Open Access Article

Ann. Acad. Med. Siles. (online) 2025; 1(nr specj.): 66–72
eISSN 1734-025X
DOI: 10.18794/aams/210590
www.annales.sum.edu.pl

PRACA POGLĄDOWA
REVIEW

Bruxism in young adults (aged 18–25): The role of stress and other psychological factors

Bruksizm u młodych dorosłych (18–25 lat) – rola stresu i innych czynników psychologicznych

Piotr Ziobro[1], Justyna Zientek[1], Jakub Fiegler-Rudol[1], Karolina Lau[2]

[1]Students' Scientific Club, Department of Environmental Medicine and Epidemiology, Faculty of Medical Sciences in Zabrze, Medical University of Silesia, Katowice, Poland

[2]Department of Environmental Medicine and Epidemiology, Faculty of Medical Sciences in Zabrze, Medical University of Silesia, Katowice, Poland

ABSTRACT

Bruxism, defined as the involuntary activity of the masticatory muscles manifested by teeth grinding and clenching, represents a significant health concern among young adults. This study analyzes the etiopathogenesis, prevalence, and risk factors of bruxism in this age group, with particular emphasis on the role of psychological stress. A review of the literature reveals a significant correlation between high stress levels and increased bruxism symptoms, regardless of gender. Neurophysiological mechanisms underlying the disorder are discussed, including the involvement of the hypothalamic–pituitary–adrenal (HPA) axis and dopaminergic pathways. The study also highlights the utility of modern methods for monitoring bruxism-related behaviors, such as Ecological Momentary Assessment (EMA), which allows for real-time symptom tracking. Emphasis is placed on the importance of early diagnosis and a comprehensive therapeutic approach that addresses both the somatic and psychosocial aspects of bruxism. The findings underscore the need for further research on the interactions between stress, sleep, and pharmacotherapy in the context of effective prevention and treatment strategies.

KEYWORDS

bruxism, young adults, parafunction, dentistry, epidemiology

Received: 20.08.2025 **Revised:** 10.09.2025 **Accepted:** 11.09.2025 **Published online:** 15.12.2025

Address for correspondence: Piotr Ziobro, Studenckie Koło Naukowe, Katedra i Zakład Medycyny i Epidemiologii Środowiskowej, Wydział Nauk Medycznych w Zabrzu ŚUM, ul. Jordana 19, 41-808 Zabrze, tel. +48 32 272 28 47, e-mail: s86367@365.sum.edu.pl

Publisher: Medical University of Silesia, Katowice, Poland

STRESZCZENIE

Bruksizm, definiowany jako mimowolna aktywność mięśni żucia przejawiająca się zgrzytaniem i zaciskaniem zębów, stanowi istotny problem zdrowotny u młodych dorosłych. Niniejsze opracowanie analizuje etiopatogenezę, częstość występowania oraz czynniki ryzyka bruksizmu w tej grupie wiekowej, ze szczególnym uwzględnieniem roli stresu psychologicznego. Przegląd literatury wskazuje na istotną korelację między wysokim poziomem stresu a nasileniem objawów bruksizmu, niezależnie od płci. Omówiono neurofizjologiczne mechanizmy leżące u podstaw zaburzenia, w tym udział osi podwzgórze–przysadka–nadnercza (*hypothalamic–pituitary–adrenal* – HPA) oraz szlaków dopaminergicznych. W pracy podkreślono także przydatność nowoczesnych metod monitorowania zachowań związanych z bruksizmem, takich jak Ecological Momentary Assessment (EMA), umożliwiających śledzenie objawów w czasie rzeczywistym. Szczególny nacisk położono na znaczenie wczesnej diagnostyki oraz kompleksowego podejścia terapeutycznego, obejmującego zarówno aspekty somatyczne, jak i psychospołeczne bruksizmu. Wyniki podkreślają potrzebę dalszych badań nad interakcjami między stresem, snem a farmakoterapią w kontekście skutecznej profilaktyki i strategii leczenia.

