

Bruxism in Children

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Abstract:

Background:

Bruxism can occur in children living or residing in slums areas, rural areas, remote and urban communities. The prevalence of bruxism among children varies in the literature. Bruxism is associated with sound during teeth clenching or involuntary teeth grinding, and this can disturb parents, guardian and family members. It can be diagnosed with clinical history, clinical examination and use of electromyography and polysomnography.

Method:

An electronic literature search in science direct and google was done in December 2023 using the Population, Concept and Context framework. Search terms and keywords were combined by Boolean operators. Two independent investigators screened titles and abstracts of publications on bruxism among children. Original (primary) research articles with accessible full text were included for review, while review articles, systematic reviews, thesis, dissertations and perspectives related to bruxism among children were among articles excluded during screening. Original (primary) research articles related to voluntary tooth clenching, other oral habits and bruxism/tooth grinding among children with special health care needs were also excluded during screening.

Results:

Abstract and full texts were screened using inclusion criteria by two independent investigators. The identified study was carried out in Egypt, Uganda and South Africa respectively.

Conclusion:

Bruxism can occur among children. It can affect the quality of life of children with tooth sensitivity, tooth attrition with wear facets, and psychological concerns. More studies from diverse ethnic population and countries in Africa countries will fill the gaps in knowledge and add to the existing literature.

Keywords: Africa, Bruxism, Children, Sleep bruxism, Studies

Introduction:

Bruxism is an involuntary, oral para-functional habit with repetitive¹ jaw muscle activity characterised by non-functional, grinding, gnashing or clenching of teeth²⁻³ and/or bracing or thrusting of the mandible.² It can occur during sleep³ (nocturnal or sleep bruxism) or wakefulness (awake bruxism). The diagnostic method for bruxism could be parental/family reports,⁴ clinical history⁵, and clinical examination or use of electromyography or polysomnography.⁵ Studies on bruxism among children had been reported in Columbia⁶, Turkey⁷, Iran,⁸ Brasil,⁹ Albania¹⁰ Portugal,¹¹ Spain¹² and other countries. The aim of this article is to review the available studies on bruxism among children in Africa.

Literature search method:

An electronic literature search in Science direct and Google was done in December, 2023 using the Population, Concept and Context framework¹³ on Bruxism among children from studies carried out in Africa continent, published in English language and in electronic database.

The keywords used were bruxism, Africa countries, sub-Saharan Africa, sub-Saharan countries and African children. Search terms and keywords were combined by Boolean operators. Names of Africa countries were combined with bruxism using Boolean operators during article search. Two independent investigators screened titles and abstracts of publications on bruxism

among children studies. Information was extracted from the full texts of articles regarding the location of the research and the main content. The inclusion criteria were original (primary) research articles from selected database with information on bruxism among children carried out in Africa countries, published in English and in selected electronic database. While review articles, systematic reviews, viewpoints, books, letters, thesis, editorials, book chapters, dissertations, perspectives, and news related to bruxism among African children were excluded. Original (primary) research articles without accessible full text were also excluded. Original research articles related to voluntary tooth clenching, other oral habits and bruxism/tooth grinding among children with special health care needs were also excluded. Study data of the included articles were extracted and collated in a table, including study details

(author(s), year of publication, study design, study location or country, study participants, study objective). No time frame was used during the search and identified studies in Africa countries that met the inclusion criteria and had accessible full text were included. If relevant data were missing, the authors of the articles were not contacted for additional information via e-mail.

Results:

Thirty six articles were identified during literature search; one duplicate was removed during screening. Abstract and full texts were screened using inclusion criteria by two independent investigators . Thirty one articles were excluded because they did not meet the inclusion criteria. Four articles with accessible full text were included as it was assessed to meet the inclusion criteria. The identified study was carried out in Egypt, Uganda and South Africa respectively.

