

A Review of Temporomandibular Disorders (TMDs) among Patients Attending the Oral Medicine Clinic in the University of Benin Teaching Hospital (UBTH)

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ABSTRACT

Objective: Diagnosis and management of temporomandibular disorders (TMDs) is a major challenge to the dental practitioner. There are a few reports documenting the pattern of presentation and management of the TMDs in Nigeria. The objective of this study was to review the pattern of presentation of temporomandibular disorders in the University of Benin Teaching Hospital (UBTH), and to compare findings with other studies.

Methods: All cases diagnosed of TM disorders diagnosed between January 2010 and August 2018 were retrieved from the ledger in the Oral Medicine clinic, University of Benin Teaching Hospital. Data on age, gender, site and treatment given were recorded from case notes. Data was analyzed using the SPSS (IBM version 21.0). The level of significance was 95% and p-values <0.05 was considered statistically significant (p<0.05).

Result: There were 83(6.9%) cases of TMJ disorders among the 1196 patients seen in the Oral Medicine clinic, with mean age of 48.5 ± 18.5 years (SD), the peak prevalence was 4th-7th decades of life with a slight male preponderance (1.2:1) and equal distribution between the right (n=25, 30.1%) and left (n=25, 30.1%). Among the diagnosed cases of TMDs, TMJ pain dysfunction (n=50, 60.2%) had the highest presentation, followed by TMJ Osteoarthritis (n=20, 24.1%), TMJ Traumatic arthritis (n=10, 12.0%), and TMJ Rheumatoid arthritis (n=3, 3.6%). Treatment was mainly conservative non- surgical including counseling, use of topical analgesics, heat massage, oral analgesics, muscle relaxants, antidepressants, antiarthritic drugs, and correction of malocclusion. Majority of the patients had combination treatment (n=53, 88.3%) while 7(11.7%) had mono-treatment therapy.

Conclusion: This study observed a relatively low prevalence of TM disorders. TMJ pain dysfunction syndrome was the most common TM disorders seen in this study. Treatment of these cases were conservative non-surgical, with most cases being combination of conservative treatment modalities.

Keywords: temporomandibular joint, disorders, oral medicine

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INTRODUCTION

Temporomandibular disorders (TMDs) refer to a cluster of clinical conditions that include disorders of the temporomandibular joints (TMJ), the muscles of mastication and their associated structures. They are characterized by pain in the TMJ or its surrounding

tissues, functional limitations of the mandible, or clicking during the movement of TMJ.¹ TMDs are group of condition that cause pain and dysfunction in the jaw joint and the muscles that control jaw movement. It is considered by some to be one of the 4 major symptom complexes in chronic orofacial

pains, along with burning mouth syndrome, atypical facial pain and atypical odontalgia.² Among the most common pain in general population, TMJ pain stands out as the most common cause of pain in the orofacial region of non-dental origin.³ It is generally accepted that the aetiology of TMDs is multifactorial, and is related to a number of dental and medical conditions, such as occlusion, posture, parafunctional habits, restoration procedures, orthodontic treatment, emotional stress, trauma, and anatomy of the disc, pathophysiology of the muscles, genetic and psychosocial factors, age, and gender.⁴

Neville et al.⁵, classified TMDs into *muscular* (e.g myofascial pain and fibromyalgia, myositis) and *arthrogenic* (e.g. arthritis, disc displacement, ankylosis). Typical signs and symptoms of TMDs are pain, limitation of mouth opening, joint clicks, mandibular deviation, muscle tenderness and headache.^{4,6,7} Aural symptoms such as tinnitus, otalgia, dizziness or vertigo, otic fullness sensation, hyperacusia or hypoacusia are thought to be associated with TMDs, as it is often the main reason why patients seek medical help.⁸ Diagnosis of TMD is mainly clinical, however, the role of imaging is also pivotal.⁹

The reported prevalence of TMDs range from 6% to 68% depending on the population studied, with higher prevalence reported among women and only about 5% of people with condition will seek treatment.¹⁰⁻¹⁵ The prevalence is low in young children but increases in adolescence up to young adulthood.¹⁶ Though, patients with TMDs present over a broad age range, the peak prevalence occurs between the age of 20 and 40 years.¹⁶ Among the TMDs, TMJ pain dysfunction syndrome is documented to be the most common, occurring in up to 30% of the general population.¹⁷ It is reported that about 5- 10% of populations with TMJ symptoms in the United States are diagnosed of TMJ pain dysfunction syndrome. Management of TMDs is mainly conservative non- surgical approach and in most patients, the response is satisfactory. Surgical intervention is seldom deployed and is reserved for recalcitrant cases.^{14,18}

There is paucity of literature regarding the pattern of presentation of TMDs in the Nigerian population. The few studies in the literature on TMDs in the Nigerian population mainly focused on the TMJ pain dysfunction syndrome.^{14,19} This study, therefore, is designed to analyze the pattern of presentation of TMDs in a South- South Nigerian population and

their management, and to compare findings with previous reports.