SŁOWA KLUCZOWE

bruksizm, młodzi dorośli, parafunkcje, stomatologia, epidemiologia

Introduction

According to the definition by the American Academy of Orofacial Pain, bruxism is described as "diurnal or nocturnal parafunctional activities including clenching, bracing, grinding, and gnashing of the teeth" [1]. Depending on the time of occurrence, bruxism is classified into nocturnal bruxism, which occurs during sleep, and awake bruxism, which occurs during wakefulness. Nocturnal bruxism refers to masticatory muscle activity during sleep, which may be rhythmic (phasic) or non-rhythmic (tonic) in nature. Awake bruxism involves masticatory muscle activity during wakefulness, characterized by repetitive or sustained tooth contact, and tension or thrusting of the mandible [1].

Bruxism manifests as excessive activity of the masticatory muscles, leading to teeth grinding, clenching, and ultimately to the wear of healthy dental tissues and alterations in the stomatognathic system [1,2].

According to the literature, the prevalence of bruxism does not differ significantly based on nationality or race [2]. A definitive difference in prevalence between genders has also not been clearly established [3]. However, some authors have reported a higher prevalence of awake bruxism or both types of bruxism in women [4]. The presence of bruxism may change over a person's lifetime depending on age. It is more common in young adults and less frequent among older individuals [4]. If left untreated, bruxism can lead to numerous complications that affect not only oral health but also the patient's overall health. Early diagnosis and the implementation of appropriate treatment methods such as relaxation splints, physical therapy, or stress reduction can effectively reduce the risk of serious consequences associated with this condition [1].

The aim of this study is to highlight the growing prevalence and clinical significance of bruxism, with a particular focus on why it most commonly affects young individuals.

Etiology of bruxism

Psychological stress is one of the most commonly cited etiological factors of bruxism, as it can significantly influence behavior and the functioning of the nervous system, thereby affecting masticatory muscle activity. As a result of chronic stress, the body may respond to emotional tension with excessive muscular activity, leading to teeth clenching [5]. Such reactions can occur both during the day and at night, and their intensity often depends on the level of stress and the individual's physiological response [6]. Numerous studies have demonstrated the significant role of neurological factors in the etiology of bruxism. Bruxism, particularly the nocturnal form, is considered a disorder of central nervous system regulation [7]. There is impaired control over the masticatory muscles through mechanisms such as:

- alterations in dopaminergic and serotonergic transmission
- hyperactivity of neurons in the red nucleus, substantia nigra, and thalamus
- micro-arousals during sleep that coincide with muscle activity.

Dopamine plays a key role in all these processes as a neurotransmitter responsible for motor control. Dysfunctions in dopaminergic pathways can lead to excessive muscle activity [7].

Secondary triggering factors may include sleep disorders such as obstructive sleep apnea (OSA) or parasomnias. Nocturnal bruxism often coexists with: OSA, as a defensive mechanism, parasomnias, such as sleepwalking or nightmares, sleep fragmentation, which increases susceptibility to involuntary muscle contractions [7]. Other potential contributing factors include anatomical abnormalities in the temporomandibular joint, genetic predispositions, and pharmacological influences, especially the use of certain psychotropic medications, such as selective serotonin reuptake inhibitors (SSRIs) [8]. Some medications, particularly psychotropic drugs, may induce bruxism

as a side effect: SSRIs (e.g., fluoxetine, paroxetine), neuroleptics and antidepressants. It is believed that their effect on the serotonergic system disrupts dopaminergic balance, thereby enhancing involuntary activity of the masticatory muscles [9].

Impact of stress on the genesis of bruxism

Stress is widely accepted as a contributing factor in the pathogenesis of bruxism. A more precise understanding of this phenomenon requires consideration of distress and allostatic load [10]. Distress refers to the body's negative response to stress, arising from being overwhelmed by excessive demands, experienced losses, or perceived threats. It leads to harmful consequences, resulting in both physical and psychological disorders [10,11]. Allostatic load refers to the cumulative burden of chronic stress and adverse life experiences, stemming from the interaction of various physiological systems operating at different levels of activity. When environmental challenges exceed an individual's ability to cope, allostatic overload occurs. In humans, daily behaviors such as teeth clenching, bruxism, or nail-biting are most frequently observed in individuals experiencing panic states [11]. These mechanisms indicate a strong link between stress and parafunctional activity in the stomatognathic system.

