PriMera Scientific Surgical
Research and Practice
Volume 5 Issue 6 June 2025
DOI: 10.56831/PSSRP-05-187
ISSN: 2836-0028

PriMera Scientific Publications

Bruxism and Clicking Assessment Among Patients Attending Polyclinic, Faculty of Dentistry, International Islamic University Malaysia (Retrospective Study)

Type: Research Article
Received: May 22, 2024
Published: May 28, 2025

Citation:
Nazih Shaban Mustafa., et al. "Bruxism and Clicking Assessment Among Patients Attending Polyclinic, Faculty of Dentistry, International Islamic University Malaysia (Retrospective Study)". PriMera Scientific Surgical Research and Practice 5.6 (2025): 03-10.

Nazih Shaban Mustafa[1]*, Basma Ezzat Mustafa Alahmad[2], Faraedon M Zardawi[3], Nur Zafira Zakaria[4], Nur Alia Che Mohd Din[4] and Muhammad Amir Irfan Bin Zawazi[5]

[1]Associate Professor, Department of Oral Maxillofacial Surgery & Oral Diagnosis KOD, International Islamic University Malaysia

[2]Associate Professor, Department of Fundamental Dental Medical Science, Kulliyyah of Dentistry, International Islamic University Malaysia, Kuantan, Pahang

[3]Professor, Faculty of Dentistry Qaiwan International University, Sulaymanyah, Kurdistan Region of Iraq

[4]Dentist, Ministry of Health Malaysia

[5]Dentist, Klinik Pergigian Artisan Sungai Petani, Malaysia

***Corresponding Author:** Nazih Shaban Mustafa, Associate Professor, Department of Oral Maxillofacial Surgery & Oral Diagnosis KOD, IIUM, Malaysia.

Abstract

Temporomandibular joint disorders (TMDs) influence a large number of the population. The aetiology of which is multifactorial in origin and the explanation of their associated factors is essential. Temporomandibular disorders (TMDs) are a combined term that includes several clinical problems which engage the masticatory muscles, and the associated structures. This is a retrospective cross sectional study design, of patients with TMD problems such as clicking and bruxism attending polyclinic of Faculty of Dentistry (KOD) at International Islamic University Malaysia (IIUM) from April 2010 to November 2013. The essential in the management of temporomandibular joint disorders is the evaluation of the condition. The most common TMD are disc displacement and bruxism associated with clicking. Clicking is the most common feature of anterior disc displacement (ADD) with reduction. Bruxism is one of the parafunctional habits that might predispose patients to having TMD. Issuing a night guard is one of the treatment options, which can decrease bruxing activity, muscle fatigue and relieve the pain, improving the patient's lifestyle.

Keywords: Bruxism; clicking; assessment; polyclinic; International Islamic University Malaysia (IIUM)

Introduction

Temporomandibular joint disorder (TMD) is a list of clinical problems that involve the masticatory muscles, temporomandibular joint and associated structures or both which are characterized by, facial pain, limitation or deviation in mandibular movements, temporomandibular joint sounds during jaw movement and function. Population-based studies show that TMD affects 10% to 15% of adults, but only a low number 5% of patients seek treatment. The disorders consist of multifactorial in origin and vary in aetiologies, thus associated factors need to be evaluated and clarified [1].

The signs and symptoms of TMD can be transient and self-limiting, simple, and reversible. Patients complaining of symptoms associated with TMD should be assessed properly including the staging of the disorder and the level of pain if present in any types of (TMDs). Although when the pain starts the patients soon will seek a treatment since the pain is intolerable, because of that the patient will be affected by pain during mouth opening and closing, mastication, talking and yawning. Early evaluation of the (TMDs) is crucial for the management, the goals of treatment for TMD are to decrease pain, decrease adverse loading, restore normal function, and resumption of normal daily activities. Etiology of TMD is currently known to be multifactorial, as evidenced by the combination of physiological, psychological, structural, postural and genetic factors, modifying the functional balance between the fundamental elements of stomatognathic system [2, 10].

The mostly affected age group are 20 to 40 years old subjects and, females are more frequently affected compared with males, the reason why women make up the majority of patients presenting for treatment is still unclear this might be related to hormonal background when we observe that female patients affected by arthritis/ rheumatoid arthritis more according to American college of rheumatology. Generally, rheumatic diseases affect women more than men, although few exceptions exist. The ratio of women to men can be anywhere from 3:1 in rheumatoid arthritis and upwards of 7:1 or more for other autoimmune disorders such as lupus or Sjögren's syndrome [3].

