Revista de Ciencias Médicas de Pinar del Río

ISSN: 1561-3194 **RNPS:** 1877
Rev Ciencias Médicas. 2025; 29(S1): e6976

REVIEW ARTICLE

Bruxism and risk factors during the COVID-19 pandemic

Neyda Carmita Chiluiza-Naranjo[1], Ina Coralí Velezmoro-Muñoz[2], Jeannette Cecilia Pazmiño-Garcés[1], Ángel Gerardo Lara-Muñoz[3]

[1]Universidad Autónoma de los Andes, Santo Domingo. Ecuador.
[2]Universidad Estatal de Guayaquil. Ecuador.
[3]Universidad San Francisco de Quito. Ecuador.

Received: December 12, 2025
Accepted: December 15, 2025
Published: December 16,2025

Citar como: Chiluiza-Naranjo NC, Velezmoro-Muñoz IC, Pazmiño-Garcés JC, Lara-Muñoz AG. Bruxismo y factores de riesgo durante la pandemia COVID-19. Rev Ciencias Médicas [Internet]. 2025 [citado: fecha de acceso]; 29(S1): e6976. Disponible en: http://revcmpinar,sld,cu/index,php/publicaciones/article/view/6976

ABSTRACT

Introducción: el bruxismo es una actividad involuntaria de la musculatura masticatoria caracterizada por el apretamiento o rechinamiento dentario, asociada a factores psicoemocionales como estrés y ansiedad, cuya prevalencia se incrementó durante la pandemia de covid-19.
Objetivo: analizar la literatura científica sobre la relación entre bruxismo y factores de riesgo durante la pandemia de COVID-19.
Métodos: se realizó una revisión documental siguiendo un algoritmo de búsqueda para la identificación de fuentes pertenecientes a diferentes bases de datos. La selección final tomó en cuenta la relevancia y calidad metodológica, procediéndose al análisis detallado de las fuentes, para un adecuado desarrollo de la temática.
Desarrollo: el bruxismo es una condición multifactorial vinculada a estrés, ansiedad, depresión, alteraciones del sueño y consumo de sustancias. Durante la pandemia, los cambios en la rutina, el aislamiento social y la incertidumbre económica incrementaron significativamente su prevalencia. Se destacan consecuencias como dolor mandibular, desgaste dentario, hipersensibilidad y disfunción temporomandibular asociados.
Conclusiones: el bruxismo se intensificó durante la pandemia de COVID-19, principalmente por factores emocionales y sociales. Es necesario fortalecer estrategias interdisciplinarias de prevención y tratamiento que incluyan educación, control del estrés y atención odontológica periódica, con el fin de reducir su impacto en la salud integral y mejorar la calidad de vida de los pacientes.

Palabras clave: Anxiety; Bruxism; Covid-19; Stress, Psychological; Oral Health.

ISSN: 1561-3194 **RNPS:** 1877
Rev Ciencias Médicas. 2025; 29(S1): e6976

INTRODUCTION

Bruxism is a repeated condition or activity of the masticatory muscles, of a multicausal origin, generally associated with a psychoneurological stress - related behavior.[1,2] Bruxism is characterized by tooth clenching or grinding, usually at night, but with manifestations during the day, causing pain in the temporomandibular joint, facial muscle pain, dental wear, occlusion problems, and mastication, as well as dental hypersensitivity.[3,4]

In 2019, a pandemic spread in which it was proven that people are still vulnerable to infectious diseases such as COVID - 19, an infectious disease caused by the coronavirus that began in Wuhan - China, with human - to - human transmission, triggering several symptoms such as respiratory difficulties, fever, and dry cough, affecting worldwide and bringing with it a large number of preventive measures to avoid its spread, including staying at home under mandatory quarantines, using masks, changing lifestyle and routine such as studying and working virtually, resulting in a decrease in economic income, generating behavioral and neuropsychological problems, including stress, anxiety, and depression,[5,6] which are risk factors or pathways for the development of diseases that affect both our physical, mental, and oral health such as bruxism, which can greatly affect people's quality of life.

