

Mental Health in Adolescence as a Mitigating Factor for Bruxism: Literature Review

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ORIGINAL ARTICLE

ABSTRACT

Objective:Analyze the main legal assets harmed in cases of misappropriation of academic authorship, describing their ethical, legal and professional implications.

Methodology:A conceptual and normative analysis of the rights involved was carried out, based on Brazilian copyright legislation and international standards of scientific integrity, identifying and describing each legal asset affected.

Results: Five fundamental legal assets were identified as being harmed: (1) the moral right to paternity, due to the suppression of recognition as legitimate author; (2) the right to the integrity of the work, due to alteration and undue attribution to third parties; (3) academic honor and reputation, compromised by the exclusion of the authors; (4) intellectual property, violated by the unauthorized use of the scientific work; and (5) trust in scientific integrity, shaken by the transgression of the ethical standards of the academic community.

Conclusion:The misappropriation of authorship constitutes a serious violation of multiple legal rights, with impacts that transcend the individual, affecting the credibility of institutions and trust in science. It is essential to strengthen institutional prevention policies and legal mechanisms for redress to protect copyright and preserve scientific integrity.

Keywords:scientific integrity; academic authorship; copyright; research ethics; legal assets.

RESUMO

Objetivo: Analisar os principais bens jurídicos lesados em casos de apropriação indevida de autoria acadêmica, descrevendo suas implicações éticas, legais e profissionais.

Metodologia: Foi realizada uma análise conceitual e normativa dos direitos envolvidos, com base na legislação brasileira de direitos autorais e nas normas internacionais de integridade científica, identificando e descrevendo cada bem jurídico afetado.

Resultados: Foram identificados cinco bens jurídicos primordiais lesados: (1) o direito moral à paternidade, pela supressão do reconhecimento como autor legítimo; (2) o direito à integridade da obra, em razão da alteração e atribuição indevida a terceiros; (3) a honra e reputação acadêmica, comprometidas pela exclusão dos autores; (4) o patrimônio intelectual, violado pelo uso não autorizado da obra científica; e (5) a confiança na integridade científica, abalada pela transgressão às normas éticas da comunidade acadêmica.

Conclusão: A apropriação indevida de autoria configura grave violação de múltiplos bens jurídicos, com impactos que transcendem o indivíduo, afetando a credibilidade das instituições e a confiança na ciência. É imprescindível reforçar políticas institucionais de prevenção e mecanismos legais de reparação para proteger os direitos autorais e preservar a integridade científica.

Keywords: integridade científica; autoria acadêmica; direitos autorais; ética na pesquisa; bens jurídicos.

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INTRODUCTION

Adolescence is a critical period in human development, characterized by intense physiological, cognitive, emotional and social changes. It is a phase in which individuals are especially vulnerable to internal and external stressors, which can negatively impact mental health. Increasing academic demands, family conflicts, pressure for social acceptance and exposure to unrealistic standards promoted by the media and social networks are significant sources of distress, anxiety and depression, generating a disorder known as Post-Traumatic Stress Disorder (PTSD).

In this context, bruxism, defined as a parafunctional activity of the masticatory muscles and which also involves the hard tissues represented by the teeth and alveolar bone, characterized by clenching or grinding of the teeth, has emerged as a frequent psychophysiological manifestation among adolescents. Its clinical implications include tooth wear, fractures, orofacial pain, temporomandibular disorders (TMDs), tension headaches, tinnitus, and impaired sleep quality (Lobbezoo et al., 2018). The literature also points to a considerable prevalence of this condition in the young population, especially among girls, and it is often underdiagnosed (Prado et al., 2018).

In addition to orofacial impacts, bruxism significantly affects the following situations: a) Psychosocial well-being. The wear produced by clenching or friction between teeth can cause wear of the dental crown, producing a decrease in the vertical dimension of occlusion (DVO); pain; facial asymmetries in the presence of occlusal alterations such as crossbite, generating inhibition, and therefore interfering with self-esteem, sociability and school performance. Considering its association with emotional conditions, it is imperative to understand the modulating role of mental health in the development and management of bruxism in adolescents. This review aims to critically review the literature on this interface, identifying risk factors, pathophysiological mechanisms, clinical repercussions and interdisciplinary therapeutic strategies.

