

ORIGINAL ARTICLE

Epidemiological aspects of bruxism at the Abidjan Odonto-Stomatological Consultation and Treatment Center

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ABSTRACT

Keywords: Bruxism, Epidemiological aspects, Prevalence

Bruxism is a factor that both promotes and aggravates certain oral diseases. The importance of the repercussions of bruxism shows the interest of our work which is to know the frequency and the prevalence of bruxism. The general objective of our work is therefore to contribute to the epidemiological study of bruxism in Côte d'Ivoire. This was a descriptive cross-sectional study of three hundred (300) patients attending the Centre de Consultation et de Traitements Odonto-Stomatologiques d'Abidjan, who underwent a questionnaire and an odonto-stomatological examination. The criterion used to diagnose bruxism was that of Dr Gilles Lavigne et al. Our study population consisted of 300 individuals ranging in age from 4 to 82 years, the majority of whom were women [18-40 years], with a bruxism frequency of 22.33%. Our population of bruxers was predominantly female, accounting for 59.70%. Also, the prevalence of bruxism increased with age. In our study population, our survey reveals that the prevalence of bruxism is still significant. Practitioners must therefore be provided with the appropriate equipment for better diagnosis and patient management. (IJP 2025;6(1):77-79)

Introduction

Bruxism is an oral habit consisting of involuntary, non-functional, rhythmic or spasmodic tapping, grinding or clenching of the teeth, apart from chewing movements. It frequently occurs unconsciously, associated with abnormal wear of the teeth and discomfort of the manducatory muscles.¹

A distinction is made between nocturnal and diurnal bruxism. However, the terms sleep bruxism and awake bruxism are increasingly preferred. This is because people can be awake or asleep during the day and still grind their teeth.²

Bruxism is multifactorial in origin, and stress appears to be an important triggering or aggravating factor.^{3,4} Bruxism is a factor that both promotes and aggravates certain oral diseases. In fact, even if bruxism is not the cause of oral disease, it can, in some cases, make it more complex. In periodontitis, for example, bruxism accelerates attachment loss, thus aggravating periodontal disease.⁵⁻⁷

It also compromises the durability of conservative care, prosthetic restorations and all other therapies applied to the oral cavity. The importance of the repercussions of bruxism shows the interest of our work, which is to know the frequency and prevalence of bruxism.

The general aim of our study is therefore to contribute to the epidemiological study of bruxism in Côte d'Ivoire.

Material and Methods

This was a descriptive, cross-sectional study of three hundred (300) patients attending the Abidjan Centre de Consultation et de Traitements Odonto-Stomatologiques, who underwent a questionnaire and an

odonto-stomatological examination to identify oro-maxillo-facial signs. All patients consulting the CCTOS consultation service during the study period who were fully dentate or partially edentulous and wearing fixed or removable dental prostheses were included in our study.

The criteria used to diagnose bruxism were those of Dr. Gilles Lavigne et al., supplemented by Rozenzweig's classification of different stages of dental wear [table 1](#) and [table 2](#).^{8,9}

Table 1. Diagnostic criteria for bruxism according to Lavigne et al

Nocturnal or daytime noises associated with teeth grinding, tapping or rubbing. Ideally, this noise should be reported by the spouse or friends, since bruxism sufferers are generally unaware of their nocturnal noises.

Abnormal wear of non-functional teeth (e.g. attrition)

Hypertrophy of masseter (and I or temporal) muscles during voluntary isometric contraction

History of muscle stiffness or pain in the morning

Positive stories of teeth clenching and masticatory muscle contractions during the day.

In addition, the following points are sometimes used as additional diagnostic elements:

o History of headache; joint pain and cracking of temporomandibular joints; muscle pain; exacerbated periodontal problems; indentations on the edge of the tongue

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Table 2. Classification of wear stages according to Rozencweig

Stage 1: wear limited to enamel and at least 3 pairs of teeth
Stage 2: enamel and dentine wear in islands, less than 6 pairs of teeth.
Stage 3: enamel and dentine wear without islands, more than 6 pairs of teeth
Stage 4: wear beyond the middle of the crown
Stages 3 and 4 correspond to brycosis.