In this context, it is relevant to examine the scientific literature that addresses the interaction between the psychosocial impact of the pandemic and the occurrence or exacerbation of bruxism, in order to understand its implications for oral health and quality of life. All of this motivated the development of the present review, which aimed to analyze the scientific literature on the relationship between bruxism and risk factors during the COVID - 19 pandemic.

METHODOLOGY

A systematic bibliographic review was carried out, following the PRISMA statement recommendations to ensure transparency and reproducibility. The aim was to identify, synthesize, and analyze the available scientific evidence on the subject between January 2010 and December 2024. The review included primary studies, systematic reviews, clinical research, and case reports, with the aim of providing a comprehensive and up - to - date view of the literature.

The search was conducted in various libraries and databases, including PubMed / MEDLINE, Scielo, ScienceDirect, Google Scholar, Lilacs, and BVSALUD. Secondary references obtained from the bibliographies of relevant articles were also consulted, and gray literature (theses, institutional documents, and technical reports) was explored to minimize publication bias. This strategy allowed for the inclusion of both indexed sources and complementary academic materials of interest.

The search algorithm was designed by combining keywords and Boolean operators. Terms were used in Spanish ("bruxismo", "factores de riesgo", "impacto", "tratamiento", "pandemia COVID - 19"), English ("bruxism", "risk factors", "impact", "treatment", "COVID - 19 pandemic"), and Portuguese ("bruxismo", "fatores de risco", "impacto", "tratamento", "pandemia de COVID - 19"). The AND and OR operators were used to link concepts and expand the search sensitivity. Date filters (2010 - 2024) and full - text access were established.

ISSN: 1561-3194 **RNPS:** 1877
Rev Ciencias Médicas. 2025; 29(S1): e6976

Articles published within the defined time range, with full - text access and direct thematic relevance were included. Observational, experimental studies, reviews, and case reports were accepted. Duplicates, documents without full - text availability, publications outside the established period, and those whose content was irrelevant to the review's objectives were excluded.

The screening was carried out in three phases: initial reading of titles, review of abstracts, and analysis of full texts. In the first stage, 116 records were identified; after eliminating duplicates and applying exclusion criteria, 42 articles were kept for full reading. Finally, 15 studies met the inclusion criteria and were incorporated into the analysis. The process was documented using the PRISMA flow diagram, which reflects the stages of identification, selection, eligibility, and inclusion in a structured manner. Subsequently, data extraction and analysis were carried out, which allowed the research topic to be addressed.

DEVELOPMENT

García et al.,[7] considered bruxism as one of the most complex and difficult - to - treat osteopathies, rooted in the progressive deterioration of orofacial functions, where these structures are damaged and their dysfunction generates pain that is difficult for people or patients to accept, highlighting the need to know current trends in the pathophysiology of this condition in order to delve deeper into them. It is proposed that there is no single factor responsible for bruxism, but among the multiple factors that cause it are: stress, central dopaminergic hyperfunction, sleep disturbances, genetics, occlusion, and deficiency of nutritional substances such as calcium and magnesium.

Goldstein and Auclair,[8] verified that clinical experience has a lack of awareness in patients and, therefore, an under - registration of bruxism during wakefulness. Thus, a multitude of dental consequences can result from bruxism, highlighting the need for greater awareness on the part of patients and professionals, especially regarding all conditions associated with bruxism during wakefulness. On the other hand, Real,[9] verified that temporomandibular dysfunction (TMD) encompasses a wide range of signs and symptoms, including jaw pain and functional changes such as joint noises and limited jaw movement. Joint pain and noise were the most common symptoms of TMD and were associated with the female gender and bruxism in a higher percentage, also considering that possible treatments for TMD are the neuromuscular relaxing splint occupies the largest percentage, followed by the canine - guided splint and the occlusal splint.