LITERATURE REVIEW

2.1. Anxiety and Psychological Stress in Adolescence

Anxiety is an adaptive emotion that, when exacerbated, becomes pathological. In adolescents, emotional overload often results from multiple sources of simultaneous pressure. Cognitive hyperstimulation resulting from the continuous use of electronic devices, combined with the constant feeling of “missing out,” or Fear of Missing Out

(FOMO), repeatedly activates the hypothalamic-pituitary-adrenal (HPA) axis, leading to the chronic release of cortisol, a hormone related to stress and systemic inflammation (Elhai et al., 2020).

Data from the World Health Organization indicate that anxiety disorders affect more than 9% of Brazilian adolescents, a situation that has been intensified during the COVID-19 pandemic, which has exacerbated social isolation, economic insecurity, and collective mourning (Xiong et al., 2020). Typical symptoms include tachycardia, sweating, irritability, insomnia, and muscle tension, many of which are directly related to the onset or worsening of bruxism.

Early interventions, such as cognitive-behavioral psychotherapy (CBT), emotional regulation programs in the school environment and, in moderate to severe cases, the use of anxiolytics and antidepressants with psychiatric monitoring, have been shown to be effective in reducing episodes of anxiety-related bruxism. The reason for this is that for those patients who, for whatever reason, do not have full access to therapies, medication constitutes a quick and symptomatic measure, but does not treat the cause (Fricton, 2023).

2.2. Social Networks and Mental Health

The heavy use of social media during adolescence has raised concerns about its impact on mental health. Although these platforms can be tools for connection and emotional support, they often promote unattainable standards of beauty, success, and happiness. Constant exposure to seemingly perfect lives leads to social comparison, feelings of inadequacy, and personal dissatisfaction, factors associated with anxiety, depression, and sleep disorders (Keles et al., 2020).

2.2.1. Cyberbullying and Digital Violence

Cyberbullying is a form of psychological aggression mediated by the Internet, the consequences of which are exacerbated by the widespread exposure and permanence of the content. It is estimated that adolescents who are victims of cyberbullying are at greater risk of developing emotional disorders, a decline in academic performance, and suicidal ideation (Kowalski et al., 2014; Li et al., 2022). The advent of technologies such as artificial intelligence has intensified this phenomenon through the creation of manipulated images and false accusations. In some more severe cases, suicide is in fact the most

worrying situation, along with the victim's homicide towards their abuser (Hinduja & Patchin, 2010).

A study conducted with Brazilian schoolchildren found that children who were victims of cyberbullying had significantly higher levels of anxiety when visiting the dentist, which can compromise adherence to dental treatments and aggravate existing oral problems (Silveira et al., 2020).

2.2.2. Cancel Culture and Public Judgment

Cancel culture is a form of online social punishment that seeks to exclude individuals who have allegedly committed inappropriate behavior. This phenomenon triggers intense psychological suffering, such as anxiety, social isolation, depression, and even self-harm (Nesi et al., 2021; Wu et al., 2024).

Events such as school shootings, school dropouts due to social exclusion, pressure to meet external expectations, and the increase in suicides among young people reflect a mental health crisis in this population. One phenomenon that contributes to this scenario is the Werther Effect, which describes the increase in suicides after widespread media coverage of similar cases, especially among adolescents and young adults (Stack, 2005; Niederkrotenthaler et al., 2020). Exposure to sensationalist content can trigger imitative behaviors in vulnerable individuals, exacerbating the risk of suicide (Niederkrotenthaler et al., 2020).

2.2.3. Idealization of the Perfect Life

The idealization of perfect lives on social media reinforces the internalization of unattainable standards. Young people with less critical thinking and greater emotional dependence are particularly susceptible to the harmful effects of these representations, which can compromise their self-image and trigger psychological distress. Constant frustration tends to result in clinical manifestations such as bruxism and teeth clenching (Carrillo-Díaz et al., 2022).