The characteristic feature of TMDs is when it is associated with pain, which might be present at rest, may be continuous or intermittent, and characteristically increases with jaw functions such as chewing or opening wide, other common findings include a restricted range of mandibular movement or uncoordinated movements, and irregularities in the joint during mouth movements, manifested by clicking or grating sounds. Late or sometimes early the most common symptom of TMD is myofascial pain and, it may present with or without restricted mouth opening [4-7].

Materials & Methods

This is a retrospective cross sectional study design, of patients with TMD problems such as clicking and bruxism attending polyclinic of Faculty of Dentistry (KOD) at IIUM from April 2010 to November 2013. All patients will be screened and selected according to inclusion and exclusion criteria.

Inclusion Criteria for TMD	***Exclusion Criteria for TMD***
1. Dentulous	1. Patient wearing removable prostheses
2. Ages ranging from 20 -60 years old	2. Patient wearing fixed/removable orthodontics appliances
	3. Patient with history of systemic diseases, trauma, or bone pathology

Table 1: Showing the inclusion & the exclusion criteria.

Total patients attending IIUM Polyclinic KOD from 2010-2013(2808) Patients were selected according to exclusion & inclusion criteria the final number of the selected patients were three hundred forty-five 345 cases with TMJ problems, (TMD) (clicking and bruxism). The patients were examined and diagnosed by the oral medicine specialists in Oral Medicine clinic. The current data were collected from the records between 2010-2013. Among the 345 cases with TMD (clicking and bruxism), bruxism (51 cases) & clicking (293 cases).

Patients with bruxism (51 cases) underwent the following treatment:

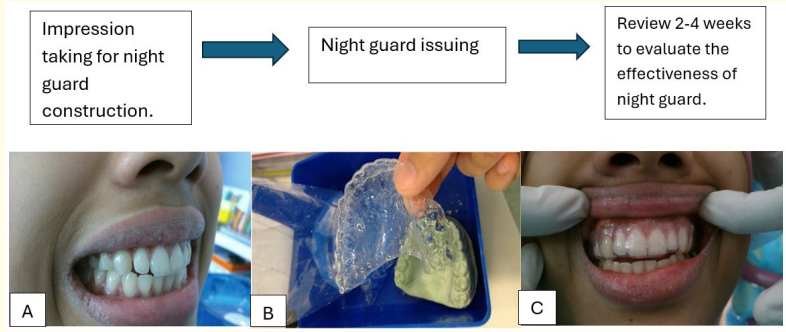

Figure 1: A, B & C showing the steps of intraoral occlusal splint.

Patients with Clicking (293 cases):

All patients with clicking were referred to Oral Medicine Clinic, for reassurance and review, which include 291 patients with anterior disc displacement, two (2) patients with posterior disc displacement. Among 291 patients with anterior disc displacement 44cases were with pain, and the (247) cases were without pain.

Data Collection Form

Patient Name: ***Age:*** ***Sex:*** ***Race:*** ***Occupation:***	***Signs & Symptoms of Disc Displacement***	***Add With Reduction***	***Add Without Reduction***	***PDD***
Pain				
Clicking				
Atrittion				
Locked jaw				

Table 2: Showing the data form collection for clicking patient (ADD/PDD).

Treatment

Assurance: Yes/No

Patient Name: ***Age:*** ***Sex:*** ***Race:*** ***Occupation:***	***Present***	***Absent***
Attrition		
Teeth sensitivity		
Muscle fatigue		
Morning stiffness		
Joint pain		

Table 3: Showing the data form collection for Bruxism patients.

Figure 2: Showing a patient with sever attrition.

Treatment

Assurance: Yes/No.

Night Guard: Yes/No. (If Yes, Symptoms Reduced/No Changes).

Medications: Yes/No. (If Yes, State The Drug Name:

Results

Among 51 cases with bruxism 43 cases were improved and 8 cases no changes during this period of time.

			Sex		Total
			Female	Male	
TMJ GROUP	CLICKING	Count	178	115	293
		% within Sex	82.0%	90.6%	85.2%
	BRUXISM	Count	39	12	51
		% within Sex	18.0%	9.4%	14.8%
Total		Count	217	127	344
		% within Sex	100.0%	100.0%	100.0%

Table 4: Sex Crosstabulation.