Loza et al.,[10] mentioned that the degree of intensity of this disease varies according to the level of stress, depression, and anxiety that the person presents. It derives from two types of bruxism, diurnal and nocturnal. Its consequences are very erratic because through involuntary movements of the jaws they cause chronic headaches, facial disfigurement, dental fractures, and enamel erosion, taking into account that the consumption of certain substances such as ecstasy, cocaine, alcohol, tobacco to which some young people resort in order to experience certain sensations whether happiness, tranquility, etc., in the long run generate anxiety, depression, panic and in the worst cases can increase muscle activity, causing frequent involuntary jaw movements that trigger bruxism which can cause chronic headaches, facial deformities, dental fractures, and enamel erosion among others and there is a need for medical - psychological - dental areas to develop knowledge and experience to interact interdisciplinarily in the management of bruxism.

ISSN: 1561-3194 **RNPS:** 1877
Rev Ciencias Médicas. 2025; 29(S1): e6976

Martínez,[11] performed oral examinations on patients with bruxism and observed various clinical aspects, hence, it is considered an effective treatment with the help of a psychologist and dental treatment, also considering that physiotherapy is generally reserved for adults, since muscle and temporomandibular joint symptoms are very mild in children and rarely will require treatment. For this reason, the use of muscle relaxants, such as diazepam, is also not recommended, which, by the way, should be used in the short term, highlighting that childhood bruxism does not necessarily progress to bruxism in adulthood, but it is necessary for the dentist to assign the appropriate treatment for the patient, always starting with simple measures and, if necessary, referring the case to the appropriate specialist in order to rule out future systemic or psychological problems.

Gama et al.,[12] investigated the relationship between TMD and dental symptoms and bruxism. For this, 776 people were examined, resulting that people with temporomandibular disorder, 58,2 % had at least one otological symptom and 52 % had bruxism. Concluding that there are strong associations between the disorder and otological symptoms and bruxism when analyzed simultaneously, regardless of the patient's age and sex.

Varela and Marulanda,[13] determined the prevalence of bruxism in Colombian Air Force pilots. It was concluded that there is a high level of bruxism in pilots and devastating orofacial consequences that can affect the health of those who suffer from it and, therefore, the security and operational activity of the Air Force, so it is suggested that appropriate treatment for this disease be carried out, which requires the implementation of promotion, prevention, and establishment of care protocols for the management of this pathology in stressful activities.

Herrero et al.,[14] carried out a detailed cross - sectional observational analysis to detect vulnerability and degree of stress in patients with bruxism. For this, the study population was 94 patients diagnosed with bruxism. The variables to be studied were vulnerability to stress and degree of stress, for which a questionnaire was applied. As a result, patients with bruxism are seriously vulnerable to stress and show stress levels that have exceeded the limit, noting that the influence of society is important in the regulatory function of stress, since in modern man an additional distinction in stress occurs because the social results of this are the main source of suffering, showing a biochemical - physiological perspective of stress behavior and hence the importance it has from the conceptual, biological, and social point of view of stress in patients with bruxism.

Estrada and Evaristo,[15] evaluated the relationship between psycho - emotional states and the presence of bruxism in a sample of 181 dental students from first to fifth year. Bruxism and psycho - emotional states were measured through validated instruments. The results showed a highly significant correlation of bruxism with stress, depression, and anxiety. Concluding that emotional states can contribute to the presence of bruxism in dental students, increasing as they progress through higher years of study.

Pérez and Díaz,[16] carried out a descriptive study among young people enrolled in pre - university in the city of San Juan and Martínez, which is made up of 570 students enrolled in daytime education. In this school, both sexes, aged 16 to 18, were selected among 198 patients with clinical characteristics that would identify them as bruxists, as a result, it was found that the majority of affected patients corresponded to the female sex with a predominance of the 18 - year - old group. The most frequently found signs and symptoms were headache (characterized by recurrent headaches) and dental alterations. The risk factor most related to this disease was stress.