Table 3. Breakdown of study population

	Man		Women		Total	
	Number	%	Number	%	Number	%
4-17 years	39	13	37	12.33	76	25.33
18-40 years	59	19.67	75	25	134	44.66
41-59 years	23	7.66	39	13	62	20.66
60 et plus years	15	5	13	4.33	28	9.33
Total	136	45.33	164	54.66	300	100

Table 4. Prevalence of bruxism in the target population

	Bruxers	No Bruxers	Total
Man	27	107	134
Women	40	126	166
Frequency	67	233	300
%	22.33	77.67	100

Table 5. Proportion of men and women in the bruxer population

	Bruxers	%
Man	27	40.30
Women	40	59.70
Total	67	100

Statistical processing was carried out using Excel version 2010 and Epi-data 3.1.

The descriptive study of variables was carried out by calculating means and standard deviations around means, frequencies and percentages. Results were presented in the form of tables and graphs.

Informed patient consent was required for all these examinations. The study respected the anonymity of the people surveyed, and the collection and management of information was carried out in a confidential manner.

Prevalence of bruxism in the age group [60 years and over]. The prevalence of bruxism in our study population was 22.33%. Females accounted for the largest proportion of bruxers (59.70%). The prevalence of bruxism in the [4-17 years] age group is (7.89%). The prevalence of bruxism in the 18-40 age group is (20.14%). La prévalence du bruxisme dans la tranche d'âge de [41-59 ans] est de (30,64%). The prevalence of bruxism in the [60 and over] age group was 53.57%.

Discussion

The prevalence (number of cases) of bruxism can never be established with great rigor. This is mainly due to the fact that it is an activity that occurs during sleep, and that the main people involved are unaware of it.

Our study population of 300 individuals ranging in age from 4 to 82 years, mostly women [18-40 years], showed a bruxism frequency of 22.33%.

Our results coincide with those of Manfredini et al. and Melis M., but are much higher than those of Chapotat et al.^{3,10,11}

This high rate of bruxism in our study population could be explained by the greater presence of stress factors in this population, as also described by certain authors.^{3,12}

However, this high rate is due to the difference in living standards: the more difficult living conditions (underdevelopment, poverty) in Africa, particularly in Côte d'Ivoire, subject populations to significant psychological stress, resulting in high stress levels and therefore a greater risk of developing bruxism.

For the purposes of our study, it is important to note that the CCTOS is a referral center with specialized departments, notably a maxillofacial prosthetics department, to which patients suffering from bruxism are referred. This could also be the reason for the high rate of bruxism in our study population.

In terms of gender, sleep bruxism affects both sexes, with a slight preponderance of women (59.70% of women versus 40.30% of men).

Marcello Melis observed little difference between men and women. On the other hand, he shows that divorced people are more represented among bruxers.¹⁰

The predominance of women in the bruxer patient population may be explained by the fact that the study population was predominantly female (54.66%). It could also be explained by the fact that women are more susceptible to stress, and therefore

Table 6. Prevalence of baruxism in the age group [4-17 years]

	Bruxers		Non Bruxers	
	Number	%	Number	%
Man	2	2.63	37	48.68
Women	4	5.26	33	43.42
Total	6	7.89	70	92.10

Table 7. Prevalence of bruxism in the age group [18-40 years]

	Bruxers		Non Bruxers	
	Number	%	Number	%
Man	14	10.44	45	33.59
Women	13	9.70	62	46.27
Total	27	20.14	107	79.86

Table 8. Prevalence of bruxism in the age group [41-59 years]

	Bruxers		Non Bruxers	
	Number	%	Number	%
Man	4	6.45	19	30.64
Women	15	24.19	24	38.71
Total	19	30.64	43	69.35

Table 9. Prevalence of bruxism in the age group [60 years and over]

	Bruxers		Non Bruxers	
	Number	%	Number	%
Man	7	25	6	21.43
Women	8	28.57	7	25
Total	15	53.57	13	46.43

more at risk of developing bruxism.

In our study, we found an increase in the frequency of bruxism with age. These results contrast with the majority of studies carried out in the West, which found a decrease in the frequency of bruxism with age.^{13,14}

This difference between the evolution of bruxism frequency in the West and in Côte d'Ivoire can be explained by the difference in social level.

In Côte d'Ivoire, the increase in the frequency of bruxism is thought to be due to an increase in stress levels with age.