MATERIALS AND METHODS

This study was carried out in the Department of Oral Pathology and Oral Medicine, University of Benin Teaching Hospital. The hospital is located in Benin City, Edo state of Nigeria and serves as a referral center for the South-South geopolitical zone and part of the South-West.

The study was a retrospective study involving diagnosed cases of temporomandibular disorders in the department between January 2010 and August 2018, whose diagnoses have been reviewed by the consultants (specialists). Cases with inconclusive diagnoses, cases without adequate clinical information and patient whose case note could not be retrieved were excluded from the study.

All the cases diagnosed of TMJ disorders were retrieved from the ledger in the Oral Medicine Clinic of the Department of Oral Pathology and Medicine, UBTH. The case notes of these patients were retrieved. Data on the clinical information including age, gender, specific diagnosis, site, and the treatment given were obtained from the ledger and case notes of the patients.

Data was analyzed using IBM SPSS version 21.0 and presented in frequencies, mode, mean, and standard deviation. Numerical variables were compared using the T-test while the categorical variables compared using Chi-square statistics. The level of significance was set at 95% and p-values <0.05 was considered statistically significant (p<0.05). Data was presented in tables, charts, graphs and cross tabulations.

Ethical clearance to perform this study was obtained from the UBTH Ethics and Research committee.

RESULTS

A total of 83 cases of TMDs were diagnosed between January 2010 and August 2018, representing 6.9% among the 1196 patients seen in the Oral Medicine Clinic during the period. The ages of the patients were between 15 years and 98 years with a mean age of 48.5 years \pm 18.5 years (SD). There were 46 males (55.4%) and 37 females (44.6%) giving a male to female ratio of 1.2:1 (Figure 1). Overall, there was an equal (50%) distribution of the TMDs between the right and the left TMJ.

Out of 83 cases of TMDs that were seen during the period under review, TMJ pain dysfunction syndrome has the most presentation (n=50, 60.2%), followed by TMJ Osteoarthritis (n=20, 24.1%), TMJ Traumatic

arthritis (n=10, 12.0%), and TMJ Rheumatoid arthritis (n=3, 3.6%). (Figure 2)

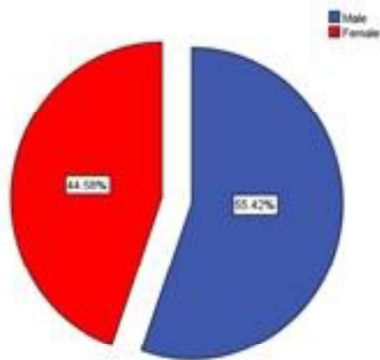


Figure 1: Gender distribution of the TMJ

TMJ pain dysfunction syndrome

The peak age group for TMJPDSs was the 4th decade (n=12, 24.0%). It was found to be slightly more prevalence in males (n=26, 52%) than females (n=24,

48%) and had equal distribution in both Right (n=15, 30%) and Left (n=15, 30%) sides. (Table 1)

TMJ Osteoarthritis

The peak age group for TMJ Osteoarthritis was the 5th decade (n=7, 35.0%), with more females (n=11, 55%) affected than males (n=9, 45%) and occur more on the right (n=6, 30%) than the Left (n=5, 25%) (Table 1)

TMJ Traumatic arthritis

The TMJ Traumatic arthritis was equally distributed from the 2nd through the 5th decades of life, with no particular peak age group (n=2, 20.0%). It occurred more in males (n=8, 80%) than females (n=2, 20%) and was found to be more on the Left (n=5, 50%) than Right (n=3, 30%) (Table 1)

TMJ Rheumatoid arthritis

One case of TMJ Rheumatoid arthritis (33.3%) was seen each in the 5th, 6th, and 7th decades of life. It was only diagnosed in males (n=3, 100%) within the period under review and occurred on the Right (n=1, 33.3%) (Table 1)

