

Temporomandibular joint disorder predisposing factors and clicking.

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Abstract: This study includes 450 patients, 271 females and 179 males, ages between 13-65 years. The Helkimo index for temporomandibular disorder (TMD) diagnosis was used to quantitatively evaluate the signs and symptoms of the disorder. Clicking of the joint was diagnosed by using stethoscope. Parafunctional activity, previous trauma, missing teeth, angle's classification, crossbite, overbite and overjet were assessed and considered as variables in this research. SPSS with chi square test and Pearson's coefficient correlation were used for statistical analysis. The results of this study show no association between clicking, parafunctional habits, unilateral chewing, previous trauma, angle's classification, crossbite, overbite and overjet. These result coincide the hypothesis that the exact etiology of TMDs is still obscure and the lack of a clear single cause of TMD, specially clicking, has resulted in the proposal of a multifactorial etiology for TMD.

Keywords: Temporomandibular joint disorders; temporomandibular joint dysfunction syndrome; causality; malocclusion; habits.

INTRODUCTION.

Temporomandibular disorder is an important public health problem affecting 5 to 12% of the world population and represents the most common chronic painful condition in the orofacial region.¹ The prevalence of temporomandibular disorders among population is about 50%-70%, about 20%-25% of which are only diagnosed as having TMD symptoms. However, only 2%-7% of the population seeks treatment.² The temporomandibular dysfunction syndrome (TMD) is defined as a group of functional and pathological disorders disturbing the temporomandibular joint (TMJ), masticatory muscles and tissue adjacent components.³

The American Dental Association (ADA) reports that joint sound can happen in patients with a normal disc location in MRI imaging. Other researcher believed that joint sounds are due to condylar hypermobility, enlargement of the lateral poles of the condyles, structural anomalies of the articular eminence and loose intra-articular bodies excluding disc and dysfunctional movement patterns or incoordination.⁴

The aim of the research was to study the relationship between clicking and grinding, clenching, nail biting, object biting, lip biting, gum chewing, thumb sucking, unilateral chewing, previous trauma, missing teeth, angle's classification, crossbite, overbite and over jet.

MATERIALS AND METHODS.

This study includes 450 patients who were admitted to oral medicine clinic at Mosul university during a period of 2 years, the patients consisted of 271 females and 179 males, the age ranged between 13-65 years old. All patients were diagnosed to have TMD after excluding other pathologies, which account for their symptoms. Patients were examined by same professional in order to reduce bias and to standardize the process.

The Helkimo index 1974 was used to evaluate the signs and symptoms of TMD and to quantify its severity, which is an important step to determine the need for treatment and to facilitate a comparison with other studies in which clicking was assessed using a stethoscope. Parafunctional activities including bruxism, clenching, object biting, lip-cheek biting and gum chewing were assessed in this study by interviewing of the patients together with a clinical examination, a history of previous trauma was recorded and missing teeth were determined clinically and categorized into missing anterior and missing posterior teeth, angle's classification or occlusion and crossbite were assessed and recorded. The relationship of all these variables in relation to clicking of the temporomandibular joint was statistically assessed. SPSS with a chi square test and Pearson's coefficient correlation were used for statistical analysis, $p \leq 0.001$ was considered as significant.

RESULTS.

TMD is most prevalent in the age group 21-30 years, representing 59.3%, while the age group 51-65 years has the lowest prevalence, representing 1.5% of cases. A total of 314 patients complained from TMJ clicking, the highest percentage were seen in the age group 21-30 years (58.2%), and the age group 51-65 years had the lowest percentage (1.5%).

Females were represented more frequently than males patients, 191 (60.8%) females patients and 123 male patients represent (39.17%). A non-significant relationship between clicking and grinding with chi square test was found ($X^2=0.539$, $p \geq 0.001$).

A non-significant relationship between clicking and clenching was found with chi square test ($X^2=0.610$, $p \geq 0.001$), and also non significant relationship between clicking and nail biting ($X^2=0.717$, $p \geq 0.001$).

Non-significant relationships among clicking, object biting, lip biting, gum chewing and thumb sucking were also found ($X^2=0.536$, $X^2=0.494$, $X^2=0.435$, $X^2=0.924$ respectively, $p \geq 0.001$) as shown in Table 1.

A non-significant relation between clicking and unilateral chewing ($X^2=0.165$, $p \geq 0.001$), and between clicking and previous trauma were found ($X^2=0.288$, $p \geq 0.001$). A non-significant relations between missing anterior and posterior teeth with clicking. ($X^2=4.062$, $p \geq 0.001$), ($X^2=3.065$, $p \geq 0.001$).

Figure 1. Relation between clicking and angle classification.