ISSN: 1561-3194 **RNPS:** 1877
Rev Ciencias Médicas. 2025; 29(S1): e6976

Hermida et al.,[17] mentioned that in cases where there is severe occlusal wear of the teeth in children, the use of steel crowns has been reported to rehabilitate chewing function. Occlusal splints are the treatment of choice for dentists. Some authors have suggested that physiotherapy can provide benefits in the treatment of bruxism. There are no widely accepted pharmacological approaches for the treatment of bruxism. The authors stated that future studies with appropriate design, conducted in an adequate number of patients to ensure the validity of the same and based on standardized diagnostic criteria are needed.

Gamboa and Gómez,[18] reviewed articles that included the definition, etiology, and treatments for myofascial pain syndrome and the relationship found with nocturnal bruxism. As a result, some patients experience the most intense pain in the mornings (21 %) associated with nocturnal bruxism, or in the afternoons (79 %) due to daytime clenching, while others do not have a fixed pattern, their frequency can be daily or episodic and they can go days without pain.

Calıskan et al.,[19] evaluated parents' knowledge of bruxism in their children through a cross - sectional study with 265 parents whose children were treated in pediatric dentistry and oral and maxillofacial surgery clinics of Mersin University. The rate of tooth clenching and grinding during sleep (21,5 %) was higher than when they were awake (7,2 %). It was concluded that parents had little knowledge about bruxism in their children and this was mainly related to the parents' academic training.

López and Díaz,[20] evaluated medical science students, especially new entrants due to the emotional imbalance caused by the demands of the teaching - learning process. It was concluded that medical students have the highest prevalence of bruxism as the most frequent symptoms were muscle pain, referred tooth clenching, and joint pain. The most frequently detected signs, on the other hand, were muscle hypertrophy and functional wear facets, with a predominance of wear at the enamel level.

Morón,[21] verified that patients with high levels of stress are almost 6 times more likely to report bruxism. In a study, it was found that during the pandemic stress has been shown to accelerate periodontal disease and also contributes to implant complications, negatively affecting the long - term success of periodontal or implant therapy. It was concluded that controlling or maintaining negative stress will be key to reducing an individual's predisposition to developing bruxism and periodontal pathologies.

Herrero et al.,[14] stated that the number of patients diagnosed with bruxism are seriously vulnerable to stress in 53,19 % and have stress levels that have exceeded the limit in 45.74% of cases; however, Estrada and Evaristo,[15] stated that 100 % of students presented anxiety as opposed to stress and there is a significant correlation between anxiety, state and degree of bruxism, meaning that students who present a level of anxiety have a higher probability of suffering from some symptom and sign of bruxism. They also stated that stress is considered one of the main risk factors to control, which is related to the onset and development of various diseases such as bruxism and even mortality, which affect people's well - being and quality of life.

Similarly, Loza et al.,[10] carried out studies in which alcohol, tobacco, and drug (ecstasy and cocaine) consumption were more frequently involved, while Pérez and Díaz,[16] added that the appearance of occlusal interferences occupies third place in the risk factor table of the study and it is pertinent to highlight that they are causes of muscle, joint disorders, as well as trauma at the tooth level.

ISSN: 1561-3194 **RNPS:** 1877
Rev Ciencias Médicas. 2025; 29(S1): e6976

Globally, it can be seen in the literature that the treatment and prevention of bruxism can be based on stress management, occlusal splints, local heat, medications, botox, and self - care, on the other hand, Hermida et al.,[17] stated that there is a need to reach a consensus on the need for a clear comprehensive diagnosis since there is little scientific evidence for the treatment of bruxism and due to the lack of evidence and controversy regarding the subject, it is necessary for researchers and referents to work as a team.

The World Health Organization suggests guidelines to reduce stress during the pandemic and thus avoid diseases such as bruxism, including: following general hygiene routines of hand washing and including tooth brushing and oral hygiene, exercise, rest, healthy eating, meditation, and establishing virtual social contact due to the pandemic.

CONCLUSION

The available evidence suggests an increase in bruxism during the COVID - 19 pandemic, observed by dental professionals, highlighting the need to carry out scientific research to determine its prevalence and optimize treatment techniques in clinical practice. It is also essential to apply the guidelines and strategies recommended by the World Health Organization to mitigate the effects of stress, anxiety, and depression associated with the pandemic context, since these are relevant risk factors in the development and worsening of bruxism, with a direct impact on oral health and quality of life of patients.