Studies suggest that masticatory dysfunction and associated occlusal disharmony, such as bite elevation or tooth loss, can activate the hypothalamic–pituitary––adrenal (HPA) axis. Via the hypothalamus (corticotropin-releasing hormone – CRH), pituitary gland (adrenocorticotropic hormone – ACTH), and adrenal glands, glucocorticoids (GC) are released into the bloodstream. Elevated levels of corticosterone in blood and urine can persist for a long time. Cortisol enhances sympathetic nervous system responses, leading to increased muscle tension, including in the masticatory muscles such as the masseters. This results in excessive tension and heightened activity during clenching or grinding of the teeth. Prolonged grinding causes enamel wear, tooth fractures, and crown damage. Additionally, prolonged muscle tension can lead to fatigue, pain, and over time, structural changes including reduced mobility of the temporomandibular joint (TMJ).

Moreover, CRH also activates another neuronal pathway: the sympatho-adrenal axis through stimulation of the locus coeruleus (LC), further increasing sympathetic activation [12]. Chronic stress and excessive HPA axis activity are associated with dysfunction of 5-hydroxytryptamine (5-HT) serotonin receptors in the hippocampus, resembling changes observed in individuals with suicidal tendencies. Activation of the lateral habenula (LHb), which regulates dopamine and serotonin, also plays a significant role. Occlusal disharmony may stimulate the LHb, disrupting its homeostatic inhibitory functions and promoting the development of depression, sleep disturbances, and chronic pain. During sleep, individuals under chronic stress may experience episodes of bruxism due to the nervous system's inability to suppress sympathetic dominance. Neuroimaging and ophthalmologic studies have shown neurodegenerative changes in both the brain and retina of patients with sleep bruxism, including a reduction in axonal thickness and retinal ganglion cell layer. These changes resemble those seen in individuals with major depressive disorder, underscoring a potential link between neurodegeneration and bruxism.

Impact of stress on facial muscle modulation

The normal hormonal response to stress may be altered due to damage to the ventral tegmental area (VTA), indicating that the dopaminergic system influences the functioning of the HPA axis [13]. Brain regions such as the ventral subiculum (vSub) of the hippocampus and the basolateral amygdala (BLA) exert modulatory but opposing effects on dopaminergic neuron activity in the VTA. These neurons are typically kept in a resting state through hyperpolarization [14]. Moreover, the regulation of mastication involves a two-neuron pathway, in which serotonergic neurons from the raphe nuclei connect synaptically with dopaminergic neurons in the VTA.

Central bruxism may occur in two opposing states: in hyperdopaminergic conditions, such as those induced by amphetamines or levodopa (L-dopa), and in cholinergic deficiency; as well as in hypodopaminergic states, which appear in dysfunctions of the extrapyramidal system [15]. Certain neurological disorders, such as Parkinson's or Huntington's disease, or pharmacological agents like SSRIs, which alter 5-HT receptor function, may also cause secondary bruxism [15]. Abnormal functioning of 5-HT_2 receptors also plays a significant role in the pathogenesis of bruxism. This leads to a paradox in treatment: despite the involvement of 5-HT_2, 5-HT_1 receptor agonists are commonly used as first-line treatment. Changes in presynaptic 5-HT_1 and 5-HT_2 receptor function, or their interactions, can disrupt the mesocortical dopaminergic pathway, which is crucial for controlling involuntary muscle movements [15].

Stress affects serotonin receptor function in a region-dependent manner. It reduces the number of 5-HT_{1A} receptorsin the hippocampus, while increasing their expression in the cerebral cortex [16]. In contrast, 5-HT_{2A} receptors, present in motor, sensory, and spinal nuclei of the trigeminal nerve and other areas, appear to remain unaffected by stress [17].