Table I: Summary of identified studies on bruxism among children in Africa

Author/ Year of publication	Study participants	Study objective	Country of study
Kieser & Groeneveld, 1998 [‡]	6 to 9 years old children	To investigate the relationship between juvenile bruxing and craniomandibular disorders	South Africa
Rubin et al, 2017 [¶]	6–17 years old children	To assess the prevalence of oral habits, bruxism, and temporomandibular disorders (TMDs) among children living in Uganda; (2) to establish whether parafunctional activities are associated with temporomandibular disorders TMDs; and (3) to examine the possible impact of gender and age on the prevalence of bruxism, oral habits, and temporomandibular disorders.	Uganda
Ahmed, et al, 2019 [¶]	6 to 10 years old children	To investigate the possible relationship between bruxism and joint sounds in schoolchildren.	Egypt
Shahbour et al. 2022 [¶]	4-6 years-old children	To assess the prevalence of sleep bruxism and associated factors among (4-6) years-old preschoolchildren of Tanta city.	Egypt

[‡] longitudinal study, [¶] Cross sectional study

Discussion:

Bruxism can occur among children.^{6-12,14-17}The noise or sound from teeth clenching or involuntary teeth grinding can disturb parents or bed partners during sleeping. The prevalence of sleep bruxism varies in the literature^{6-12,14-17} and it could be due to the different method² of diagnosing bruxism. Bruxism can cause tooth wear/ attrition as evidenced by wear facets, can fracture tooth restorations and soreness of the masticatory muscles as a result of the repetitive masticatory muscle activity. The management³ of bruxism ranges from patient/parent education,⁵ use of occlusal splints, psychotherapy,⁵ psychological techniques and medications.

Sleep bruxism can occur among preschool children as reported in a previous study from Brazil⁹, the prevalence of sleep bruxism among Egyptian preschool children was 17.6%,¹⁷⁻¹⁸ this was less than 28.3%⁹ reported from Brazil. Another study from Egypt reported a possible association between joint sounds and bruxism among children¹⁶. A study from Uganda¹⁵ among orphans did not find any relationship between stress or other psychological symptoms with either temporomandibular disorders or bruxism, while a study among South African children,¹⁴ concluded that juvenile bruxism is a self-limiting condition, that does not progress to adult bruxism and is not associated with temporomandibular joint symptoms. Studies from diverse ethnic population in Africa will provide evidence-based knowledge on the prevalence of bruxism among African children, associated factors of bruxism among children, methods of addressing the concerns of parents and guardians on the features and factors associated with bruxism among children and the need for early intervention and multidisciplinary management of bruxism among African children. Studies will also guide the clinical methods of improving the quality of life of children with tooth sensitivity, tooth attrition with wear facets, emotional or physical stress, anxiety and psychological concerns. Africa has over 3000 ethnic groups.¹⁹ Studies identified from three Africa countries might not reflect the level of research on bruxism among African children. There are diverse ethnic population with different socio-cultural beliefs and practices in Africa countries. More studies from various countries in Africa will fill the gaps in knowledge and add to the existing literature.

Conclusion:

Bruxism can occur among children. There is need for more research on bruxism among children from Africa countries. More studies from diverse ethnic population in Africa will add to the existing literature.

References :

1. Lee YH. Relationship Analogy between Sleep Bruxism and Temporomandibular Disorders in Children: A Narrative Review. *Children (Basel)*. 2022 Sep 25;9(10):1466. doi: 10.3390/children9101466.
2. Bezerra IM, Brito AC, Martins ML, de Sousa SA, de Medeiros Serpa EB, Santiago BM, et al. Does bruxism impact the quality of life of children and adolescents? A systematic review and meta-analysis. *Journal of Public Health*. 2019. doi: <https://doi.org/10.1007/s10389-019-01151-8>.
3. Ang L, Song E, Lee MS, Ang Y. A scoping review on traditional medicine for bruxism. *Journal of Traditional Chinese Medical Sciences*, 2023, 10(2): 141-149. doi: <https://doi.org/10.1016/j.jtcms.2023.01.001>
4. Rodrigues JA, Azevedo CB, Chami VO, Solano MP, Lenzi TL. Sleep bruxism and oral health-related quality of life in children: A systematic review. *Int J Paediatr Dent*. 2020 Mar;30(2):136-143. doi: 10.1111/ipd.12586.
5. Bulanda S, Ilczuk-Rypuła D, Nitecka-Buchta A, Nowak Z, Baron S, Postek-Stefańska L. Sleep Bruxism in Children: Etiology, Diagnosis, and Treatment-A Literature Review. *Int J Environ Res Public Health*. 2021 Sep 10;18(18):9544. doi: 10.3390/ijerph18189544.
6. Restrepo C, Santamagna A, Manrique R. Sleep bruxism in children: relationship with screen-time and sugar consumption. *Sleep Med X*. 2021 Apr 24;3:100035. doi: 10.1016/j.sleepx.2021.100035.
7. Topaloglu-Ak A, Kurtulmus H, Basa S, Sabuncuoglu O. Can sleeping habits be associated with sleep bruxism, temporomandibular disorders and dental caries among children? *Dent Med Probl*. 2022 Oct-Dec;59(4):517-522. doi: 10.17219/dmp/150615.
8. Esmaeilzadeh M, Daneshyar F, Tayebi S, Ali A, Khoshnoud M. The relationship between

