



Original article

Prevalence of bruxism in children assisted by a higher education institution

Prevalência de bruxismo em crianças atendidas em uma instituição de ensino superior

Anna Luisa Neves Cardoso¹ , Luan Rabelo Veloso¹ , Michelle Pimenta Oliveira¹  e Stéphany Ketllin Mendes Oliveira Texeira¹ .

¹Dental Sciences School (FCO), Montes Claros-MG, Brazil.

Abstract

Objective: to assess the prevalence of bruxism in pediatric patients assisted by a higher education institution in the north of Minas Gerais. **Material and Methods:** This is a cross-sectional and quantitative field research, carrying out an active search for all patients who were seen from 2017 to July 2021 at the school clinic. Patients of both sexes, aged between 4 and 12 years old and who have a record of bruxism in the medical record were included. Patients with only permanent teeth will be excluded from the research. **Results:** The prevalence of bruxism presented by pediatric patients at the institution is 20.16%, formed mostly by boys (53.3%), harmful habits such as onychophagia have already been performed by 56.7% of children and 40.0% of them are always anxious. **Conclusion:** The diagnosis of childhood bruxism depends on the participation of parents, the prevalence found was 20,2% of children with bruxism.

Keywords: Bruxism. Pediatric Dentistry. Child Welfare. Prevalence.

Resumo

Objetivo: avaliar a prevalência do bruxismo no paciente pediátrico atendido em uma instituição de ensino superior do norte de Minas Gerais. **Material e Métodos:** trata-se de uma pesquisa observacional, transversal e quantitativa. Foi feita uma busca ativa de todos os pacientes que foram atendidos no período de setembro de 2017 a julho de 2021 na clínica escola, sendo incluídos pacientes de ambos os sexos, faixa etária entre 4 e 12 anos de idade e que tinham o registro de bruxismo no prontuário. Foram excluídos da pesquisa pacientes que apresentaram apenas dentes permanentes. **Resultados:** a prevalência de bruxismo apresentada pelos pacientes pediátricos da instituição foi de 20,2%, formada em sua maior parte pelos meninos (53,3%). Observou-se que 56,7% praticavam a onicofagia. Sobre a personalidade, a maioria é brincalhona e extrovertida, 40,0% dos responsáveis relataram que as crianças estão sempre/frequentemente ansiosas. **Conclusão:** a prevalência encontrada foi de 20,2% de crianças bruxonomas. O diagnóstico correto e precoce do bruxismo infantil depende da participação ativa dos pais.

Palavras-chave: Bruxismo. Odontopediatria. Bem-Estar da Criança. Prevalência.

Corresponding author: Anna Luisa Neves Cardoso | annalusnc@gmail.com

Received: 31|05|2022. **Approved:** 08|18|2022.

How to cite this article: Cardoso ALN, Veloso LR, Oliveira MP, Teixeira SKMO. Profile and prevalence of bruxism in children attended at a higher education institution. Bionorte. 2022 July-Dec;11(2):255-64.

<https://doi.org/10.47822/bn.v11i2.319>



Introduction

Bruxism is a parafunctional activity of the masticatory system that can occur voluntarily and involuntarily. When it occurs in the daytime it is called tightening, with no production of noise and the force employed is continuous, and when the act occurs when sleeping, the gnashing of the teeth produces a noise and is usually caused by stress, worry and anxiety¹.

Bruxism occurs 2.6 times more in children with a family history of a father or mother with bruxism, in addition to having a direct relationship with somnambulism and psychopathologies in children who have fear of height, hyperactivity, fear of darkness and depression².

Emotional disorder is the main cause of childhood bruxism triggered by stress, anxiety, nervousness, agitation, fear, and worry. In childhood, these feelings can arise through charges, studies, overload of activities, evaluations and even in home relationships³.

