

The prevalence of bruxism among students in the Faculty of Dentistry - Aden University

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Abstract

The phenomenon of bruxism affects millions of people throughout the world. Tooth grinding is an activity particularly important to the dentist because of breakage of dental restorations, tooth damage, induction of temporal headache and tempromandibular disorders. The aim of this study was to determine the prevalence of bruxism among the college students and associated factors.

The study was carried out in the Department of Prosthodontic, College of Dentistry University of Aden between the period 2009-2010. Clinical record of 177 healthy students were included in a study sample, they are divided into four groups according to the education levels (from second to fifth year), 15 of them were suffering from bruxism in association to 4 major and 3 minor sign and symptom, analyzed by using statistical tools (SPSS V.15).

The prevalence of bruxism among dental student was 15 cases represented by 8.4% of all cases. The prevalence rate of muscle's pain was in the lateral pterygoid muscle 100%, Medial pterygoid muscle pain, Masseter m. and Trapezium m. pain represented with 40% of the cases and the lowest percentages in temporal m. and Sternomastoid m. pain 20%.

According to sign on hard tissues teeth attrition represented the high percentage with 93.3%, followed by malocclusion with 73.3%, then the restorated teeth with 60% and the tooth sensitivity and mobility with 53.3% and 26.7% respectively then the bone exostosis with 6.7%,. According to sign on soft tissues the gingival inflammation represented the high percentage of cases with 93.3%, followed by gingival recession with 80% of the cases, then the tongue dentition with 73.3% and 46.7% of cases with pocket.

Prevalence rate of cases of TMJ respondent by deviation of mandibule was 93.3%, followed by 80% of the cases with pain at TMJ, then 66.7% with clicking, 47% with deflection of mandibule, 40% with opening limitation and 6.7% of cases with loss vertical dimension. The prevalence rate of bruxism associated with anxiety 80%, then patients under psychological treatment 40% and then the patients under antidepressiondruge26.7%.

A large proportion of students with bruxism have potential psychological problems. Female gender, advanced educational levels and hostel residence as well as poor socioeconomic status are predisposing factors for pain severity in masticator muscles.

Key words: prevalence rate of Bruxism, sign and symptom, muscle's pain.

Introduction

The phenomenon of bruxism affects millions of people throughout the world. Tooth grinding is an activity particularly important to the dentist because of breakage of dental restorations, tooth damage, induction of temporal headache and tempromandibular disorders.¹

The term parafunction was introduced by Drum to suggest distinction between occlusal stress exerted during mastication and swallowing and occlusal stress which are brought into action outside of the normal function.² Parafunctional activities are non-functional oromandibular or lingual activities that includes jaw clenching, bruxism, tooth grinding, tooth tapping, cheek biting, lip biting, object biting etc. that can occur alone or in combination and are different from functional activities like chewing, speaking and swallowing.⁶

The term 'la bruxomanie' was first introduced by Marie Pietkiewicz in 1907.³

It was later adopted as 'bruxism' to describe gnashing and grinding of the teeth occurring without a functional purpose. The American Academy of Orofacial Pain defines bruxism as a diurnal or nocturnal parafunctional activity including clenching, bracing, gnashing, and grinding of the teeth¹. Glossary of Prosthodontic Terms (GPT-8) defines bruxism as parafunctional grinding of teeth or an oral habit consisting of involuntary rhythmic or spasmodic non functional gnashing, grinding or clenching of teeth in other than chewing movements of the mandible which may lead to occlusal trauma. Bruxism can occur during wakefulness or during sleep.⁵

Bruxism during daytime is commonly a semivoluntary 'clenching' activity and is also known as 'Awake Bruxism' (AB) or Diurnal Bruxism (DB). AB can be associated with life stress caused by familial responsibility or work pressure. Bruxism during sleep either during daytime or during night is termed as 'Sleep Bruxism' (SB). SB is an oromandibular behavior that is defined as a stereotyped movement disorder occurring during sleep and characterized by tooth grinding and/or clenching.⁵ Sleep bruxism is recently classified as sleep related movement disorder according to recent classification of Sleep Disorders.⁴

Because of the broad definitions used, the reported prevalence figures of bruxism vary greatly, between 4-88 % is often noted in the literature. The prevalence of awake bruxism is about 20 % for the adult population, occurring more often among females.⁶