Reduced inhibition of trigeminal motor neurons may lead to overactivation of the masseter muscle, which is a key disturbance in bruxism and promotes

involuntary jaw movements. Susceptibility to social stress appears to be linked to suppression of the mesocortical system, observed in both bruxism patients and those with temporomandibular disorders (TMDs). Interestingly, long-term stress responses differ by gender, as the dopaminergic system shows sex-specific morphological and molecular changes. Stress leads to remodeling of the mesocortical and mesolimbic dopaminergic pathways, and a significant decrease in dopaminergic activity in the VTA [18].

Research on bruxism, stress, and anxiety in university students

In 2021, a study was conducted involving 328 dental students aged 21–41 of both sexes at the Faculty of Dentistry of the University of Medicine and Pharmacy in Craiova [19]. The aim was to determine the prevalence of probable bruxism, explore its relationship with stress and anxiety, and highlight symptoms related to temporomandibular disorders. All participants were in very good health, with no systemic illnesses or medications. The gender distribution was: 212 women (64.63%) and 116 men (35.36%). The study found that 39.33% (129 participants; 80 women, 49 men) reported symptoms of bruxism. There was no significant correlation between gender and self-reported bruxism ($\varphi = 0.044$; $\chi^2(1) = 0.638$; $p = 0.424$). The Cochran--Armitage trend test showed no significant linear relationship between age groups and bruxism prevalence ($p = 0.227$). Among the 129 participants: 21 reported sleep bruxism (SB) only, 89 reported awake bruxism (AB) only, 19 experienced both SB and AB. In the group of 40 participants with SB (alone or combined), the most commonly reported symptoms were teeth grinding noticed by a partner and morning masticatory muscle fatigue. In total, 68.29% (224 participants) reported experiencing stress. Of these, 49.55% (111 participants; 77 women, 34 men) also reported bruxism, while 50.45% (113 participants) did not. Bruxism occurred in 88.8% of stressed individuals, compared to 56.78% of those without stress, indicating a moderate, statistically significant associationbetween stress and bruxism ($\varphi = 0.307$; $\chi^2(1) = 30.950$; $p < 0.0005$). No correlation was found between stress and gender or age ($p > 0.05$). Significant differences were observed in the frequency of bruxism episodes depending on stress level ($p < 0.0005$). Post hoc analysis showed that individuals with higher stress levels (“very high,” “extensive”) reported more frequent bruxism episodes (“sometimes,” “often”) than those with lower stress levels (“none,” “mild”), who reported such episodes less frequently [19,20].

Gender differences in prevalence

There are conflicting findings regarding gender differences in the prevalence of bruxism. Some studies suggest that women may be more prone to bruxism due to a greater susceptibility to psychological stress. Other research, however, indicates no significant gender differences, or even a higher risk among men, particularly in relation to bruxism associated with physical exertion and muscle tension [21]. In epidemiological studies conducted by Ohayon et al. [22], it was observed that bruxism is more frequently diagnosed in younger age groups, particularly among young adults aged 20–40 years. Both awake and sleep bruxism are present in this population. Researchers did not find any significant gender differences in the prevalence of bruxism.

Age-related prevalence of bruxism

Bruxism can occur across various age groups, but its frequency changes with age. In children, especially those in preschool and early school age, this phenomenon is relatively common. In many cases, it is a transient issue associated with the development of the stomatognathic system, tooth eruption, or stress. The peak prevalence of bruxism, classified as a parafunctional behavior, occurs among young adults aged 18–40 years, and is linked to increased emotional tension, stress, and lifestyle factors [23]. Stress is widespread among young people and stems from dynamic life changes, social pressure, uncertainty about the future, and the fast pace of modern life, all of which may lead to chronic emotional strain. In this age group, bruxism often requires treatment, as it may cause tooth damage and TMDs. This is confirmed by findings from Bracci et al. [24] from the University of Padua and the University of Siena, who studied awake bruxism in healthy young adults using a mobile app for real-time self-reporting (Ecological Momentary Assessment – EMA, also known as the Experience Sampling Method – ESM). In the study, 46 dental students used a smartphone app that sent 15 random alerts per day for one week, prompting them to report their current jaw muscle condition by tapping an icon on the screen: relaxed jaw muscles, tooth contact, teeth clenching, teeth grinding, jaw clenching without tooth contact (so-called bracing). The average frequency of relaxed jaw muscles, as a percentage of responses over 7 days, was 71.7%. The most frequently reported behaviors were tooth contact (14.5%) and jaw bracing (10.0%). No significant gender differences were found. While there were individual differences among participants, the overall behavior frequency showed moderate day-to-day