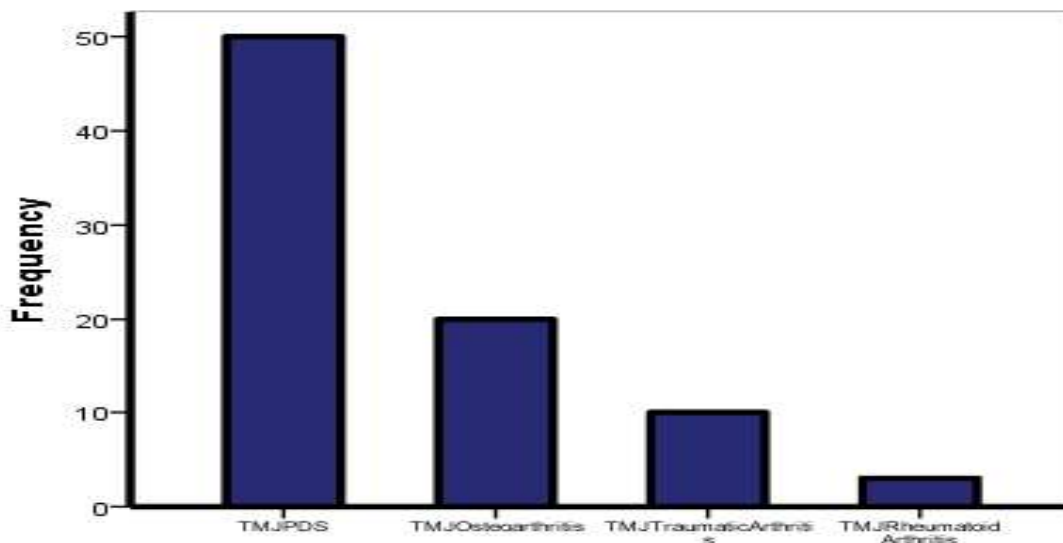


Figure 2: The frequency of presentation of the TMDs

Management of the TMDs

Out of the 83 patients diagnosed of TMDs, 60 (72.3%) were successfully treated. Amongst the 60 (100%) that were treated in this centre, the modality of treatment ranged from counseling [soft diet, control of jaw movements, psychotherapy] (n=51, 85.0%), use of topical analgesics (n=43, 71.7%), oral analgesics (n=29, 48.3%), muscle relaxant (n=41, 68.3%), heat massage (n=6, 10.0%), antidepressants (n=3, 5.0%), anti-arthritis drugs (n=4, 6.7%), correction of malocclusion (n=4, 6.7%). Majority of

the patients had combination treatment (n=53, 88.3%) while 7(11.7%) had mono-treatment therapy.

TMJ Pain dysfunction syndrome (TMJPDS)

Of the 50 patients diagnosed of TMJPDS that were treated, counseling was the most common modality of treatment (n=31, 62.0%), followed by use of muscle relaxants (n=28, 56.0%), topical analgesics (23, 46.0%); oral analgesic (n=15, 30.0%) heat massage (n=6, 12.0%); antidepressants (n=3, 6.0%), correction of malocclusion (n=3, 6.0%) and use of antiarthritic drug (n=1, 2.0%).

Table 1. The gender, age and site distribution of the TMDs

Clinical parameters		TM Disorders (Number/Percent)				Total
		TMJPDS	TMJ OA	TMJ TA	TMJ RA	
Gender	Male	26(52.0)	9(45.0)	8(80.0)	3(100.0)	46(55.4)
	Female	24(48.0)	11(55.0)	2(20.0)	0(0.0)	37(44.6)
Age (years)*	0-9	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)
	10-19	4(8.0)	1(5.0)	2(20.0)	0(0.0)	7(8.4)
	20-29	3(6.0)	0(0.0)	2(20.0)	0(0.0)	5(6.0)
	30-39	12(24.0)	1(5.0)	2(20.0)	0(0.0)	15(18.1)
	40-49	10(20.0)	2(10.0)	2(20.0)	1(33.3)	15(18.1)
	50-59	8(16.0)	7(35.0)	1(10.0)	0(0)	16(19.3)
	60-69	10(20.0)	5(25.0)	0(0.0)	1(33.3)	16(19.3)
	70 & Above	3(6.0)	4(20.0)	1(10.0)	1(33.3)	9(10.8)
Site	Left	15(30.0)	5(25.0)	5(50.0)	0(0.0)	25(30.1)
	Right	15(30.0)	6(30.0)	3(30.0)	1(33.3)	25(30.1)
	Bilateral	3(6.0)	3(15.0)	0(0.0)	0(0.0)	6(7.2)
	NS	17(34.0)	6(30.0)	2(20.0)	2(66.7)	27(32.5)
Total		50(60.2)	20(24.1)	10(12.1)	3(3.6)	83(100.0)