The manifestation of bruxism can be triggered by occurrences in the family, such as the divorce of parents, the death of a loved one, the birth of a new baby, the beginning of attendance at school, family history of bruxism, temporomandibular joint disorder, non-nutritive sucking of pacifier, lips or thumb, onychophagia and psychological disorders².

Infantile bruxism can cause noise when sleeping by friction of teeth, pain in the temporomandibular joints, headache, pain in the ear and when feeding, daytime sleepiness hindering school performance, abnormal wear of teeth, masseter muscle hypertrophy and dental fracture⁴⁻⁷. It can be identified from the parents' report, from tests such as portable electromyography (EMG) devices and polysomnography (PSG), and from the patient's complaints, thus being important to know the signs and symptoms that this dysfunction causes⁸.

From the description of the parent/guardian about the child, it is possible to verify that the emotional factor, such as anxiety and deleterious showing, thus, the importance of adult reporting for a correct diagnosis⁸. Early diagnosis helps prevent damage to the stomatognathic system in the long term, as well as preserving dental health, promoting quality sleep and well-being¹.

The treatment of bruxism should be carried out in a multidisciplinary way, associating medicine, dentistry and psychology. It is important that professionals are interconnected to diagnose, care for and monitor the child throughout their development¹. There is no definitive treatment in the literature for bruxism because it is a multifactorial condition, but, according to the investigations carried out by odontopediatrics in consultation, to know the etiology of the disease, it is possible to mount a transdisciplinary and subjective treatment for each patient^{9,10}.

Bruxism can be controlled by performing occlusal and orthopedic braces, composite resin restorations in order to improve tooth wear and sensitivity, pharmacological treatment with use of benzodiazepines to alleviate symptoms of anxiety and depression and behavioral therapies. The chosen approach should be informed to parents/guardians to guide them about the condition⁹.

Children and adolescents have higher rates of bruxism prevalence than in adults, the harmful effects of this condition to the stomatognathic system are diverse and vary according to the occlusal wear, dental mobility, pain in the head and neck region^{11,12}. Thus, the objective of this research was to evaluate the prevalence of bruxism in children, aged between 4 and 12 years old, assisted by the school clinic of a higher education institution.

Materials and Methods

It is an observational, transversal and quantitative research.

The studied population was composed of reports of parents/guardians of children assisted in the discipline of pediatric dentistry of the school clinic of a higher education institution in the city of Montes Claros (MG), Brazil. The investigation took place between September 2017 and July 2021. Dental records that contained the record of diagnosis of bruxism were used. The following inclusion criteria were adopted: the bruxism option indicated in the dental record, children attended in the pediatric dentistry of the school clinic of both sexes and in the age group between 4 and 12 years, in the referred period. The study excluded patients who had only permanent teeth, and did not answer the calls, by cell phone with the person in charge, after three attempts on different days and times.

After the survey through the clinical records, 48 children were eligible, and later made contact with the responsible. Thirty of them agreed to participate, with a loss of 37.5%. To do so, they received the Informed Consent Form (ICF), through the device by social network WhatsApp and also by email.

A self-administered and modified electronic questionnaire, standard⁷ that addressed 27 multiple choice questions, using the Likert scale, which are about the sociodemographic evaluation (sex, skin color, family income, number of siblings, father's and mother's work, father's and mother's schooling), risk for bruxism (personality, deleterious habits) and previous experience at the dentist. The confirmation of the agreement for the participation of the research occurred by Google Forms, before the access to the questionnaire to be answered.

The tabulation, analysis and interpretation of the collected data were performed by the Microsoft Excel® program, through descriptive analyzes.

Ethical care

The study obtained a favorable opinion under number 4,770,828, after ethical consideration by the Research Ethics Committee of the State University of Montes Claros (Unimontes).

Results

Of the 238 medical records of pediatric dentists seen at the higher education institution between 2017 and the first half of 2021, a total of 48 children had bruxism, revealing a prevalence of 20.2%. Among those who presented the diagnosis, 30 responded to the research instrument.