variability, with a low coefficient of variation for the "relaxed jaw muscles" state (0.44). On an individual level, the most commonly reported behavior was tooth contact, reported at least once daily by 39.1%–52.2% of participants. During the 7-day observation period, the average real-time reporting frequency among healthy young adults was 28.3%. The low daily variability in the frequency of relaxed jaw muscles suggests that EMA is a reliable tool for studying the epidemiology of oral behaviors. This study introduced EMA into the analysis of awake bruxism and provided data on behavior frequency in young adults, which may serve as a reference point for populations at risk or with clinical consequences.

After the age of 50, the prevalence of bruxism significantly decreases, likely due to natural dental changes, reduced muscle tone, and a lower physiological stress response. It is worth noting that the intensity of bruxism can fluctuate throughout life, and its occurrence is closely tied to individual predispositions and external factors.

Bruxism in young adults and stress

Young adults today experience elevated levels of stress due to a unique combination of societal, economic, and psychological pressures that are more intense than those faced by previous generations. This heightened stress is increasingly recognized as a contributing factor in the onset and exacerbation of bruxism.

Economic instability

Today's young adults face a more difficult financial reality than many previous generations. Even those with higher education often struggle to secure stable employment that enables independent living. Key issues include the high cost of living and the burden of student loans.

In countries such as the United States, the United Kingdom, and even parts of Europe, young people frequently graduate with significant debt. Repaying these loans may take years, delaying life milestones like buying a home, starting a family, or investing in personal growth [25]. In addition, everyday living expenses – rent, food, and transportation – are rising faster than wages. In many major cities, young adults are forced to live with roommates or remain with their parents due to financial constraints.

Slimmen et al. [26] conducted a study at a University of Applied Sciences between November 16, 2020, and January 18, 2021, examining variables such as psychological well-being, perceived stress, academic pressure, financial pressure, family pressure, extracurricular obligations, coping style, self-esteem, loneliness, and personality traits. A total of 875 university students (37.2% male, 62.3% female, mean age 21.6) participated. Perceived stress had a strong negative association with mental well-being ($b = -0.848$, $p < .001$; $r = -0.667$, $p < .01$), explaining 45% of the variance. Academic pressure ($b = -8.014$, $p < .01$), family pressure ($b = -3.189$, $p < .01$), extracurricular pressure ($b = -3.032$, $p < .01$), and financial pressure ($b = -2.041$, $p < .01$) negatively impacted well-being. Notably, academic and family pressure showed direct effects even after accounting for perceived stress. Interaction effects were also found between perceived stress and coping strategies, as well as emotional stability. The findings highlight how financial insecurity and the burden of early adulthood debt significantly influence the mental well--being of young people.

Social media pressure

Social media plays a dominant role in the lives of young adults. While these platforms can offer connection, inspiration, and entertainment, they increasingly contribute to psychological strain. The main stressors related to social media include comparison culture, fear of missing out (FOMO), and dependency on external validation [27].

Platforms like Instagram, TikTok, and Facebook present highly curated, idealized portrayals of life, career achievements, exotic vacations, perfect appearances, and flawless relationships. As a result, many young individuals feel inadequate or "behind" in life. Constant exposure to images of parties or social events they are not part of can foster feelings of exclusion and loneliness, which in turn intensifies stress and the compulsion to conform socially [27].

Moreover, the content promoted by algorithms is often visually and emotionally stimulating, creating an illusion that most people lead joyful, successful lives. In reality, these are carefully staged moments, and real-life struggles are hidden. For young people entering adulthood, this contrast can lead to disappointment and cognitive dissonance when their actual experiences fall short of online expectations [28].

Information overload

In the digital age, young people are bombarded daily with massive amounts of information. This phenomenon, termed *information overload*, refers to the situation in which the volume of incoming data exceeds an individual's capacity to process, analyze, and use it meaningfully [29].

