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*Literature Review*

# The Relationship between Bruxism and Types of Personality. A Literature Review

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***ABSTRACT***

*Bruxism is a parafunctional habit with a multifactorial etiology, involving a variety of contributing factors. This study aims to investigate the relationship between personality traits and the manifestation of bruxism. Through a thorough review of the literature and an analysis of keywords such as "bruxism," "personality," "psychopathological profile," "craniomandibular disorders," and "stress," the study examines how different personality characteristics are associated with bruxism. The review's findings indicate that bruxism is not merely a physical condition but is closely linked to psychological, social, and behavioral factors within the broader framework of personality traits. Notable correlations were found between bruxism and factors such as anxiety, neuroticism, and intense emotional states like frustration and anger. Conversely, emotional stability seems to provide a protective effect against the development of bruxism.*

*Insights into these psychosocial factors can significantly enhance therapeutic approaches and contribute to preventing the worsening of bruxism.*

***Keywords:*** *Bruxism, personality, anxiety, neuroticism, psychological factors.*

## Introduction

Bruxism, is a parafunctional habit characterized by involuntary grinding or clenching of teeth. It is a disorder that does not serve any normal function of the mouth, such as chewing or swallowing, and can lead to severe dental damage, occlusion trauma, temporomandibular joint disorders (TMJ), muscle pain, or even irritation of the soft tissues of the oral cavity [(1)].

This disorder can occur both during sleep (sleep bruxism) and wakefulness (awake bruxism). The former usually manifests itself unconsciously during sleep and is often associated with sleep disturbances, while the latter occurs during the day, mainly during periods of intense stress or concentration [(2)] .Bruxism can also be divided into acute and chronic. Acute bruxism is a temporary condition, usually associated with temporary stressors, and often occurs in response to specific situations or events. On the other hand, chronic bruxism refers to a long-term condition, characterized by ongoing and recurrent occurrence of the phenomenon, which may be related to deeper or more complex psychological or biological factors [(3)].

Bruxism is a relatively common oral disorder, affecting a significant percentage of the general population. It is estimated that about 8% to 31% of adults develop bruxism at some stage in their lives. It is more common in children, with research showing that 15% to 40% of children experience some form of the phenomenon during childhood. Despite the initial frequency, bruxism usually decreases as children get older. In addition, sleep bruxism is generally more prevalent than wakefulness bruxism [(3)].

The etiopathogenesis of bruxism is multifactorial and includes biological, genetic, environmental and psychological factors. Biologically, disharmony in the temporomandibular joint and deviations in occlusion of teeth can affect normal jaw function and lead to bruxism[(4)].Genetic factors, such as heredity, have also been found to play a role, as people with a family history of bruxism are more prone to developing the disorder. In addition, environmental factors, such as socioeconomic conditions and daily habits, influence the onset of bruxism, as poor nutrition, lack of daily schedule, and lack of adequate sleep can exacerbate the severity of the disorder [(5)].Alcohol consumption, smoking, and drug use can also aggravate the condition, due to their effects on the nervous system and normal body functions [(6)].Psychologically, anxiety, anger, nervousness and stress, as well as neuroticism, have been closely linked to the onset and intensity of bruxism [(7)]. Neuroticism is a disorder in which the person is unable to manage his stress and faces internal conflicts. Its characteristics are anger, anxiety, sadness, impatience and irritability. The etiology of bruxism during the day seems to be significantly related to a person's personality traits, while nocturnal bruxism is currently considered a parasomnias and has another etiology. [(8)].

The term "personality traits" refers to a set of habitual, enduring and relatively stable behaviors, emotions and ways of thinking that make up the individual personality. These characteristics describe how a person perceives, thinks and interacts with the world around him. In particular, personality traits include a person's habitual behaviors and reactions to various situations, such as anxiety and how they react to everyday challenges. They also refer to emotional perception, i.e. how a person feels and how they express or manage their emotions, such as anger, joy, sadness, etc. These characteristics also include the thoughts and values that guide a person's decisions, as well as their goals and preferences [(9)].

In addition, they describe the communicative profile, that is, how a person interacts with others, including social skills and how they express themselves. Also important is the internal structure, which refers to the inner desires, needs, and motivations that guide a person's behavior, such as the need for success, recognition, or emotional security. Personality traits also include adaptation style, that is, how a person copes with and adapts to changes or challenges in their life [(10)].Finally, a person's attitudes and subjective assessments towards various issues, such as society, work, or interpersonal relationships, are also an integral part of personality

traits [11].