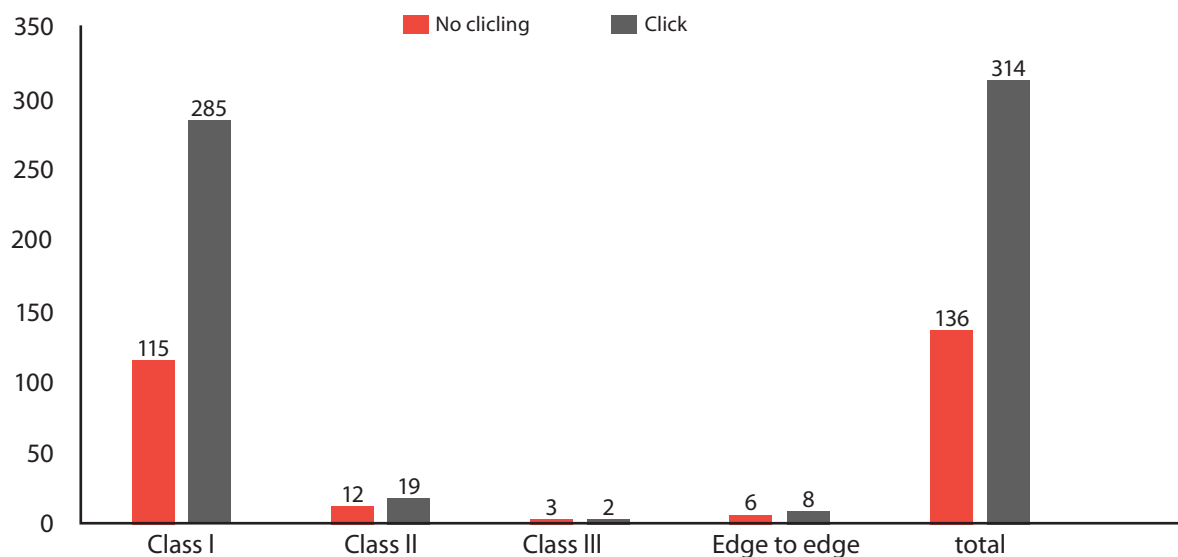


Table 1. Relationship between clicking and temporomandibular joint disorder predisposing factors.

Predisposing factors	Clicking		No clicking	Total	X ² =	p-value
Male	123 (39.17)	55		178	--	--
Female	191 (60.8)	81		272	--	--
Grinding	yes	226	94	320	0.377	0.539 N
	no	88	42	130		
Clenching	yes	238	100	338	0.261	0.610 N
	no	76	36	112		
Nail biting	yes	278	122	400	0.132	0.717 N
	no	36	14	50		
Object biting	yes	286	123	409	0.12	0.536 N
	no	28	13	41		
Lip biting	yes	281	123	404	0.045	0.494 N
	no	33	13	46		
Gum chewing	yes	251	113	364	0.610	0.435 N
	no	63	23	86		
Thumb sucking	yes	309	134	453	0.009	0.924 N
	no	5	2	7		
Unilateral chewing	yes	313	134	447	1.902	0.165 N
	no	1	2	3		
Previous trauma	yes	311	133	444	1.128	0.288 N
	no	3	3	6		

Non-significant relations among clicking, angle classification and crossbite were found ($X^2=6.090$, $p \geq 0.001$), ($X^2=0.049$, $p \geq 0.001$). No correlations were found among clicking, overbite and overjet. (Pearson's coefficient value=-0.028, $p=0.560$), (Pearson's coefficient value=-0.016, $p=0.738$). (Figure 1)

DISCUSSION.

In the present research we studied the relationship between clicking of the TMJ which is considered the most common symptom of TMDs (consistent with other study) and parafunction habits (grinding, clenching, nail biting, object biting, gum chewing thumb sucking, previous trauma, missing teeth, angle's classification, cross bite, overbite and overjet).

No significant relationships between clicking and grinding was found in this study, in disagreement with Fujita *et al.*,⁵ who found a significant relationship

between clicking and bruxism. We also did not find a significant relationship between clicking and clenching, in disagreement with other studies that reported an association between temporomandibular disorders and the habit of grinding or clenching.⁶

No significant relation among clicking, nail biting, object biting, chewing gum and thumb sucking were found in this study and this result in is agreement with Carlsson *et al.*,⁷ who found no evidence of a close relationship between these oral parafunctional habits and TMDs.

In this study there was no significant association between joint sound and unilateral chewing, this outcome is consistent with other research.⁸ A non significant relation between clicking and previous trauma was found in this study and this result also agrees with other studies.⁹ In this study no relationship between clicking and missing teeth were found and this

is inconsistent with Costa *et al.*,⁶ Shumailan *et al.*,² who claimed that logistic regression analysis explained that missing teeth was majorly connected with TMDs and clinical sign of joint sound.¹⁰ The results of this study

coincide with the hypothesis that the exact etiology of TMDs is still obscure, and there is a lack of a clear single cause of TMDs, specially clicking, and a multifactorial etiology has been thus proposed.

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