Technology now provides greater access to information than ever before. However, evidence shows that human cognitive capacity for absorbing and storing information is limited. Constant exposure, especially to negative content like wars, crises, and diseases, can trigger chronic stress and anxiety. This

in turn activates physiological responses such as muscle tension, emotional hypersensitivity, and sleep disturbances [30,31].

A growing and increasingly prevalent threat linked to information overload is the spread of so-called "fake news". The psychological impact of misinformation has become a major focus in social psychology and neurobiology. In today's digital media environment, where information spreads rapidly, false reports can have real and harmful consequences for mental health particularly among young adults. Fake news often takes the form of sensationalized and dramatic headlines about public health threats, social unrest, or economic collapse, all of which contribute to heightened emotional tension, stress, and even anxiety disorders [32,33].

Discussion

This study confirms that bruxism in young adults is a multifactorial disorder strongly influenced by psychological stress, neurophysiological dysregulation, and modern lifestyle pressures. The findings align with previous research highlighting a significant correlation between elevated stress levels and both awake and sleep bruxism, especially in populations aged 18 to 25 [5,19]. Notably, stress activates the HPA axis, and chronic stimulation of this pathway can increase masticatory muscle tone, contributing to parafunctional activity [10,12]. Neurobiological models suggest a key role of dopaminergic and serotonergic dysregulation in central bruxism, which is further supported by alterations in receptor function under chronic stress conditions [16,18]. The impact of SSRIs also warrants attention, as medications such as fluoxetine and paroxetine have been associated with bruxism by disrupting the dopaminergic-serotonergic balance [8,15]. This pharmacologically induced form of bruxism highlights the importance of considering iatrogenic factors when diagnosing or treating young patients. Furthermore, social stressors, particularly those related to digital environments, have emerged as significant contributors to psychological overload. The constant exposure to idealized portrayals on social media platforms fosters social comparison and self--doubt, which in turn may exacerbate stress-induced muscle activity and bruxism episodes [27,31]. Evidence indicates that social media fatigue and emotional dysregulation are strongly linked, especially among students and digital natives [30,32]. The role of EMA in studying oral behaviors offers new insights. The real-time monitoring approach allows for precise behavioral tracking, demonstrating a 28.3% daily frequency of non-relaxed jaw activity among young adults, without significant gender differences [24]. This is consistent with other epidemiological reports showing that both sexes are affected, although some studies suggest women may report higher rates of awake bruxism [4,22]. Our results also point to significant neurophysiological overlap between bruxism and stress-related disorders. For example, structural changes in areas such as the VTA, hippocampus, and amygdala due to prolonged stress can alter dopamine modulation and contribute to heightened muscle reactivity [13,14]. Such findings correspond to those in neuropsychiatry, where bruxism is increasingly viewed as a somatic manifestation of emotional and cognitive dysregulation. In addition, the role of misinformation and cognitive overload in the digital age must not be underestimated. As observed by Liu et al. [32] and Ali Adeeb and Mirhoseini [33], the psychological burden caused by exposure to alarming or false content, especially during sensitive periods like early adulthood, may lead to chronic sympathetic activation and sleep fragmentation, key mechanisms underlying nocturnal bruxism. Taken together, the evidence reinforces the need for a multidisciplinary approach to managing bruxism in young adults. Dentists, mental health professionals, and primary care providers must collaborate in developing therapeutic strategies that address both the physiological and psychosocial components of this disorder. Preventive measures should also incorporate media literacy and stress--reduction programs for students, given the observed link between academic pressure and bruxism severity [26]. Future research should focus on longitudinal assessments using tools like EMA to better map behavior patterns, explore gender-specific neurobiological mechanisms, and evaluate the therapeutic effects of combined cognitive-behavioral and occlusal interventions. Moreover, exploring how allostatic load contributes to the persistence of bruxism beyond young adulthood could offer new perspectives for early intervention strategies [11,20].

Authors' contribution

Study design – P. Ziobro, J. Zientek
Data collection – P. Ziobro, J. Fiegler- Rudol, J. Zientek
Manuscript preparation – P. Ziobro, J. Zientek, K. Lau
Literature research – P. Ziobro, J. Fiegler- Rudol, J. Zientek
Final approval of the version to be published – K. Lau

REFERENCES

1. 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(11):837–844. doi: 10.1111/joor.12663.