Sleep bruxism, in turn, defined as a stereotyped movement disorder occurring during sleep and characterized by tooth grinding and/or clenching, is in normal subjects detected in about 8 % of the adult population. AB is found to occur predominantly among females while no such gender difference is seen for sleep bruxism.⁷

Onset of SB is about 1 year of age soon after the eruption of deciduous incisors.¹⁰ The disorder is appearing more frequently in the younger population.⁸

The prevalence in children is between 14 to 20%. In adults aged above 60 years and over only 3% are being aware of frequent grinding.⁹

Aim of the study:

The objective of this research is to identify the prevalence of bruxism related to dental students in the faculty of Dentistry 2009-2010, according to age and sex, sex and education levels, the signs and symptoms, muscle & TMJ respondent and associated factors (Psychological, Systemic & Personality)

Method:

The study was carried out in the Department of Prosthodontic, College of Dentistry University of Aden between the period 2009-2010.

The study was in a randomly selected group of 177 healthy students, they were divided into four groups according to the education levels (from second to fifth year), 15 of them suffering from bruxism in association to 4 major and 3 minor sign and symptom, analyzed by using statistical tools (SPSS V.15).

Case histories were collected using a questionnaires and examination and functional analysis methods

The information received from dental student's investigation was managed to be included in all the data analysis. Each student completed a medical and dental history and signed an informed consent document. All students accepted oral examinations and answered the questionnaire applied in investigation which already prepared. .

The chi-squared test was used to analyze the differences between the frequencies in groups, or subgroups were considered significantly different from each other if $p < 0.05$. All statistical calculations were performed using statistic 6.0 for windows.

Result:

Table 1: The distribution of bruxism according to Sex and Educational levels

		Educational levels				Total
		Second year student	Third year student	Fourth year student	Fifth year student	
Sex	male	0	0	0	1	1
	female	1	1	7	5	14
Total		1 6.7%	1 6.7%	7 46.6%	6 40%	15 100%

Table 2: The distribution of bruxism according to presence of pain in the related muscles

		Presence and absence of pain in the effective muscles					
		Tempor al m. pain	Masseter m. pain	Sternomasto id m. pain	Trapezem m. pain	Medial pterygoid m. pain	Lateral pterygoid m. pain
P a i n	Yes	3 20%	6 40%	3 20%	6 40%	7 46.7%	15 100%
	No	12 80%	9 60%	12 80%	9 60%	8 53.3%	0 0%
Total		15 100%	15 100%	15 100%	15 100%	15 100%	15 100%

Table 3: The distribution of bruxism according to the signs of hard tissues

		<i>RESPONDANT TO THE SIGNS OF HARD TISSUES</i>					
		TEETH ATTRITION	MALOCCLUSAL	BONE EXOSTOSIS	RESTORATED TOOTH	Tooth sensitivity	Tooth mobility
YES	14 93.3%	11 73.3%	1 6.7%	9 60%	8 53.3%	4 26.7%	
NO	1 6.7%	4 22.7%	14 93.3%	6 40%	7 46.7%	11 73.3%	
Total	15 100%	15 100%	15 100%	15 100%	15 100%	15 100%	

Table 4: The distribution of bruxism according to the signs of soft tissues

		<i>RESPONDANT TO THE SIGNS OF SOFT TISSUES</i>			
		GENGIVAL INFLAMMATION	GENGIVAL RECESSION	TONGUE DENTITION	POCKET
YES	14 93.3%	12 80%	11 73.3%	7 46.7%	
NO	1 6.7%	3 20%	4 22.7%	8 53.3%	
Total	15 100%	15 100%	15 100%	15 100%	

Table 5: The distribution of bruxism according to TMJ respondent

RESPONDENT TO THE TMJ	YES	NO	Total
OPENING LIMITATION	6 40%	9 60%	15 100%
DEVIATION OF MANDIBLE	14 93.3%	1 6.7%	15 100%
LOSS V.D	1 6.7%	14 93.3%	15 100%
CLICKING	10 66.7%	5 33.3%	15 100%
Deflection of mandibule	7 47%	8 53%	15 100%
Pain at temporo- mandibular joint	12 80%	3 20%	15 100%