Indicatively, some of the best-known personality traits include the Big Five Model, which analyzes traits of extraversion, conscientiousness, openness to experience, kindness, and neuroticism [12]. Also, Eysenck's Theory of Personality Elements focuses on three main characteristics: extraversion, sensitivity and psychopathy. Finally, Cattell's Model of Relative Personality Theory examines various individual dimensions of personality, such as intelligence, adaptability, and emotional stability.

Personality traits significantly influence how a person perceives the world and interacts with others, and are used to understand or predict behaviors and psychological reactions.

Understanding the multidimensional etiology of bruxism, through the assessment of the patient's personality, can help in a more comprehensive approach to the diagnosis and treatment of bruxism. The purpose of the present study was to investigate the correlation between the personality traits of individuals and the occurrence of bruxism, as the identification of personality factors that may contribute to the onset and worsening of bruxism will contribute significantly to the treatment of bruxism.

## Materials and Method

To review the literature, PubMed, Cochrane, Scopus and Google Scholar databases were searched using the following keywords: "bruxism", "personality", "psychological factors", "psychopathological profile", "craniomandibular disorders", "temporomandibular joint/disorders" and "stress".

The admission criteria were: 1) studies published from 1990 to 2024, 2) studies published in English and 3) reviews (bibliographical, systematic, umbrella), observational studies (time-time, prospective, patient-control) and intervention studies (randomized and non-clinical trials) addressing the association between individuals' personality traits and the occurrence of bruxism, while case-reports and baseline studies were excluded case series.

## Results

In this literature review, 17 studies were used, the results of which are listed in Table 1.

The prevalence of bruxism varies significantly across studies, ranging from 22% to 73%. The variations are likely due to differences between adults and children, as well as different geographical areas and population groups studied.

TABLE 1.

| AUTHOR | PUBLICATION YEAR | TYPE OF STUDY | AIM | PARTICIPANTS | METHODOLOGY | RESULTS |
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| William F et al. | 1993 | Cross - sectional study | Comparison of Personality Traits Between Bruxers and Non-Bruxers | 112 adults, ♂: 27-69 years old, ♀: 20-75 years old | Selection of patients who visited for routine examination or follow-up for TMJ disorders.<br>• Patients were divided into groups based on:<br>a. history of pain and TMJ dysfunction,<br>b. complaints of bruxism,<br>c. presence of wear on the incisal surfaces.<br>• Blinded classification into bruxism or non-bruxism groups.<br>• Completion of a questionnaire.<br>• Questionnaires were anonymously sent to a psychologist.<br>• Comparison of results between the dentist and psychologist using the Complete Statistical System13 (CSS). | • No significant correlation was found between bruxism and gender.<br>• Bruxers showed significant differences in personality test scores (16PF), particularly in areas such as extroversion, anxiety, toughness, independence, and control.<br>• Bruxers exhibited lower levels of extroversion and higher levels of anxiety compared to the general population averages. |
| Carvalho A L et al. | 2008 | Cross - sectional study | Investigation of the Prevalence of Bruxism and Emotional Stress in Male Police Officers and Evaluation of the Correlation Between Job Type and Bruxism/Emotional Stress | 394 police officers | Selection of Participants and Psychological and Clinical Oral Examination<br>Psychological Condition<br>To identify bruxism, volunteers completed a Stress Symptoms Inventory (SSI) questionnaire.<br>Three sessions were required to gather the necessary information (stages of alarm, resistance, and exhaustion).<br>Police officers with scores above 6 for the alarm stage, up to 3 for the resistance stage, or up to 8 for the exhaustion stage were considered stressed.<br>Clinical Examination<br>A relevant form was completed regarding the type of work performed by each police officer within the force.<br>Any discomfort in the masticatory muscles experienced during the last four weeks upon awakening was recorded.<br>A participant was classified as a bruxer if they exhibited occlusal interferences during functional movements, ground their teeth during sleep, showed sensitivity upon palpation of the masticatory muscles, or experienced pain in the temporomandibular joint (TMJ). | • 48.3% of the Brazilian police officers studied reported nocturnal bruxism.<br>• A significant correlation was found between emotional stress and bruxism, but no significant correlation was found between stress and type of work. |