*Mean = 48.4±18.5 (SD), NS = Not Specified

TMJ Osteoarthritis

Out of 20 patients diagnosed of TMJ osteoarthritis, the use of topical analgesics was the most common treatment modality (n=14, 70.0%); followed by counseling (n=12, 60.0%); use of muscle relaxant (n=9, 45.0%); oral analgesics (n=7, 35.0%), anti-arthritic drugs (n=3, 15.0%) and 1 case (5.0%) was referred for correction of malocclusion.

TMJ Traumatic arthritis

Out of the 10 patients diagnosed of TMJ Traumatic arthritis, counseling was the most common treatment modality (n=6, 60.0%), followed by use of oral analgesics (n=5, 50.0%), topical analgesic (n=4, 40.0%), muscle relaxant (n=4, 40.0%).

TMJ Rheumatoid arthritis

Out of 3 patients diagnosed of TMJ rheumatoid arthritis, the treatment modalities were counseling (n=2, 66.7%), use of topical analgesics (n=2, 66.7%) and use of oral analgesics (n=2, 66.7%).

DISCUSSION

Temporomandibular disorders are heterogeneous group of disorders and considered one of the major symptom complexes in chronic orofacial pains.² The diagnosis and management of these patients may be

complex especially due to the psychological aspect.²⁰

This study sought to review the pattern of presentations of TMDs seen in a tertiary hospital.

A prevalence of 6.9% was observed in this study, among patients attending the Oral Medicine clinic. This can be said to be comparable to findings by Lipton et al²¹ who reported 6-12% and Scrivani et al²² who reported 5%. However, a cross-sectional population-based study conducted in Ile-Ife, Nigeria, by Otuyemi et al²⁵ revealed 29.2% in the studied population. This observed discrepancy in prevalence between clinical-based studies and population-based studies further underscores the fact that a low proportion of population with signs and symptoms of TMDs will seek treatment.¹³

The mean age of occurrence of TMDs observed in this study was 48.5±18.5 years (SD) with most of the patients clustered between the 4th and 7th decades of life. The mean age is slightly higher than that (41.7 years) previously reported by Guarda-Nardini et al.²³ This study showed a broader peak age range compared to the findings of Manfredini et al²⁴ who reported a peak presentation between 20 and 40 years of age

Table 2: The treatment modalities for the TMDs

*Treatment Modalities	TMJ Disorders (Number/Percent)				Total (Numb/P ercent)
	TMJPDS (n=50)	TMJ OA (n=20)	TMJ TA (n=10)	TMJ RA (n=3)	
Counseling	31 (62.0)	12 (60.0)	6 (60.0)	2 (66.7)	51(85.0)
Topical analgesics	23 (46.0)	14 (70.0)	4 (40.0)	2 (66.7)	43(71.7)
Oral analgesics	15 (30.0)	7 (35.0)	5 (50.0)	2 (66.7)	29 (48.3)
Muscle relaxants	28 (56.0)	9 (45.0)	4 (40.0)	0(0.0)	41(68.3)
Heat massage	6 (12.0)	0 (0.0)	0 (0.0)	0(0.0)	6(10.0)
Antidepressants	3 (6.0)	0 (0.0)	0 (0.0)	0(0.0)	3(5.0)
Antiarthritic drugs	1 (2.0)	3 (15.0)	0 (0.0)	0(0.0)	4(6.7)
Correction of malocclusion	3 (6.0)	1 (5.0)	0 (0.0)	0(0.0)	4(6.7)

*Multiple treatment modalities for each patient is applicable

There was a slight male preponderance in this study in a ratio 1.2:1. Findings from this study, however contradicts findings from most previous reports.²⁵⁻²⁶ The reason for the skewness toward the male gender in this study is not quite clear.