Table 6: The distribution of bruxism according to personality

RESPONDENT TO THE PERSONALITY	YES	NO	Total
HYPERACTIVE	10 66.7%	5 33.3%	15 100%
AGGRESSIVE	5 33.4%	10 66.6%	15 100%
COMPETITIVE	13 86.7%	2 13.3%	15 100%

Table 7: The distribution of bruxism according to psychological factors

PSYCHOLOGICAL FACTORS ASSOSSITED WITH BRUXISM	YES	NO	Total
EXPOSED TO STRESSFUL LIFE EVENT AND ANXIETY	12 80%	3 20%	15 100%
ANTIDEPRESSION DRUGE	1 26.7%	14 73.3%	15 100%
TREATED FOR ANY PSYCHOLOGCAL PROPLEM	2 40%	13 60%	15 100%

Table 8: The distribution of bruxism according to associated symptoms

SYMPTOMS ASSOSSIATED WITH BRUXISM	YES	NO	Total
GRINDING SOUND AT CONSCIOUSNESS	12 80%	3 20%	15 100%
HEADACHE	6 40%	9 60%	15 100%
TINNITUS	8 53.3%	7 46.7%	15 100%

Discussion:

In the Dentistry Faculty 177 students were examined 15 of them reported diurnal and nocturnal bruxism. This result is similar to other result that are usually reported in the literature, but other studies showed very different values according to different populations examined and different ways to evaluate bruxism awareness.

Referring to the theories on the etiology of bruxism, we should say that we do not have elements to assess the factors eventually playing a role in the pathogenesis of bruxism in the students surveyed.¹⁰

The prevalence of bruxism was with highest percentage in the fourth year 46.6%, followed by the fifth year 40%, while the lowest values in the second and third year levels was 6.7%. The prevalence of bruxism among females was more than males (*F*: 93.3%; *M*: 6.7%) and that Journal of the Lebanese Dental Association showed that Bruxism awareness per age and gender was as follows: <26 years (*F*: 24.1%; *M*: 19.4%).¹² Also, in the study of Åkerstedt et al. (2002), based on a large representative population sample of 58 115 individuals in Sweden, a major indicator for disturbed sleep and fatigue was female gender. The reason is not clear, but family responsibilities and hormone cycles may contribute to it.³⁰

In recent years, there is a growing appreciation of the stresses involved in pain severity of masticatory muscles and TMJ among college and university students almost worldwide.¹⁴

This study showed that, all of cases with bruxism have a pain in the lateral pterygoid muscle 100%, while 46.6% of the case were suffering from Medial pterygoid muscle pain, Masseter m. and Trapezium m. pain represented with 40% of the cases, and the lowest percentages in temporal m. and Sternomastoid m. pain 20%. And that may lead us to put a question, why the lateral pterygoid m. have the highest percentage

The lateral pterygoid muscle is an incredibly important muscle. Overuse of the lateral pterygoid during bruxism ,because of the lateral pterygoid .m is responsible for lateral movements of the lower jaw causing stretching of the ligaments that hold the articular disk in place over the head of the condyle.

A similar finding was found by Lobbezoo-Scholte whose results showed relatively more patients mainly myogenous component group who reported clenching and grinding than the other patient groups. Although a relationship is not clear from the literature, one could suppose that bruxism may be highly associated with pain referred from masticatory muscles and TMD.²⁰ The high percentage of cases of TMJ respondent by deviation of mandibule was 93.3%, followed by 80% of the cases with pain at TMJ, and 6.7% of the cases with loss vertical dimension.

Clinical signs of bruxism are mostly related to dental wear and muscular and joint discomforts, but a large number of etiological factors can be listed, as local, systemic, psychological and hereditary factors.¹²

The association between bruxism, feeding and smoking habits and digestive disorders may lead to serious consequences to dental and related structures, involving dental alterations (wear, fractures and cracks), periodontal signs (gingival recession and tooth mobility) and muscle-joint sensitivity, demanding a multidisciplinary treatment plan.²⁶

The teeth attrition represents the high percentage with 93.3%, while the bone exostosis represents 6.7% of cases.