- dental occlusal parameters and bruxism in preschool children in Hamadan during years 2016-2017. *Avicenna J Dent Res.* 2018;10(3): 77-82. doi:10.34172/ajdr.2018.17
9. de Lira AD, de Sousa FD, de Sousa FJ, Fontenele MK, Ribeiro CK, Ferreira LE. Prevalence of sleep bruxism in children in primary dentition. *Brazilian Journal of Oral Sciences.* 2020; 19: e 201025-.
 10. Lagana G, Osmanagiq V, Malara A, Venza N, Cozza P. Sleep Bruxism and SDB in Albanian Growing Subjects: A Cross-Sectional Study. *Dent. J.*2021;9:25.doi: [https:// doi. org/ 10.3390/dj9030025](https://doi.org/10.3390/dj9030025)
 11. Brandro de Almeida A, Rodrigues RS, Simro C, de Araújo RP, Figueiredo J. Prevalence of Sleep Bruxism Reported by Parents/Caregivers in a Portuguese Pediatric Dentistry Service: A Retrospective Study. *Int. J. Environ. Res. Public Health* 2022;19:7823. [https://doi.org/ 10.3390/ijerph19137823](https://doi.org/10.3390/ijerph19137823)
 12. Martínez IR, Catalá- Pizarro M, Moreno JR. Association between perfectionism, personality traits and probable sleep bruxism in Spanish schoolchildren: A case-control study. *Int J Paediatr Dent.* 2024;00:1-8.doi: 10.1111/ipd.13152
 13. Osadolor OO, OsadolorA .J. Silver Diamine Fluoride: . *Nepal Medici Medical Journal* 2023;4(2):50-52.doi: 10.3126/nmmj.v4i2.61893
 14. Kieser JA, Groeneveld HT. Relationship between juvenile bruxing and craniomandibular dysfunction. *Journal of oral rehabilitation.*1998 ;25:662-665
 15. Friedman Rubin P, Erez A, Peretz B, Birenboim-Wilensky R, Winocur E: Prevalence of bruxism and temporomandibular disorders among orphans in southeast Uganda: A gender and age comparison, *CRANIO®*, doi:10.1080/ 0886 9634.2017.1331784
 16. Ahmed M, Ahmed Fathy A, Mostafa NM.Assessment Of Schoolchildren's Temporomandibular Joint Sounds Associated With Bruxism. *J Dent Oral Disord Ther.*2019; 7(1):1-6. DOI: <http://dx.doi.org/ 10.15226/jdodt.2019.001100>
 17. Shahbour SA, Abohamila N. Prevalence of Sleep Bruxism and associated factors in Tanta Preschool Children. *Alexandria Dental Journal.* 2022;47(1):155-162.
 18. Hafeza SA, El-Bayoumi MH, Hamila NA. Prevalence of sleep bruxism and associated factors in Tanta preschool children. *Tanta Dental Journal.* 2022 ;19(1):29-37.
 19. Osadolor OO. Traumatic Dental Injury to Primary Teeth. *Update Dental College Journal* 2023;13(2): 42-44. <https://doi.org/ 10.3329/updcj.v13i2.67985>