BIBLIOGRAPHIC REFERENCES

1. Manfredini D, Ahlberg J, Lobbezoo F. Bruxism definition: Past, present, and future - What should a prosthodontist know? J Prosthet Dent [Internet]. 2022 Nov [Citado 20/05/2025]; 128(5):905-912. Disponible en: https://pubmed.ncbi.nlm.nih.gov/33678438/

2. Goldstein G, DeSantis L, Goodacre C. Bruxism: Best Evidence Consensus Statement. J Prosthodont [Internet]. 2021 Apr [Citado 20 de mayo de 2025]; 30(S1): 91-101. Disponible en: https://pubmed.ncbi.nlm.nih.gov/33331675/

3. Beddis HP, Davies SJ. Relationships between tooth wear, bruxism and temporomandibular disorders. Br Dent J [Internet]. 2023 Mar [Citado 20/05/2025]; 234(6): 422-426. Disponible en: https://pubmed.ncbi.nlm.nih.gov/36964364/

4. Verhoeff MC, Lobbezoo F, Ahlberg J, Bender S, Bracci A, Colonna A, et al. Updating the Bruxism Definitions: Report of an International Consensus Meeting. J Oral Rehabil [Internet]. 2025 Sep [Citado 20/05/2025]; 52(9): 1335-1342. Disponible en: https://pubmed.ncbi.nlm.nih.gov/40312776/

5. Kupcova I, Danisovic L, Klein M, Harsanyi S. Effects of the COVID-19 pandemic on mental health, anxiety, and depression. BMC Psychol [Internet]. 2023 Apr 11 [Citado 20/05/2025]; 11(1):108. Disponible en: https://pubmed.ncbi.nlm.nih.gov/37041568/

ISSN: 1561-3194 **RNPS:** 1877
Rev Ciencias Médicas. 2025; 29(S1): e6976

6. Wickens CM, Popal V, Fecteau V, Amoroso C, Stoduto G, Rodak T, et al. The mental health impacts of the COVID-19 pandemic among individuals with depressive, anxiety, and stressor-related disorders: A scoping review. PLoS One [Internet]. 2023 Dec 14 [Citado 20/05/2025]; 18(12): e0295496. Disponible en: https://pubmed.ncbi.nlm.nih.gov/38096173/

7. García D, García L, Rodríguez O, Nápoles D. Tendencias Contemporáneas de las bases fisiopatológicas del bruxismo. Medisan [Internet]. 2014 [Citado 20/05/2025]; 18(8): 1149-1156. Disponible en: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1029-30192014000800017

8. Goldstein R, Auclair W. The clinical management of awake bruxism. J Am Dent Assoc [Internet]. 2017 [Citado 20/05/2025]; 148(6): 387-391. Disponible en: https://pubmed.ncbi.nlm.nih.gov/28550845/

9. Real M. Disfunción temporomandibular: causas y tratamientos. Revista del Nacional Itauguá [Internet]. 2018 [Citado 20/05/2025]; 10(1): 68-91. Disponible en: https://scielo.iics.una.py/pdf/hn/v10n1/2072-8174-hn-10-01-68.pdf

10. Loza D, Morato V, Vásquez G, Andrade J. Bruxismo un hábito recurrente en jóvenes con ansiedad. Revista Científica Mundo de la Investigación y el Conocimiento [Internet]. 2018 [Citado 20/05/2025]; 2(2): 236–258. Disponible en: https://www.recimundo.com/index.php/es/article/view/228

11. Martínez M. Bruxismo infantil. Contexto odontológico [Internet]. 2011 [Citado 20/05/2025]; 1(1). Disponible en: https://revistas.uaz.edu.mx/index.php/contextoodontologico/article/view/130