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.609[a]	1	.032		
Continuity Correction[b]	3.959	1	.047		
Likelihood Ratio	4.880	1	.027		
Fisher's Exact Test				.040	.021
N of Valid Cases[b]	344				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 18.83.

b. Computed only for a 2x2 table.

Table 5: Chi-Square Tests.

			Race			Total
			Chinese	Indian	Malay	
TMJ GROUP	CLICKING	Count	18	2	**273**	293
		% within Race	100.0%	100.0%	84.3%	85.2%
	BRUXISM	Count	0	0	**51**	51
		% within Race	.0%	.0%	15.7%	14.8%
Total		Count	18	2	324	344
		% within Race	100.0%	100.0%	100.0%	100.0%

Table 6: TMJ GROUP * Race Cross tabulation.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.696[a]	2	.158
Likelihood Ratio	6.630	2	.036
N of Valid Cases	344		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is .30.

Table 7: Chi-Square Tests.

			Age Group					Total
			20-30 years	31-40 years	41-50 years	51-60 years	above 61 years	
TMJ GROUP	CLICKING	Count	146	37	52	46	12	293
		% within Age Group	78.9%	92.5%	88.1%	95.8%	100.0%	85.2%
	BRUXISM	Count	39	3	7	2	0	51
		% within Age Group	21.1%	7.5%	11.9%	4.2%	.0%	14.8%
Total		Count	185	40	59	48	12	344
		% within Age Group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 8: TMJ Group * Age Group Crosstabulation.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.250[a]	4	.007
Likelihood Ratio	17.258	4	.002
Linear-by-Linear Association	12.117	1	.000
N of Valid Cases	344		

a. 1 cell (10.0%) have expected count less than 5. The minimum expected count is 1.78.

Table 9: Chi-Square Tests.

Clicking cases	Pain (+)	Without pain	Total
Reduction	25	245	270
No reduction	19	2	21

X2 = 93.91 p= 0.000.

Table 10: Clicking – Anterior Disc Displacement.

	Bruxism (+)	Bruxism (improved)	Total
Before night guard wearing	51	0	51
After night guard wearing	8	43	51

X2 = 70.92 p= value 0.0000.

All the findings are statistically significant (p value < 0.05).

Table 11: Bruxism.

Discussion

TMD is a combined expression used to recognize a group of musculoskeletal conditions of the temporomandibular region. Bruxism is described as the habitual nonfunctional energetic contact between occlusal tooth surfaces. Some studies have linked oral parafunctional habits to TMD, whereas others did not observe this relationship. The role of bruxism -as is currently described- can be considered a controversial and unresolved issue [13, 14, 16].

The management of temporomandibular joint disorders (TMD)is a challenging task, and controversial because of the difficulty in recognizing the exact aetiologic multifactorial nature of the disorder. There is a wide variation of the severity, and the treatment is varied in terms of length and invasiveness. However, the management is intended to reduce pain, improvement of dysfunction and slowing or stopping the progression of internal derangement according to guideline approved by American Society of Temporoman-

dibular Joint Surgeons [6]. Characterization of TMD has been difficult due to large number of signs and symptoms, and the variation in the number and types manifested in any particular patient. Nonetheless this, several measures have been employed for the diagnosis and evaluation of TMD, such as the Research Diagnostic Criteria for Temporomandibular Disorders, radiography, magnetic nuclear resonance imaging, computed tomography, and electromyography [7].

With regard to gender the results of the current study showed that TMD manifested by clicking and bruxism, primarily affects women with a female-to-male ratio of 4:1, which is in harmony with previous studies. Females are more likely to be affected than males, in a ratio of about 3-1, although others report this ratio to be as high as 9:1 this might be related to hormonal background when we observe that female patients affected by arthritis/ rheumatoid arthritis more according to American college of rheumatology. Generally, rheumatic diseases affect women more than men, although few exceptions exist. The ratio of women to men can be anywhere from 3:1 in rheumatoid arthritis and upwards of 7:1 or more for lupus or Sjögren's syndrome [8].

In this retrospective study TMD highest incidence occurs among young adults, aged 20-40 years. In epidemiologic studies, up to 75% of adults show at least one sign of joint dysfunction which include jaw or neck pain, headache, and clicking [12].