2. Cruz-Fierro N, Martínez-Fierro M, Cerda-Flores RM, Gómez-Govea MA, Delgado-Enciso I, Martínez-De-Villarreal LE, et al. The phenotype, psychotype and genotype of bruxism. Biomed Rep. 2018;8(3):264–268. doi: 10.3892/br.2018.1041.

3. Berger M, Szalewski L, Szkutnik J, Ginszt M, Ginszt A. Different association between specific manifestations of bruxism and temporo-mandibular disorder pain. Neurol Neurochir Pol. 2017;51(1):7–11. doi: 10.1016/j.pjnns.2016.08.008.

4. Wetselaar P, Vermaire EJH, Lobbezoo F, Schuller AA. The prevalence of awake bruxism and sleep bruxism in the Dutch adult population. J Oral Rehabil. 2019;46(7):617–623. doi: 10.1111/joor.12787.

5. Ahlberg J, Lobbezoo F, Ahlberg K, Manfredini D, Hublin C, Sinisalo J, et al. Self-reported bruxism mirrors anxiety and stress in adults. Med Oral Patol Oral Cir Bucal. 2013;18(1):e7–11. doi: 10.4317/medoral.18232.

6. Ahlberg J, Rantala M, Savolainen A, Suvinen T, Nissinen M, Sarna S, et al. Reported bruxism and stress experience. Community Dent Oral Epidemiol. 2002;30(6):405–408. doi: 10.1034/j.1600-0528.2002.00007.x.

7. Beddis H, Pemberton M, Davies S. Sleep bruxism: an overview for clinicians. Br Dent J. 2018;225(6):497–501. doi: 10.1038/sj.bdj.2018.757.

8. Garrett AR, Hawley JS. SSRI-associated bruxism: A systematic review of published case reports. Neurol Clin Pract. 2018;8(2):135–141. doi: 10.1212/CPJ.0000000000000433.

9. Lavigne GJ, Khoury S, Abe S, Yamaguchi T, Raphael K. Bruxism physiology and pathology: an overview for clinicians. J Oral Rehabil. 2008;35(7):476–494. doi: 10.1111/j.1365-2842.2008.01881.x.

10. Guidi J, Lucente M, Sonino N, Fava GA. Allostatic load and its impact on health: A systematic review. Psychother Psychosom. 2021;90(1):11–27. doi: 10.1159/000510696.

11. Manfredini D, Lobbezoo F. Role of psychosocial factors in the etiology of bruxism. J Orofac Pain. 2009;23(2):153–166.

12. Pavlou IA, Spandidos DA, Zoumpourlis V, Papakosta VK. Neurobiology of bruxism: The impact of stress (Review). Biomed Rep. 2024;20(4):59. doi: 10.3892/br.2024.1747.

13. Piazza PV, Le Moal M. The role of stress in drug self-administration. Trends Pharmacol Sci. 1998;19(2):67–74. doi: 10.1016/s0165-6147(97)01115-2.

14. Floresco SB, West AR, Ash B, Moore H, Grace AA. Afferent modulation of dopamine neuron firing differentially regulates tonic and phasic dopamine transmission. Nat Neurosci. 2003;6(9):968–973. doi: 10.1038/nn1103.

15. Bostwick JM, Jaffee MS. Buspirone as an antidote to SSRI-induced bruxism in 4 cases. J Clin Psychiatry. 1999;60(12):857–860. doi: 10.4088/jcp.v60n1209.

16. López JF, Vázquez DM, Chalmers DT, Watson SJ. Regulation of 5-HT receptors and the hypothalamic–pituitary–adrenal axis. Implications for the neurobiology of suicide. Ann N Y Acad Sci. 1997;836:106–134. doi: 10.1111/j.1749-6632.1997.tb52357.x.

17. Yeung LY, Kung HF, Yew DT. Localization of 5-HT1A and 5-HT2A positive cells in the brainstems of control age-matched and Alzheimer individuals. Age. 2010;32(4):483–495. doi: 10.1007/s11357-010-9152-x.