In relation to signs of bruxism in the soft tissues, the gingival inflammation represent the high percentage of the cases with 93.3%, followed by gingival recession with 80% of the cases, then the tongue dentition with 73.3% and 46.7% of the cases with pocket

In this study the distribution of bruxism among students according to the personality show that, the high percentage of the cases was 86.7% of competitive students, followed by 66.7% of hyperactive and 33.4% of aggressive. Students are subjected to different kinds of stressors, such as the pressure of academics with an obligation to succeed, an uncertain future and difficulties of integrating into the system. The students also face social, emotional, physical and family problems which may affect their learning ability and academic performance.

The result of this study has proved that the main causes of bruxism for dental students was psychological effect

The highest percentage of bruxism associated with anxiety was 80%, then patients under psychological treatment 40% then the patients under antidepressant drug 26.7%.

Many studies have suggested that stress experience and psychosocial factors may play an important role in the etiology of bruxism.²⁷

Awake bruxism may be a parafunction associated with life stress or occupational load

Too much stress can cause physical and mental health problems, reduce a student's self-esteem and may affect students academic achievement.^{22,26}

Conclusion and Recommendation:

A large proportion of students with bruxism have potential psychological problems. Female gender, advanced educational levels and hostel resident as well as poor socioeconomic status are predisposing factors for pain severity in masticator muscles.

Clinicians dealing with myofacial pain should have a good working relationship with clinical psychologist. The stressors experienced by the students were mainly related to academics and psychosocial concerns. These stressors need to be analyzed further. The students should be taught different stress management techniques to improve their ability to cope with a demanding professional course. The living conditions of the students and their recreational facilities should be improved. There is also need to bring about changes in the quality of teaching and evaluation system.

Eventually, bruxism shortens and blunts the teeth being ground and may lead to myofacial muscle pain, temporomandibular joint dysfunction and headaches. In severe, chronic cases, it can lead to arthritis of the temporomandibular joints. The jaw clenching that often accompanies bruxism can be an unconscious neuromuscular day time activity, which should be treated as well, can usually through physical therapy (recognition and stress response reduction).

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انتشار صريف الأسنان بين طلاب الجامعات في كلية طب الأسنان – جامعة عدن

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الملخص

إن ظاهرة صريف الأسنان يؤثر على الملايين من الناس في جميع أنحاء العالم. طحن الأسنان هو نشاط مهم بشكل خاص لطبيب الأسنان بسبب الكسر من حشوات الأسنان، تلف الأسنان، الصداع الزمني واضطرابات المفصل الفكي. وكان الهدف من هذه الدراسة هو تحديد مدى انتشار صريف الأسنان بين طلاب الجامعات والعوامل المرتبطة بها.

أجريت هذه الدراسة في قسم الإستعاضة الصناعية، كلية طب الأسنان جامعة عدن بين فترات 2009-2010. وكان عدد الطلاب الذين أجريت عليهم الدراسة 177 طالباً. تشمل في عينة الدراسة، تم تقسيمها إلى أربع مجموعات وفقاً لمستويات التعليم (من الثانية إلى السنة الخامسة)، 15 منهم يعانون من صريف الأسنان منها 4 اعراض رئيسية و 3 اعراض طفيفة. تم التحليل باستعمال البرنامج الإحصائي (SPSS V.15). وكان معدل انتشار آلام العضلات في العضلة الجناحية الوحشية 100٪، العضلة الماضغة 42.90٪ وأدنى النسب 21.40٪.

الأنسجة الصلبة تمثل نسبة عالية 93.3٪، تليها سوء الإطباق 73.3، حساسية الأسنان و تخلخلها 53.3٪ و 26.7٪ على التوالي. التهاب اللثة تمثل نسبة عالية من الحالات 93.3٪، يليه تراجع اللثة مع 80٪، والجيوب اللثوية 46.7٪.

كان معدل انتشار حالات المفصل الفكي الصدغي مع انحراف الفك السفلي 93.3٪، تليها 80٪ من الحالات مع ألم في المفصل الفكي الصدغي، ثم 66.7٪ مع النقر، و 47٪ مع انحراف الفك السفلي. معدل انتشار صريف الأسنان المرتبطة بالقلق 80٪، ثم المرضى تحت العلاج النفسي 40٪. هناك نسبة كبيرة من الطلاب مع صريف الأسنان لديهم مشاكل نفسية محتملة. ولاسيما الإناث وفي المستويات التعليمية العليا، الوضع الاجتماعي والاقتصادي.

الكلمات المفتاحية: معدل انتشار صريف الأسنان، أعراض وآلام العضلات.