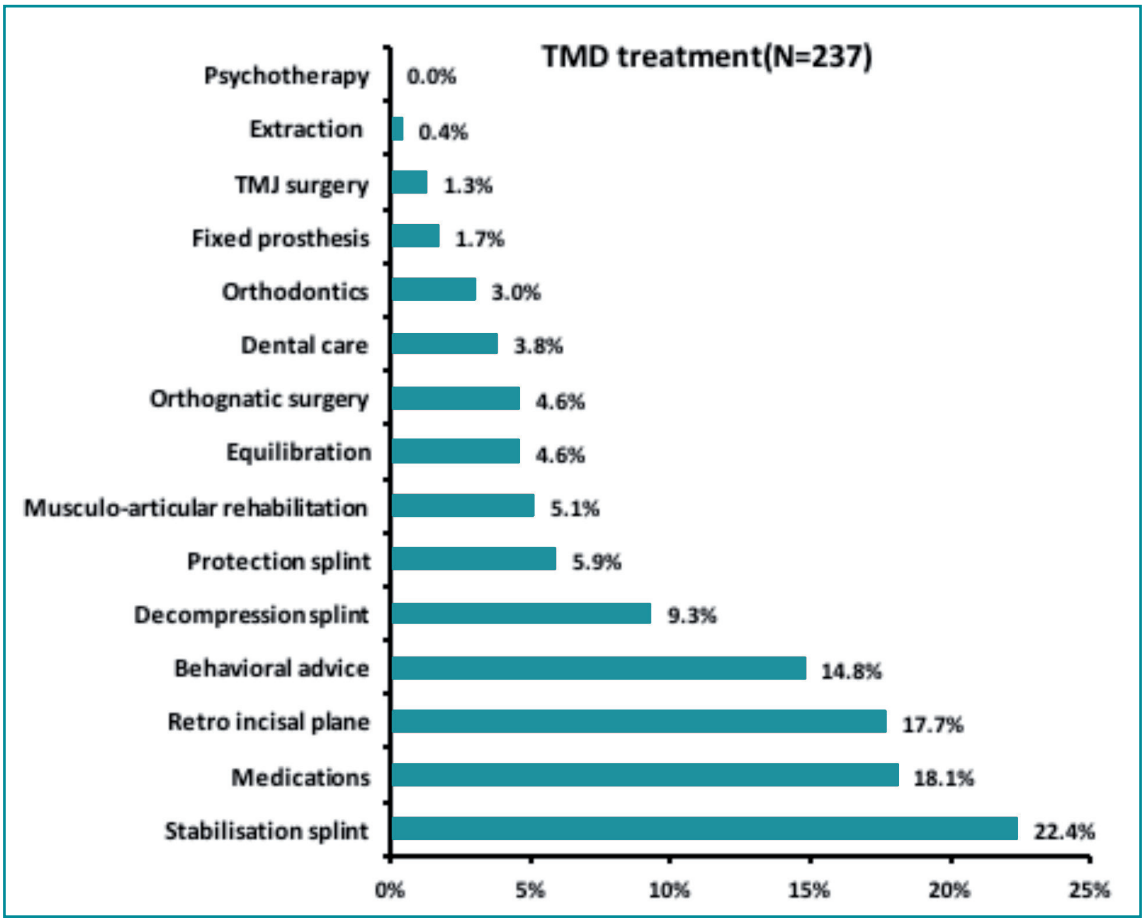

Fig. 1: TMD treatment options.

symptoms studied, significant associations were observed with tinnitus, ear pain, hearing loss and dizziness [19]. There were also significant associations with non-otological symptoms, the most common being back pain, headache, neck pain, eye pain and vertigo [19]. These results showed that a higher incidence of otological and non otological symptoms have been associated with a progressive increase in the severity of TMD [19].

In another perspective, the pain was higher for women than for men in this section. This correlates with the first section which shows that women consult the most for pain. Indeed, evidence has been examined from studies in humans and animals, supporting the hypothesis that estrogen acts peripherally or centrally on the nociceptive development of TMD [20].