18. Quessy F, Bittar T, Blanchette LJ, Lévesque M, Labonté B. Stress-induced alterations of mesocortical and mesolimbic dopaminergic pathways. Sci Rep. 2021;11(1):11000. doi: 10.1038/s41598-021-90521-y.

19. Vlăduțu D, Popescu SM, Mercuț R, Ionescu M, Scrieciu M, Glodeanu AD, et al. Associations between bruxism, stress, and manifestations of temporomandibular disorder in young students. Int J Environ Res Public Health. 2022;19(9):5415. doi: 10.3390/ijerph19095415.

20. Reddy SV, Kumar MP, Sravanthi D, Mohsin AH, Anuhya V. Bruxism: a literature review. J Int Oral Health. 2014;6(6):105–109.

21. 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;27(2):99–110. doi: 10.11607/jop.921.

22. Ohayon MM, Li KK, Guilleminault C. Risk factors for sleep bruxism in the general population. Chest. 2001;119(1):53–61. doi: 10.1378/chest.119.1.53.

23. Barbosa Tde S, Miyakoda LS, Pocztaruk Rde L, Rocha CP, Gavião MB. Temporomandibular disorders and bruxism in childhood and adolescence: Review of the literature. Int J Pediatr Otorhinolaryngol. 2008;72(3):299–314. doi: 10.1016/j.ijporl.2007.11.006.

24. Bracci A, Djukic G, Favero L, Salmaso L, Guarda-Nardini L, Manfredini D. Frequency of awake bruxism behaviours in the natural environment. A 7-day, multiple-point observation of real-time report in healthy young adults. J Oral Rehabil. 2018;45(6):423–429. doi: 10.1111/joor.12627.

25. Wilcox MM, Barbaro-Kukade L, Pietrantonio KR, Franks DN, Davis BL. It takes money to make money: Inequity in psychology graduate student borrowing and financial stressors. Train Educ Prof Psychol. 2021;15(1):2–17. doi: 10.1037/tep0000294.

26. Slimmen S, Timmermans O, Mikolajczak-Degrauwe K, Oenema A. How stress-related factors affect mental wellbeing of university students: A cross-sectional study to explore the associations between stressors, perceived stress, and mental wellbeing. PLoS One. 2022;17(11):e0275925. doi: 10.1371/journal.pone.0275925.

27. Yang CC, Holden SM, Ariati J. Social media and psychological well-being among youth: The multidimensional model of social media use. Clin Child Fam Psychol Rev. 2021;24(3):631–650. doi: 10.1007/s10567-021-00359-z.

28. Yau JC, Reich SM. "It's just a lot of work": Adolescents' self-presentation norms on Facebook and Instagram. J Res Adolesc. 2019;29(1):196–209. doi: 10.1111/jora.12376.

29. Saxena D, Yasobant S. Information overload. In: Schintler LA, McNeely CL [ed.]. Encyclopedia of Big Data. Cham: Springer; 2022. doi: 10.1007/978-3-319-32001-4_374-1.

30. Pang H, Ji M, Hu X. How differential dimensions of social media overload influence young people's fatigue and negative coping during prolonged COVID-19 pandemic? Insights from a technostress perspective. Healthcare. 2022;11(1):6. doi: 10.3390/healthcare11010006.

31. Dhir A, Yossatorn Y, Kaur P, Chen S. Online social media fatigue and psychological wellbeing – A study of compulsive use, fear of missing out, fatigue, anxiety and depression. Int J Inf Manage. 2018;40(C):141–152. doi: 10.1016/j.ijinfomgt.2018.01.012.

32. Liu H, Liu W, Yoganathan V, Osburg VS. COVID-19 information overload and generation Z's social media discontinuance intention during the pandemic lockdown. Technol Forecast Soc Change. 2021;166:120600. doi: 10.1016/j.techfore.2021.120600.

33. Ali Adeeb R, Mirhoseini M. The Impact of Affect on the Perception of Fake News on Social Media: A Systematic Review. Soc Sci. 2023;12(12):674. doi: 10.3390/socsci12120674.