3. Clinical Aspects of Bruxism

3.1. Concept, Etiology and Classification

Bruxism can be classified into two main forms: sleep bruxism (SB) and awake bruxism (AB). Both involve repetitive masticatory muscle activity, but differ in their

activation mechanisms and the individual's degree of awareness (Lobbezoo et al., 2013). Its etiology is multifactorial, with genetic, emotional, neurological and pharmacological influences.

Medications such as selective serotonin reuptake inhibitors (SSRIs), serotonin and norepinephrine reuptake inhibitors (SNRIs), and central nervous system stimulants such as methylphenidate are associated with increased orofacial muscle activity and BV (Medeiros et al., 2020; Wichniak et al., 2017).

3.2. Muscular and Skeletal Repercussions

Patients with bruxism have increased activity of the jaw elevator muscles, especially the masseter and temporalis, which results in morning pain, muscle hypertrophy, tension headache and, in chronic cases, facial asymmetries (Palinkas et al., 2023). Coactivation of cervical muscles during episodes of SB can cause neck and shoulder pain, in addition to compensatory postural changes (Gouw et al., 2020).

4. Dental and Periodontal Involvement

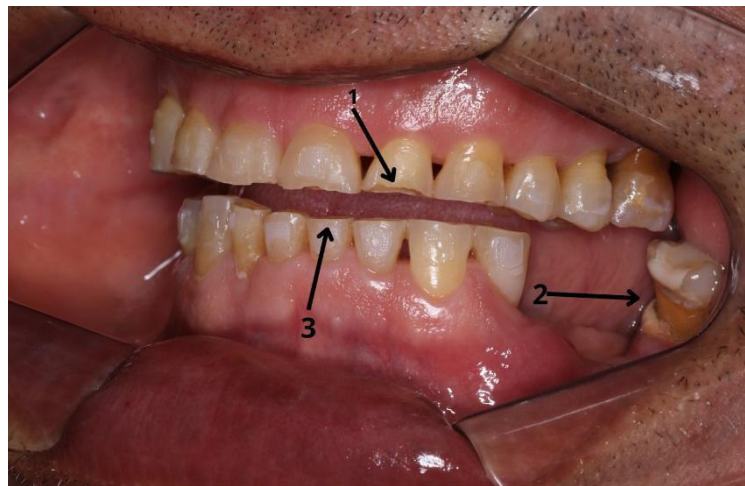


Figure 1: Patient with bruxism, (1) element 21 fractured due to squeezing pressure with its antagonist. (2) Second molar with gingival retraction due to fracture and there is a foreign body. (3) Element 31 worn due to strong repetitive friction.

Intense parafunctional activity leads to progressive wear of the tooth structure, with exposure of dentin and pulp, favoring inflammation and pulp necrosis (Abe et al., 2012). Cracks, cusp fractures and gingival retraction are also common, especially in molars. In addition, increased occlusal pressure can compromise the periodontal ligament, triggering tooth mobility, bone loss and ankylosis (Xhonga et al., 2016).

Bruxism is frequently comorbid with TMDs, and can cause joint clicking, limited mouth opening, and referred pain. Careful clinical evaluation, combined with complementary examinations such as panoramic radiographs and TMJ tomography, is essential for diagnosis and monitoring (Zieliński et al., 2025).

5. Therapeutic and Interdisciplinary Strategies

Treatment for bruxism should be individualized, considering the etiological factors and the intensity of the symptoms. It involves:

- Occlusal splints: Acrylic devices used for dental protection, redistribution of forces and reduction of muscular hyperactivity.
- Behavioral therapies: CBT has shown effectiveness in reducing episodes of stress-induced bruxism, in addition to improving sleep quality and emotional coping (Manfredini et al., 2013).
- Pharmacotherapy: Anxiolytics, antidepressants and muscle relaxants may be used under medical supervision, especially in moderate to severe cases. The application of botulinum toxin in muscles such as the masseter and temporalis presents good results in refractory cases (Guarda-Nardini et al., 2008).
- Occlusal adjustments and orthodontics: Specific indications aim to correct interferences and malocclusions that exacerbate the functional condition (Castroflorio et al., 2017).

Collaboration between dentists, psychologists, psychiatrists and speech therapists is essential for therapeutic success. Health education, with preventive actions in schools and health centers, is equally important (Muller et al., 2001).