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| Serra-Negra JM et al. | 2009 | Cross - sectional study | Evaluation of the Prevalence of Nocturnal Bruxism in Children and the Impact of Psychosocial Factors | First Study: 175 students aged 7-11 years Second Study: 255 students aged 6-14 years | First Study:<br>• Inclusion Criteria: e.g., absence of neurological sleep disorders.<br>• Parents completed a questionnaire covering:<br>1)Child's history,2)Possible nocturnal teeth grinding,3)Oral habits,4)Medical history,5)Socio-demographic information.<br>• Diagnosis of nocturnal bruxism based on the criteria of the American Academy of Sleep Medicine.<br>Second Study:<br>• Use of the Complete Statistical System (CSS) to measure stress.<br>• Data review by a psychologist.<br>• Assessment of personality traits through evaluation of neuroticism using the responsibility scales from the BFQ-C19 test.<br>• Social vulnerability index developed to analyze family exposure to social conditions. | • 35.3% of the children exhibited nocturnal bruxism.<br>• No clear correlation was found between social vulnerability and bruxism, as 66% of the children without bruxism belonged to the low social vulnerability group.<br>• The majority of children without bruxism (67.3%) lived with their parents.<br>• A correlation was found between high neuroticism and involvement in household chores, as well as between nocturnal bruxism and high neuroticism.<br>• No correlation was found between bruxism and gender. |
| Sutin AR et al. | 2010 | Meta-analysis | Correlation of Personality Traits with Bruxism and Other Oral Pathological Conditions | 470 INDIVIDUALS | • History of hygiene habits and dental care• Subjective criteria: whether participants believe they have:BruxismStressClickingDifficulty chewingDry mouthHealthy gums• Examination by a dentist• Personality questionnaire: GZTS (Guilford, Zimmerman, & Guilford)• Personality assessment (GZTS) with regular follow-up visits. | • 22% exhibited nocturnal bruxism.• 67% did not exhibit bruxism.• In 11%, a diagnosis of bruxism could not be confirmed.• Individuals with high emotional stability rarely exhibited bruxism, in contrast to those with high levels of neuroticism. |
| Ahlberg J et al. | 2013 | Cross - sectional study | Study of the Potential Correlation Between Self-Reported Bruxism and Anxiety with Health Issues and Investigation of the Effects of Anxiety on the Likelihood of Self-Reported Bruxism | 874 employees with "irregular" shifts and regular 8-hour work schedules | • Questionnaires were sent to employees working "irregular" shifts at a broadcasting company, as well as to employees with regular 8-hour work schedules.<br>• Regarding bruxism, participants were categorized based on their questionnaire responses into "frequent," "moderate," and "mild or no" bruxism groups.<br>• For stress assessment, the Symptom Checklist (SCL-90-R) was used. Participants could rate the intensity of their stress on a scale ranging from "none" to "very high."<br>• For the work-related stress questionnaire, perceived stress was recorded on a 5-point scale. | • A direct correlation was found between stress and the occurrence of bruxism.<br>• Participants who were aware of having bruxism reported higher levels of stress, with clear differences between those with mild and severe bruxism.<br>• Those who reported severe bruxism symptoms also exhibited increased levels of anxiety.<br>• Both moderate and severe stress were found to be associated with increased bruxism among employees |

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| Cortese SG et al. | 2013 | Comparative study | Comparison of Personality Traits, Presence of Oral Muscle Dysfunctions, and Other Parafunctional Habits in Children With and Without Bruxism | 54 patients, aged 10-15 years | • Selection of patients without developmental, medical, neurological, or psychiatric disorders and without a history of orthodontic treatment.<br>• Examination of patients by dentists for TMJ function, psychologists for personality traits, and speech therapists.<br>• Questionnaires on the occurrence of bruxism and other parafunctional habits.<br>• Assessment of nasal patency by checking for oral or nasal breathing.<br>• Evaluation of masticatory ability (unilateral or bilateral alternating chewing, speed and pain during chewing, tongue position).<br>• Analysis of five personality traits using the Big Five questionnaire: neuroticism, extroversion, openness to new experiences, conscientiousness, and agreeableness. | • High frequency of conscientiousness and elevated levels of neuroticism were observed in individuals with bruxism. |
| Serra-Negra JM et al. | 2013 | Cross - sectional study | Correlation Between Children's Responsibilities, Personality Traits, and Nocturnal Bruxism | 652 students | • Social Vulnerability Index (SVI) to assess the socioeconomic profile of the sample.<br>• Self-report questionnaire for parents regarding their children, covering:<br><br>Nocturnal teeth grinding,<br>Oral habits,<br>Medical history,<br>Responsibilities,<br>Socio-demographic information.<br>• Personality test for children (BFQ-C questionnaire based on the Five-Factor Model: neuroticism, openness, extroversion, responsibility/conscientiousness, and agreeableness). | • Sleep bruxism was observed in 35.3% of the children.<br>• No significant correlation was found between socially vulnerable groups and bruxism.<br>• Higher incidence was noted in children with divorced parents.<br>• There was no statistically significant difference between genders, although bruxism was more common in girls.<br>• Increased nervousness was linked to more household chores and bruxism.<br>• Bruxism was more frequent in children with nervousness and those who performed household chores. |
| Serra-Negra JM et al. | 2014 | Cross - sectional study | Investigation of the Potential Correlation Between Nocturnal Bruxism, Daytime Bruxism, and Sleep Quality Among Dental Students | 183 Dental students, aged 17-46 years | • Students from the 1st, 4th, and 9th semesters were evaluated.• They completed the PSQI (Pittsburgh Sleep Quality Index) questionnaire, which assesses sleep quality over the past 30 days, and answered two questions related to nocturnal bruxism.• The seven components of the PSQI include: sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction. | • Students with shorter sleep duration exhibited greater sleep-related dysfunctions.• A correlation was found between sleep quality and bruxism, both during sleep and while awake. |