Of the participating children, 53.3% were male. The sociodemographic data obtained showed that more than half of the children were white (60%; n=18), had a brother (63.3%; n=19) and family income of one to two minimum wages (66.7%; n=20). Although the number of fathers employed was higher than that of mothers, they had a higher level of education than men (Table 1).

Table 1 - Sociodemographic information of children and their families. Montes Claros (MG), Brazil (n=30).

Variables	n	%
Self-reported skin color		
White	18	60.0
Brown	5	16.7
Black	5	16.7
Unanswered	2	7.0
Family Income		
Below 1 minimum wage	4	13.3
1 - 2 minimum wages	20	66.7
3 - 4 minimum wages	2	6.7
Over 4 minimum wages	3	10.0
Could not answer	1	3.3
Siblings		
1 sibling	19	63.3
2 siblings	1	3.3
3 siblings	3	10.0
4 siblings	1	3.3
No sinblings	6	20.0
Father's work		
Yes	29	96.7
No	1	3.3
Mother's work		
Yes	23	76.7

No	7	23.3
Father's education		
Incomplete elementar school	3	10.0
Complete elementar school	1	3.3
Incomplete high school	4	13.3
Complete high school	13	43.3
Incomplete college	5	16.7
Complete college	3	10.0
Post-graduation	1	3.3
Mother's education		
Incomplete elementar school	1	3.3
Complete elementar school	1	3.3
Incomplete high school	1	3.3
Complete high school	14	46.6
Incomplete college	3	10.0
Complete college	8	26.7
Post-graduation	2	6.7

Regarding the emotional profile of the pediatric patient, the results show that most children were extroverted and playful (Table 2).

Tabela 2 - Percepção dos pais sobre a personalidade dos filhos atendidos na Clínica Escola de uma instituição de nível superior. Montes Claros (MG), Brasil (n=30).

Child's Personality	n	%
Anxious		
Never	3	10.0
Rarely	1	3.3
Sometimes	14	46.7
Often	3	10.0
Ever	9	30.0
Don't know	0	0.0
Extroverted		
Never	1	3.3
Rarely	0	0.0
Sometimes	5	16.7
Often	10	33.3
Ever	14	47.7
Don't know	0	0.0
Playful		
Never	0	0.0
Rarely	0	0.0
Sometimes	4	13.3
Often	8	26.7
Ever	18	60.0
Don't know	0	0.0

Lazy		
Never	6	20.0
Rarely	3	10.0
Sometimes	15	50.0
Often	3	10.0
Ever	3	10.0
Don't know	0	0.0
Agitated		
Never	4	13.3
Rarely	3	10.0
Sometimes	15	50.0
Often	4	13.3
Ever	4	13.3
Don't know	0	0.0
Calm		
Never	2	6.7
Rarely	4	13.3
Sometimes	14	46.7
Often	4	13.3
Ever	6	20.0
Don't know	0	0.0

The production of noise, characteristic of nocturnal bruxism, was present in 6.7% of the children. Only 20% (n=6) practiced onychophagia and 10% (n=3) had lip biting sometimes (10%; n=3) (Table 3).

Table 3 - Parents' perception of the harmful habits of their children treated at the Clínica Escola of a higher education institution. Montes Claros (MG), Brazil (n=30).

Deleterious habits	n	%
Onychophagia		
Never	13	43.3
Rarely	5	16.7
Sometimes	5	16.7
Often	1	3.3
Ever	6	20.0
Don't know	0	0.0
Thumb suck		
Never	29	96.7
Rarely	1	3.3
Sometimes	0	0.0
Often	0	0.0
Ever	0	0.0
Don't know	0	0.0
Pacifier		
Never	30	100.0

Rarely	0	0.0
Sometimes	0	0.0
Often	0	0.0
Ever	0	0.0
Don't know	0	0.0
Lip biting		
Never	23	76.7
Rarely	4	13.3
Sometimes	3	10.0
Often	0	0.0
Ever	0	0.0
Don't know	0	0.0

All the children participating in the research have already visited the dentist, the last one being 3 months ago. Most sought the professional for routine consultation and 20.0% due to toothache. Parents' satisfaction with the care provided was positive (96.7%), and they classified the child's hygiene condition as regular (40.0%). Furthermore, most did not use braces for the treatment of bruxism (93.3%).