The factors associated with or contributing to TMDs were also evaluated. Jaw clenching and teeth grinding appeared to be the most frequent factors. One study showed a higher frequency of bruxism in people with severe TMD [21]. This finding suggests that the main cause of severe TMD is bruxism [21]. Similarly, nocturnal bruxism has been shown to be associated with myofacial pain, arthralgia, and joint pathologies such as disc displacement and joint noises [22]. Moreover, when they occur separately, both types of conscious and nocturnal bruxism are significant risk factors for TMJ pain. In case of simultaneous presence, the risk of TMJ pain is even higher [23]. And again, there is a statistically significant association between nocturnal bruxism and women under 60 with painful symptoms of TMD [24]. So, all of this data confirms our findings about pain, which is the most common reason of consultation in women, and bruxism, which is the most common factor associated with it. In addition, it is important to note that stress was a perpetual factor in TMD pain and increased the

risk of both nocturnal and conscious bruxism in both sexes [25].

However, stress was not significantly recorded in our study, maybe due to lack of cooperation from the patient, or the question was not asked to all the examined subjects. This is a limitation in the study given the importance of stress and psychological state of the patient in the installation of TMD. In fact, psychosocial weakness in TMD, such as somatization and depression, is related to disability associated with pain, as well as duration of pain [26] . The Orofacial Pain Risk Assessment and Evaluation Study (OPPERA) found that the prevalence was significantly higher in TMD patients than in healthy individuals [26]. It has also been postulated that negative emotional states such as depression and anxiety are contributing factors to TMDs [27], and that chronic TMD is more associated with psychological and somatic complaints as well as sleep disorders [27].

On the other hand, joint pain after dental care is the third most common factor associated with TMD. In fact, one study reported positive results in this subject where a bite plane was placed between the upper and lower incisors in mice, maintaining maximum aperture for an hour and a half of time. It was found that mice developed persistent orofacial mechanical pain and TMJ dysfunction [28]. Extended oral opening during dental procedures or oral intubations may result in the development of chronic TMD and inflammation associated with macrophages and microglia in the tissues and the trigeminal system contributes to the development of pain [28].

In the clinical examination part, no significant difference was found between men and women, especially in pain and clicking. This contradicts the first section where women expressed more pain and men heard noises and joint clicks. This discrepancy between these two results may be due to the emotional nature of women in whom the pain is always explicit as already mentioned, or the patient does not know well to specify the painful area and the clinical examination has succeeded in its detection, or the pain is triggered after manipulation of the practitioner. In fact, myofacial pain is characterized by the presence of painful and firm nodules, called trigger points (MTrP) [29]. In each trigger point is a hyper-irritable point, the "stretched band", composed of hyper-contracted muscle fibers [29]. Clinically, a muscle with MTrP is stiff and associated with decreased strength and reduced range of motion [29]. If latent, the palpation of this muscle in the trigger point causes radiating pain in referred localized areas consisting of significant dysfunction and is one of the main causes of headaches and neck pain. If active, MTrP promotes spontaneous pain [29].

In addition, in the patients' files there's a specific part to the palpation of the painful muscular zones. But, this part was excluded from the study for lack of necessary information that could help us in the diagnosis. So, again, there is a limitation in our analysis because, if the painful areas had been recorded correctly, perhaps the results obtained in the clinical examination would have been more accurate. In addition to this, this difference and lack of information may relate to the shortcomings of the student examiners in the knowledge of muscular and articular anatomy, and the palpation methods required to locate the painful zone or the causal muscle. Hence the importance of properly teaching students these diagnostic procedures to achieve a safe and reliable result. Indeed, pain induced by palpation of the masticatory muscles may play a role in the differential diagnosis between painful TMD, primary headaches and bruxism [30]. However, palpation alone does not seem to be the most accurate method, because it was found in a study conducted to verify whether normalized palpation around the lateral pole of the condyle can influence mechanical sensitivity and cause sensations/referred pain in healthy individuals, that these manifestations are frequent in these subjects [31]. Hence the need to rely on other complementary diagnostic methods that are X-rays and MRI.

The most common diagnoses recorded in the reviewed files are muscle tension and spasm. A concordance exists between these findings and the most frequently associated factor which is the clenching and grinding of the teeth, or more precisely, bruxism. This disorder, defined as a repetitive muscular activity of sleep or waking characterized by clenching or grinding of teeth and/or tonicity or pinching of the mandible, is often associated with muscle pain and fatigue and is considered a risk factor for TMD [30]. At the same time, this diagnosis is more common in women, which is normal since women have more musculoskeletal pain than men [29].