DISCUSSION

Understanding bruxism in adolescents requires an integrated biopsychosocial model. Recent literature reinforces the close correlation between psychological distress and the manifestation of bruxism (Costa et al., 2023). The question regarding causality persists: does poor mental health favor bruxism or does physical discomfort induce emotional distress?

The role of social networks in intensifying youth stress and sleep impairment is increasingly evident, although there is a lack of longitudinal studies with methodological robustness to measure their direct contribution. The absence of specific biomarkers and the interindividual variability of symptoms make it difficult to establish standardized clinical protocols.

Furthermore, the segmentation between mental and oral health services in the Unified Health System is still a barrier to the construction of integrated care lines. Therefore, it is proposed to strengthen intersectoral public policies that articulate prevention actions, early diagnosis and interdisciplinary monitoring.

CONCLUSION

Bruxism in adolescence is a condition with a complex etiology, influenced by neuropsychological, social and behavioral factors. The interface between mental health and orofacial manifestations must be understood in its entirety, requiring a multidisciplinary approach, early diagnosis and personalized treatments.

It is essential that schools, families and health professionals work together to promote emotionally safe environments, use technology responsibly and reduce risk factors. Advances in research on clinical markers, the impact of social networks and therapeutic efficacy are urgently needed to more effectively manage this emerging condition.

REFERÊNCIAS

1. Elhai JD, Yang H, McKay D, Asmundson GJG. COVID-19 anxiety symptoms associated with problematic smartphone use severity in Chinese adults. *J Affect Disord.* 2020;274:576–82. doi:10.1016/j.jad.2020.05.080
2. Xiong J, Lipsitz O, Nasri F, Lui LMW, Gill H, Phan L, et al. Impact of COVID-19 pandemic on mental health in the general population: A systematic review. *J Affect Disord.* 2020;277:55–64. doi:10.1016/j.jad.2020.08.001
3. Friction J. How SSRIs can trigger teeth grinding and bruxism. *Minnesota Head & Neck Pain Clinic.* 2023 Mar 31. Available at: <https://mhnpc.com/2023/03/31/ssris-and-teeth-grinding-can-trigger-bruxism/>
4. Keles B, McCrae N, Grealish A. A systematic review: The influence of social media on depression, anxiety and psychological distress in adolescents. *Int J Adolescent Youth.* 2020;25(1):79–93. doi:10.1080/02673843.2019.1590851



5. Kowalski RM, Giumetti GW, Schroeder AN, Lattanner MR. Bullying in the digital age: A critical review and meta-analysis of cyberbullying research among youth. *Psychol Bull.* 2014;140(4):1073–137. doi:10.1037/a0035618
6. Hinduja, S., & Patchin, J. W. (2010). Bullying, cyberbullying, and suicide. *Archives of Suicide Research*, 14(3), 206–221. doi:10.1080/13811118.2010.49413
7. Silveira, ER, Costa, VPP, Goettems, ML, Ardenghi, TM, Azevedo, MS, Correa, MB, & Demarco, FF (2020). The impact of cyberbullying on schoolchildren's dental anxiety in Brazil: A cross-sectional multi-level study. *Community Dentistry and Oral Epidemiology*, 48(5), 440–446. doi:10.1111/cdoe.12557
8. Nesi J, Burke TA, Lawrence HR, et al. Social media use and self-injurious thoughts and behaviors: A systematic review and meta-analysis. *Clin Psychol Rev* 2021;87:101953. doi:10.1016/j.cpr.2021.101953
9. Stack S. Suicide in the media: a quantitative review of studies based on nonfictional stories. *Suicide Life Threat Behav.* 2005;35(2):121–133. doi:10.1521/suli.35.2.121.62877
10. Niederkrotenthaler T, Braun M, Pirkis J, Till B, Stack S, Sinyor M, et al. Association between suicide reporting in the media and suicide: systematic review and meta-analysis. *BMJ.* 2020;368:m575. doi:10.1136/bmj.m575
11. Wu Y, Zhang Y, Wang C, Huang B. A meta-analysis on the lifetime and period prevalence of self-injury among adolescents with depression. *Front Public Health.* 2024;12: 1434958 . doi:10.3389/fpubh.2024.1434958
12. Carrillo-Díaz M, Ortega-Martínez AR, Romero-Maroto M, et al. Lockdown impact on lifestyle and its association with oral parafunctional habits and bruxism in a Spanish adolescent population. *Int J Paediatr Dent.* 2022;32(2):185–193. doi:10.1111/ipd.12843
13. Li Q, Daxing W, Xiangyang Z. The impact of cyberbullying on depression in adolescents: A meta-analysis. *Child Abuse Neglect.* 2022;130:105331. doi:10.1016/j.chiabu.2022.105331
14. Lobbezoo F, Ahlberg J, Glaros AG, Kato T, Koyano K, Lavigne GJ, et al. Bruxism defined and graded: An international consensus. *J Oral Rehabil.* 2013;40(1):2–4. doi:10.1111/joor.12011
15. Medeiros RA, Vieira-Andrade RG, Firmino RT, Ramos-Jorge ML, Marques LS. Prevalence of awake and sleep bruxism among adolescents and association with