Discussion

A study conducted in order to evaluate the prevalence of bruxism and correlated factors in children attended at the Iranian school clinic identified children with a mean age of 7 years and an index of 26.2% bruxists, a result similar to that found in the present study. Motta¹³ evaluated the presence of articular noise and its relationship with bruxism, obtained in his research 43.7% of children from 6 to 9 years old. The prevalence of nocturnal bruxism found by Shinkai¹⁴ was 28.6% in children aged 2 to 11 years who were seen in a school clinic and also in a private practice. The diagnosis of infantile bruxism can be performed by different methods, among them the realization of an interview with the parents/guardians, this variation of tests can generate different results².

The psychological factor has great influence on the development of parafunction. Children with depression, anxiety, hyperactivity, or some phobia are more likely to have the condition^{2,15}. As for anxiety, the data were lower than another study in which 83.0% of the children had traces of anxiety⁸.

Onicophagia can influence the prevalence of bruxism, the division of parafunction by gender. According to research, 44.0% in females and 56.0% in males, and in relation to socioeconomic data 59.0% of mothers had jobs and 86.0% of fathers worked⁸. Data similar to the present study in which one can observe a higher percentage of bruxist boys, most children have

already gnawed the nail at least once and parents who have a job. A study conducted in an institution in Porto Velho, RO, 11.0% of mothers completed college and 10.0% of fathers completed higher education⁷, it can be observed that in both studies, the mother's education level is higher.

The prevalence rate of bruxism is higher in children and adolescents when compared to adults, ranging from 3.0% to 49.0%, however the pathology is difficult to diagnose, since there are several methods of data collection that rely on the participation of parents, limiting the credibility and reliability of responsibilities¹⁶. The correct and early diagnosis of the condition is essential to avoid future damage to the stomatognathic system that may be irreversible.

Conclusion

The prevalence found was 20.2% of children with bruxonomas. The diagnosis of child bruxism depends on the active participation of parents in the answers to the questionnaires and the treatment of the condition should be performed in a multidisciplinary way involving psychologists, doctors, physiotherapists and surgeons-dentists in order to provide a better quality of life for the child. Further studies are needed to know the etiological factors of bruxism.

References

1. Diniz MB, Silva RC, Zuanon AC. Childhood bruxism: a warning sign to peadiatric denstists and pediatricians. *Rev Paul Pediatr.* 2009;27(3):329-34. Available from: <https://doi.org/10.1590/S0103-05822009000300015>
2. Seraj B, Shahrabi M, Ghadimi S, Ahmadi R, Nikfarjam J, Zayeri F, *et al.* The Prevalence of Bruxism and Correlated Factors in Children Referred to Dental Schools of Tehran, Based on Parents' Report. *Iran J Pediatr.* 2010;20(2):174-80. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3446016/>
3. Rios LT, Aguiar VNP, Machado FC, Rocha CT, Neves BG. Bruxismo Infantil e sua associação com fatores psicológicos- revisão sistemática da literatura. *Rev Odontol Univ Cid São Paulo.* 2018;30(2):64-76. Available from: https://docs.bvsalud.org/biblioref/2018/11/965744/odonto_01_2018_64-76.pdf
4. Bader GG, Kampe T, Tagdae T, Karlsson S, Blomqvist M. Descriptive physiological data on a sleep bruxism population. *Sleep.* 1997;20(11):982-90. Available from: <https://academic.oup.com/sleep/article/20/11/982/2726018>
5. Chiang HL, Gau SSF, Ni HC, Chiu YN, Shang CY, Wu YY, *et al.* Association between symptoms and subtypes of attention-deficit hyperactivity disorder and sleep problems/disorders.