Disc displacement is also commonly reported in concordance with articular clicking. In fact, the anterior disc displacement is a common subtype observed in patients with TMD that can cause limitations of mandibular movement, clicking, intermittent closed mouth blocking, limitation of mouth opening, etc. [32]. This diagnosis is found more important in men in our population. This data corresponds to the purpose of consultation of men which is the articular noise.

The most followed treatment for all these examined patients is the stabilization splint. This result is logical and consistent with the most prevalent diagnoses which are muscle tension and spasm. In practice, occlusal splint is the most commonly used clinical approach because of its ease of use, its low cost and its extensive indications [33]"container-title":"Oncotarget","page":"84043-84053","volume":"7","issue":"51","source":"PubMed","abstract":"Temporomandibular disorders (TMD. In this meta-analysis, the efficacy of this therapy in patients with TMD was examined. The results indicated that splint treatment effectively reduces pain in patients with unspecified TMD, as well as the frequency of pain in treated patients with TMJ clicking. In addition,

this treatment increased the range of mouth opening in patients with initial maximum mouth opening <45 mm [33].

As for medications, it is the second most used treatment. Actually, several categories of drugs are indicated for the relief of TMDs. Non steroid anti-inflammatory drugs (NSAIDs) are indicated for acute, mild-to-moderate inflammatory conditions of TMJ, and are generally beneficial for patients with acute inflammation resulting from acute irreducible disc displacement or acute trauma, for example [34]. To obtain an anti-inflammatory effect, these drugs must be taken for at least 2 weeks [34]. Opioid analgesics have also been used for many years for the treatment of acute pain in dentistry and their effectiveness in the treatment of moderate to severe pain is well established [34]. In the treatment of TMD, judicious use of these medications may sometimes be indicated to relieve moderate to severe chronic pain when other drugs are ineffective (34). But, the use of opioids for chronic pain has been discouraged because of their potential to induce tolerance and physical dependence. In addition, there is little or no evidence that long-term treatment of TMD with this type of molecule is better (or worse) than other treatments. Moreover, corticosteroids that are potent anti-inflammatory drugs have been used in the treatment of moderate to severe TMDs [34]. They can be injected directly into the TMJ, or taken orally or applied topically to reduce the pain and dysfunction associated with TMJ.

At last, centrally acting muscle relaxants have been often used in the treatment of TMD. They are thought to reduce the tone of skeletal muscles [34]. They are therefore often given to patients with chronic orofacial pain to help prevent or relieve increased muscle activity attributed to certain forms of pain.

Finally, psychotherapy has not been prescribed for any consulting patient. This relates to the lack of information regarding the stress and psychological state of patients. Since stress is a predisposing factor for TMD, it is necessary to manage it to relieve associated disorders. In fact, psychotherapy seems to improve the quality of life related to the oral health of patients with TMD [35]. For this purpose, antidepressants have been used for more than 30 years for the treatment of pain associated with TMD [34]. Among these drugs, tricyclic antidepressants (TCAs) appear to be the most effective; however, selective serotonin reuptake inhibitors (SSRIs) have also been reported to reduce orofacial pain [34]. These drugs are excellent first-line drugs for patients with TMD who may be refractory to splint treatment. TCA is the most studied drug in the management and control of chronic pain in the orofacial region [34]. In addition, many patients with chronic pain often suffer from concomitant depression and, in many cases, some type of sleep disturbance. Thus, the pain may be lessened indirectly due to the modification of these characteristics, particularly in patients with reduced serotonin levels in the central nervous system [34].

Conclusion

In conclusion, we can admit that our study encloses a gap (more or less) between the results. This may be due to the diversity of examiners who conducted the consultations, which may lead to subjectivity.

Despite the limitations of this study, it appears to give a primary vision on the state of a part of the Lebanese population that suffers of numerous temporomandibular disorders in addition to stress and anxiety. By analyzing this in further studies, and by considering psychological and genetic factors as important elements in the establishment of TMDs, we can finally create a general test that is adapted to our population and which can be systematically adopted for the detection of these disorders.

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