No significant differences seen amongst different races/ethnicity between TMD patient in this study, which is in accordance with previous studies done by van der Meulen et al 2009 and In Mexico, and specifically in Campeche, no background exists in the way of epidemiological studies conducted on the prevalence or factors associated with TMD. As well as in Netherlands Analysis of variance showed no interaction effects between ethnic background in the [11].

The mostly used conservative treatment for TMD and bruxism involves intra oral occlusal splints, supported by medications like pain killer, anti-inflammatory and muscle relaxant. The occlusal splint, position the mandibular condyle in an optimal position with in TMJ and interrupt the habit of bruxism [7, 9].

Conclusion

The Prevalence of clicking is higher compared to bruxism patients, this is because of that the patient with bruxism mainly complaining and seeking treatment, while the clicking patients are presented mainly without pain and discovered accidentally, during routine periodic examination. The higher in age group is 20-40 years old, and the female to male ratio 4-1. Wearing a night guard showed decreased bruxing activity, and related complications and therefore, improved life quality.

Acknowledgment

I sincerely thank the Kulliyyah of Dentistry, International Islamic University Malaysia, and the Faculty of Dentistry, Qaiwan University, for their generous support, collaboration, and valuable contributions that greatly facilitated the completion of this work.

Conflicts of Interest

There are no conflicts of interest.

References

1. Kashmoola MA., et al. "A pilot study on the use of low-level laser therapy in treatment of temporomandibular disorder". Journal of International Dental and Medical Research 11.2 (2018): 669-675.
2. Kashmola MAH., et al. A prospective study on response to treatment of patients with temporomandibular dysfunction: A clinical study (2018).
3. Yu C., et al. "Gender Differences in Rheumatoid Arthritis: Interleukin-4 Plays an Important Role". J Immunol Res (2020): 4121524.
4. Fernendez S., et al. "Telemedicine as an Effective Tool for The Management of Temporomandibular Joint Disorders". J Oral Maxillofac Sur 70.2 (2012): 295-301.

5. Valesan LF., et al. "Prevalence of temporomandibular joint disorders: a systematic review and meta-analysis". Clin Oral Investig 25.2 (2021): 441-453.
6. Fernendez S., et al. "Telemedicine as an Effective Tool for The Management of Temporomandibular Joint Disorders". J Oral Maxillofac Sur 70.2 (2012): 295-301.
7. Wright EF and North SL. "Management and treatment of temporomandibular disorders: a clinical perspective". J Man Manip Ther 17.4 (2009): 247-54.
8. Zieliński G, Pająk-Zielińska B and Ginszt M. "A Meta-Analysis of the Global Prevalence of Temporomandibular Disorders". Journal of Clinical Medicine 13.5 (2024): 1365.
9. Lotesto A., et al. "Status of alloplastic total temporomandibular joint replacement procedures performed by members of the American Society of Temporomandibular Joint Surgeons". International Journal of Oral and Maxillofacial Surgery 46.1 (2017): 93-96.
10. Yeon-Hee Lee Jin-Woo Chung. The seasonal influence on TMD prevalence in South Korea which has four seasons (2023).
11. van der Meulen Marylee J., et al. "Ethnic background as a factor in temporomandibular disorder complaints". Journal of orofacial pain 23.1 (2009): 38-46.
12. Zhang J., et al. "A comparative study of temporomandibular joints in adults with definite sleep bruxism on magnetic resonance imaging and cone-beam computer tomography images". Journal of Clinical Medicine 12.7 (2023): 2570.
13. Casanova-Rosado JF., et al. "Dental attrition, and associated factors in adolescents 14 to 19 years of age: a pilot study". Int J Prosthodont 18.6 (2005): 516-9.
14. Yadav S. "A Study on Prevalence of Dental Attrition and its Relation to Factors of Age, Gender and to the Signs of TMJ Dysfunction". J Indian Prosthodont Soc 11.2 (2011): 98-105.
15. Celal Candirli., et al. "Evaluation of success criteria for temporomandibular joint arthrocentesis". J Korean Assoc Oral Maxillofac Surg 45 (2019): 15-20.
16. Seraj B., et al. "Temporomandibular disorders and parafunctional habits in children and adolescence: A review". Journal of Dentistry 6.1 (2009): 37-45.