- J. Sleep Res. 2010;19:535-45. Available from:
https://www.academia.edu/52000967/Association_between_symptoms_and_subtypes_of_attention_deficit_hyperactivity_disorder_and_sleep_problems_disorders?from=cover_page
6. Herrera M, Valencia I, Grant M, Metroka D, Chialastri A, Kothare SV. Bruxism in children: effect on sleep architecture and daytime cognitive performance and behavior. *Sleep*. 2006;29(9):1143-8. Available from: <https://academic.oup.com/sleep/article/29/9/1143/2709260>
 7. Rodrigues A, Oliveira P. Avaliação da prevalência de bruxismo em crianças atendidas em uma instituição de ensino superior no município de Porto Velho/ RO.[monografia]. Porto Velho: Centro Universitário São Lucas; 2019. 28f. Available from:
<http://repositorio.saolucas.edu.br:8080/xmlui/handle/123456789/3410>
 8. Climaco J, Cruz R. Impacto do bruxismo na qualidade de vida de crianças.[monografia]. Porto Velho: Centro Universitário São Lucas; 2017. 27f. Available from:
<http://repositorio.saolucas.edu.br:8080/xmlui/handle/123456789/1996>
 9. Lobbezoo F, Ahlberg J, Raphael KG, Wetselaar P, Glaros AG, Kato T, *et al.* International consensus on the assessment of bruxism: Report of a work in progress. *J Oral Rehabil*. 2018;45:837-44. Available from:
<https://onlinelibrary.wiley.com/doi/pdfdirect/10.1111/joor.12663>
 10. Carvalho J. Bruxismo em odontopediatria – revisão narrativa.[dissertação]. Porto: Universidade Fernando Pessoa - Faculdade de Ciências de Saúde; 2020.37f. Available from:
https://bdigital.ufp.pt/bitstream/10284/9277/1/PPG_34110.pdf
 11. Santos TRD, Pintor AVB, Tannure PN, Imparato JCP. Controle do bruxismo do sono na infância: revisão de literatura. *Rev. Rede Cuid Saúde*. 2020;14(1):62-76. Available from:
<http://publicacoes.unigranrio.edu.br/index.php/rcs/article/view/5853>
 12. Pordeus IA, Paiva SM. *Odontopediatria*. 1^a ed2014. 160p.
 13. Motta LJ, Silva PFDC, Godoy CHLD, Bortoletto CC, Garcia PRDA, Silva FCD, *et al.* Avaliação dos ruídos da articulação temporomandibular em crianças com bruxismo. *Rev CEFAC*. 2015;17(1):111-6. Available from: <https://doi.org/10.1590/1982-021620150814>
 14. Shinkai RSA, Santos LDM, Silva FA, Nobre dos Santos M. Contribuição ao estudo da prevalência de bruxismo excêntrico noturno em crianças de 2 a 11 anos de idade. *Rev Odontol Univ São Paulo*. 1998;12(1):29-37. Available from:
http://old.scielo.br/scielo.php?script=sci_arttext&pid=S0103-06631998000100006
 15. Bonacina CF, Silva FG, Silva CAAL, Abdala CVG, Oliveira Lira A. Associação entre bruxismo do sono e personalidade da criança sob a percepção dos pais/cuidadores. *Revista Saúde-UNG-Ser*. 2020;14(1/2):16-22. Available from:
<http://revistas.ung.br/index.php/saude/article/view/4340>

Cardoso ALN, Veloso LR, Oliveira MP, Teixeira SKMO.

16. Melo G, Duarte J, Pauletto P, Porporatti AL, Stuginski-Barbosa J, Winocur E, *et al.* Bruxism: an umbrella review of systematic reviews. *J Oral Rehabil.* 2019;46(7):666-90. Available from: <https://onlinelibrary.wiley.com/doi/abs/10.1111/joor.12801>