12. Gama B, Cavalcante A, Neves M, Farias S, Rosenblatt A, Caldas A. Temporomandibular disorder: otologic implications and its relationship to sleep bruxism. Brazilian Journal of Otorhinolaryngology [Internet]. 2018 [Citado 20/05/2025]; 84(5): 614-619. Disponible en: https://pubmed.ncbi.nlm.nih.gov/28966039/

13. Varela J, Marulanda R. Bruxismo una enfermedad de altura. Ciencia y poder aéreo [Internet]. 2018 [Citado 20/05/2025]; 13(2): 18-27. Disponible en: https://www.redalyc.org/pdf/6735/673571177003.pdf

14. Herrero Y, Cabrera Y, Arias Y. Vulnerabilidad y nivel de estrés en pacientes con bruxismo. Revista Cubana de Estomatología [Internet]. 2019 [Citado 20/05/2025]; 56(3). Disponible en: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0034-75072019000300004

15. Estrada N, Evaristo T. Estados psicoemocionales y presencia de bruxismo en estudiantes de odontología peruanos. Odovtos International Journal of Dental Sciences [Internet]. 2019 [Citado 20/05/2025]; 21(3): 111-117. Disponible en: https://www.scielo.sa.cr/scielo.php?script=sci_arttext&pid=S2215-34112019000300111

16. Pérez D, Díaz Z. El bruxismo en estudiantes de preuniversitario y su repercusión en el sistema estomatognático. Revista de Ciencias Médicas de Pinar del Río [Internet]. 2019 [Citado 20/05/2025]; 23(2): 269-277. Disponible en: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1561-31942019000200269

ISSN: 1561-3194 **RNPS:** 1877
Rev Ciencias Médicas. 2025; 29(S1): e6976

17. Hermida M, Cortese S, Bussadori S, Ferreira R, Spatakis L. Tratamiento del bruxismo de sueño en niños. Revista de Odontopediatría Latinoamericana [Internet]. 2020 [Citado 20/05/2025]; 10(1). Disponible en: https://www.revistaodontopediatria.org/index.php/alop/article/view/185

18. Gamboa J, Gómez E. Bruxismo nocturno y síndrome de dolor miofascial. Revista de la Asociación Dental Mexicana [Internet]. 2020 [Citado 20/05/2025]; 77(4): 203-208. Disponible en: https://www.medigraphic.com/pdfs/adm/od-2020/od204e.pdf

19. Caliskan S, Delikan E, Ozcan A. Conocimiento de los padres sobre el bruxismo en sus hijos. Odovtos -Int J Dent Sc [Internet]. 2020 [Citado 20/05/2025]; 22(1): 123-132. Disponible en: https://www.scielo.sa.cr/scielo.php?pid=S2215-34112020000100123&script=sci_abstract&tlng=es

20. López J, Díaz G. Bruxismo y estrés académico en estudiantes de las ciencias médicas. Humanidades Médicas [Internet]. 2020 [Citado 20/05/2025]; 20(2): 401-420. Disponible en: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1727-81202020000200401

21. Morón M. El estrés y bruxismo por covid-19 como factores de riesgo en la enfermedad periodontal. Revista Int. J. Odontostomat [Internet]. 2021 [Citado 20/05/2025]; 15(2): 309-314. Disponible en: https://www.scielo.cl/scielo.php?pid=S0718-381X2021000200309&script=sci_arttext

22. Cerqueira TRDC, Batista SG, de Mello EB, DosSantos MF, Tuñas ITC. Impact of the COVID-19 Pandemic on Stress, Sleep, and Oral Health in University Students. Front Pain Res (Lausanne) [Internet]. 2021 Oct 26 [Citado 20/05/2025]; 2: 744264. Disponible en: https://pubmed.ncbi.nlm.nih.gov/35295424/

23.Organización Mundial de la Salud. Considerations for the provision of essential oral health services in the context of COVID-19 [Internet]. Geneva: World Health Organization; 2020 [Citado 20/05/2025]. Disponible en: https://www.who.int/publications/i/item/who-2019-nCoV-oral-health-2020.1