TMJ pain dysfunction syndrome is reported to be relatively more prevalent among Nigerians compared to Western societies.¹⁵ It has been documented in previous studies as the most common cause of orofacial pain after odontalgia.^{27,28} In this study, TMJPDS was the most frequently diagnosed TMD accounting for 60.2% of all the TMDs. This is consistent with previous reports in the literature also documenting TMPDS as the most common TMDs.^{17,19} There was a slight male preponderance (26:24). This is comparable to findings by Eweka et al¹⁹, in Lagos, Nigeria, who also reported a slight male predilection. The modal age group in this study was found to be the 4th decades unlike report in Lagos, Nigeria which observed peak prevalence in the 3rd decade of life.¹⁹

TMJ osteoarthritis is a unilateral or bilateral degenerative joint disorder characterized by degeneration of both the soft and hard tissues of the joint resulting in pain and anatomical changes in the TMJ. It is reported to have a strong preference for women probably due to hormonal factor.²⁹ In this study, there was a slight female predilection (11:9). The 5th decade was the peak age group which is comparable to previous report.³⁰

TMJ Traumatic arthritis usually results from an acute injury to the TMJ e.g. following a difficult extraction.

Pain, tenderness and limitation of mouth opening are the usual symptoms. Radiological finding is usually not remarkable except in cases of intra- articular haemorrhage or edema. It is said to be rare. However, in this study, TMJ traumatic arthritis accounted for 12.1% of all the TMJ disorders and it was equally distributed from the 2nd through the 5th decades of life. Majority of cases (80%) were seen in males. There were 3 cases of rheumatoid arthritis accounting for 3.6% of all the TMDs. TMJ rheumatoid arthritis is an autoimmune disease resulting in persistent inflammatory synovitis usually involving peripheral joints with asymmetric distribution.³¹ It affects women more commonly than men (3:1)³² In this study, all 3 cases of TMJ rheumatoid arthritis were seen in men. This is in contrast to reports documenting a strong female predilection.³² This observed difference may be attributable to variation in clinical criteria for diagnosis and regional variation. There was no particular modal age group, as the 3 cases were equally distributed between the 5th, 7th, and 8th decades of life. Previous reports however document a peak age range of between 35 and 45 years.³² The few cases seen in this study may not allow a reasonable comparison.

The main stay of treatment of TMDs is the conservative non- surgical approach. Surgical intervention is rare partly because the TMJ is a very complex joint. The conservative management range from counseling which entails advice on the need for soft diets, support and restriction of jaw movements,

and psychotherapy for patients with features of anxiety; to use of topical and systemic medications. TMJPDS is mostly managed non-surgically. The psychological component is also taken into cognizance, therefore use of antidepressant may be recommended. Surgical intervention is usually reserved for recalcitrant cases.¹⁴ Treatment may range from simple counseling and reassurance, use of medication, and correction of occlusion. In this study, the most common modality of treatment was counseling and reassurance followed by the use of muscle relaxants, topical analgesics, heat massage. Few patients also benefited from use of antidepressants and correction of malocclusion. Anti-arthritis drug was seldom given, only in cases without early response, to rule out any possibility of rheumatoid arthritis

The documented treatment for TMJ osteoarthritis is medical, as in other joints of the body. It involves use of NSAIDs, heat massage, soft diets, occlusal appliance. After control of acute phase, therapy is directed at reducing factors contributing to the degenerative changes.²⁴ In this study, most of the patients were given topical analgesics combined with the use of muscle relaxants. Anti-arthritis drugs were seldom used. For the cases diagnosed as TMJ traumatic arthritis, apart from counseling, use of oral analgesics was the most common mode of treatment followed by topical analgesics. Some cases also benefited from use of muscle relaxants. The benefits of muscle relaxants in the management of joint arthritis have been previously documented.¹⁸ It is thought to reduce the strain on the joint as a result of spasticity of the peri-articular muscles, thereby reducing pain.

In this study, supportive care was the mainstay of treatment of rheumatoid arthritis and this includes use of topical and oral analgesics. None of the 3 patients were placed on anti-rheumatic agents. This may be due to the fact that in these patients with rheumatoid arthritis, the TMJ is usually not isolated and these patients may have been on anti-rheumatic agents prescribed by their physicians before presenting to the dentist for help, on account of the TMJ pain. Furthermore, this study being a retrospective study, the limitations of the dependency on documentations in case notes for data cannot be completely ruled out.

CONCLUSION

This study observed a relatively low prevalence of TMJ disorders among patients referred to the oral

medicine clinic, with a slight male preponderance. TMJ pain dysfunction syndrome was the most common TMJ disorders seen in this study. Treatment of these cases were mainly conservative non-surgical, with most cases being combination of treatment modalities.

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