- academic performance: A cross-sectional study. *J Clin Pediatr Dent.* 2020;44(3):213–8. doi:10.17796/1053-4628-44.3.8
16. Gouw S, Frowein A, Braem C, de Wijer A, Creugers NHJ, Pasman JW, et al. Coherence of jaw and neck muscle activity during sleep bruxism. *J Oral Rehabil.* 2020 Apr;47(4):432–440. doi:10.1111/joor.12932
17. Wichniak A, Wierzbicka A, Jernajczyk W. Sleep and antidepressant treatment. *Curr Psychiatry Rep* 2017;19(9):1–9. doi:10.1007/s11920-017-0816-5
18. Palinkas M, Marques MJ, Dias L, Lima DA, Tadeu N, Batista CM, et al. Electromyographic analysis of masseter and temporal muscles in children with bruxism: A systematic review and meta-analysis. *J Clin Med* 2023;12(4):1270. doi:10.3390/jcm12041270
19. Abe S, Yamaguchi T, Rompré PH, de Grandmont P, Lavigne GJ. Tooth wear in young subjects and associated factors: A literature review. *J Oral Rehabil.* 2012;39(12):858–70. doi:10.1111/joor.12004
20. Xhonga FA, Valdmanis S, van der Meulen MJ, Lobbezoo F. Bruxism and periodontitis: A systematic review. *J Oral Rehabil.* 2016;43(9):763–77. doi:10.1111/joor.12433
21. Zieliński G, et al. Global co-occurrence of bruxism and temporomandibular disorders: A meta-regression analysis. *Dent Med Probl.* 2025 Mar 18.
22. Manfredini D, Winocur E, Guarda-Nardini L, Paesani D, Lobbezoo F. Psychosocial assessment in bruxism: A systematic review of the literature. *J Oral Rehabil.* 2013;40(11):882–94. doi:10.1111/joor.12095
23. Guarda-Nardini L, Manfredini D, Salamone M, Salmaso L, Tonello S, Ferronato G. Efficacy of botulinum toxin in treating myofascial pain in bruxers: A controlled clinical trial. *Clin Oral Investig.* 2008;12(3):295–300. doi:10.1007/s00784-008-0181-4
24. Castroflorio T, Bargellini A, Rossini G, Cugliari G, Deregibus A, Manfredini D. Biofeedback in the treatment of awake bruxism in adults: A systematic review of the literature. *J Oral Rehabil.* 2017;44(9):709–16. doi:10.1111/joor.12527
25. Muller J, Shore WB, Martin P, Levine M, Harvey H, Kelly P, McCarty S, Szarek J, Veitia M. What did we learn about interdisciplinary collaboration in institutions? *Acad Med.* 2001 Apr;76(4 Suppl):S55-60. doi:10.1097/00001888-200104001-00011.



26. Costa Y, de Lima Ferreira AP, de Oliveira FA, Serra-Negra JM, Pordeus IA, Paiva SM. Association between anxiety and bruxism in children and adolescents: A systematic review. *Int J Paediatr Dent.* 2023;33(1):5–17. doi:10.1111/ipd.12996