Indeed, in the first age bracket [4-17 years], with a prevalence of 7.89%, individuals are generally under the responsibility of their parents. This contrasts with studies by Camoin A. et al.

who found a prevalence of 33% among 6-year-olds.¹⁵

As we move on to the [18-40 years] age group, the cord begins to be cut, and responsibilities begin to take shape. The individual is studying, looking for work, and the conditions of study and work are difficult. This individual will add to his initial stress the stress caused by his new situation, the stress level being higher and so is the risk of bruxism.

In the third age bracket [41-59], the individual is in a period of fulfillment, generally preparing for retirement or projects to ensure his or her post-working life, and this increases stress.

Individuals in the fourth age bracket [60+] are mostly retired, and retirement in Côte d'Ivoire represents a real challenge. The loss of work-related privileges sometimes plunges individuals into precariousness, adding further stress and making them more vulnerable to bruxism.

The highest frequency of bruxism in our study was found among people aged 60 and over (53.57%). These sixty-somethings have reduced incomes, and are also subject to numerous constraints when it comes to paying their pensions. Unemployment is also high, and they sometimes have dependents.

All these difficulties put them under stress, making them more vulnerable to bruxism.

Conclusion

Bruxism is a repetitive activity of the maxillary muscles, characterized by clenching or grinding of the teeth and/or clenching or thrusting of the mandible. It is a widespread parafunction with numerous consequences for the body. In our study population, our survey reveals that the prevalence of bruxism is nonetheless significant. Practitioners therefore need to be provided with the appropriate equipment for better diagnosis and patient management.

References

1. The glossary of prosthodontic terms. J Prosthet Dent. 2005 ; 94(1):10-92
2. Chapotat B, Lin JS, Robin O, Jouvét M. Le bruxisme du sommeil : aspects fondamentaux et cliniques. J Paro. Impl. Oral. 1996 ; Vol.18, 277- 289
3. Manfredini D, Winocur E, Guarda-Nardini L, Paesani D, Lobbezoo F. Epidemiology of bruxism in adults: a systematic review of the literature. J Orofac Pain. 2013 Spring;27(2):99-110
4. Lobbezoo F, Naeije M. Bruxism is mainly regulated centrally, not peripherally. J Oral Rehabil. 2001 Dec;28:1085-91
5. Socransky S S, Haffajee AD. The bacterial etiology of destructive periodontal disease: current concepts. J Periodontol, 1992, 63, 45, 322-331
6. Charon L, Joacham F, Sandele P. Parodontie clinique moderne. Paris, Editions CdP, 1995. -150p
7. Van Dongen CA. Update and literature review of bruxism. R I Dent J, 1992, 25, 4, 11-16
8. Lavigne G, Goulet J P, Morrison F, Montplaisir JY. Le bruxisme, un vieux problème vu sous une perspective nouvelle. Real Clin, 1994, 2, 2, 199-207.
9. Rozenzweig D, Rozenzweig G, Laxenaire M et al. Algies et dysfonctionnements de l'appareil manducateur. Proposition diagnostique et thérapeutique. Paris : Ed. CDP, 1994. 487p.
10. Melis M, Abou-Atme Y S. Prevalence of bruxism awareness in a Sardinian population. Cranio. 2003 Apr;21(2):144-51.
11. Chapotat B, Lin J S, Robin O, Jouvét M. Le bruxisme du sommeil : aspects fondamentaux et clinique. J Paro Impl Oral. 1996 ; 18: 277- 289.
12. Lobbezoo F, Naeije M. Bruxism is mainly regulated centrally, not peripherally. J Oral Rehabil. 2001 Dec;28:1085-91
13. Manfredini D, Restrepo C, Diaz-Serrano K, Winocur E, Lobbezoo F. Prevalence of sleep bruxism in children: a systematic review of the literature. J Oral Rehabil. 2013 ; 40(8):631-42
14. Khoury S, Carra M C, Huynh N, Montplaisir J, Lavigne G J. Sleep Bruxism-Tooth Grinding Prevalence, Characteristics and Familial Aggregation: A Large Cross-Sectional Survey and Polysomnographic Validation. Sleep. 2016 Nov ; 39(11):2049-2056.
15. Camoin A, Tardieu C, Blanchet J, Orthlieb J-D. Le bruxisme du sommeil chez l'enfant Sleep bruxism in children, Archives de Pédiatrie, July 2017;24: 659-666.