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| Türkoğlu S et al. | 2014 | Cross - sectional study | Examination of Anxiety Levels, Depression, and Psychiatric Disorders in Children and Adolescents with Nocturnal Bruxism | 35 minors | • 35 children with nocturnal bruxism were evaluated.<br>• Exclusion criteria: physical or neurological illnesses and major psychiatric disorders.<br>• The Childhood Anxiety Sensitivity Index (CASI) was used, consisting of 20 multiple-choice questions to assess anxiety.<br>• Children's depression levels were recorded using the Children's Depression Inventory (CDI), based on their experiences over the past two weeks.<br>• Both children and parents were interviewed by a child psychiatrist to detect any previous psychological issues in the children. | • 42.9% of the patients exhibited at least one psychiatric disorder, compared to 17.1% in the control group.<br>• Both state and trait anxiety, anxiety sensitivity, and the severity of depressive symptoms were higher in the group with nocturnal bruxism.<br>• After multivariate analysis, only anxiety sensitivity remained significant. |
| Montero J and Gomez - Polo C | 2017 | Cross - sectional study | Correlation Between Psychological Factors (Personality and Dental Anxiety) and Self-Reported Bruxism | 526 adults | • Questionnaire regarding bruxism symptoms and awareness of the condition.<br>• Use of the MDAS (Modified Dental Anxiety Scale) for five typical dental procedures.<br>• Personality profile assessment with the NEO-FFI, covering traits such as neuroticism, extroversion, openness to experience, agreeableness, and conscientiousness. | • 35.9% of adults exhibited bruxism, with 20.2% primarily involving nocturnal bruxism.<br>• Bruxers showed higher levels of anxiety and greater fear of dental procedures.<br>• The likelihood of bruxism decreased with age but increased in individuals with traits such as neuroticism and extroversion.<br>• Smokers had a higher risk of bruxism, even after controlling for other stress-related factors. |
| Gomes MC et al. | 2017 | Cross - sectional study | Evaluation of the Impact of Oral Clinical Factors, Socioeconomic Factors, and Parental Emotional Awareness on the Self-Confidence of Preschool Children Due to Oral Health Problems | 769 Preschool children | • Questionnaire for parents regarding socio-demographic characteristics, using the Scale of Oral Health Outcomes for Five-Year-Old Children (SOHO-5):<br><br>Gender<br>Type of school (private or public)<br>Household monthly income<br>Mother's educational level<br>Guardians' age<br>Frequency of dental visits<br>Reason for visiting the dentist<br>Cause of toothache<br>• Clinical examination<br>• Detection of cavities, TMJ pain, and oral hygiene status<br>• Assessment of occlusion problems with the following conditions:<br><br>Increased vertical overbite (> 2 mm)<br>Increased horizontal overjet (> 2 mm)<br>Anterior open bite<br>Anterior crossbite<br>Posterior crossbite<br>• Diagnosis of nocturnal bruxism was based on reports from parents or caregivers regarding teeth grinding during sleep. | • Bruxism was recorded in 73.1% of the children.<br>• Significant differences were found in children's self-confidence based on their preschool age, mother's education level, dental visits, reasons for visits, dental pain, presence and severity of cavities, anterior open bite, and parental sense of responsibility.<br>• Children attending public preschools were more likely to experience self-confidence issues related to oral problems compared to those attending private preschools. |

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| Cruz-Fierro N et al. | 2018 | Literature review | Investigation of the Correlation Between Self-Reported Bruxism, Anxiety, and Neuroticism with the rs6313 Polymorphism of the HTR2A Gene. Examination of the Phenotype, Psychotype, and Genotype of Bruxism | Control group: 21 ♂ and 38 ♀, with a mean age of 32.62 yearsExperimental group: 31 ♂ and 81 ♀, with a mean age of 33.45 years | • DENTAL EVALUATION:Clinical diagnosis.Assessment of self-reported bruxism symptoms and those reported through the questionnaire.Data confirmed through individual interviews.• PSYCHOLOGICAL EVALUATION:The presence of anxiety signs and symptoms was assessed using the Beck Anxiety Inventory (BAI).Neuroticism traits were evaluated with the EPQR questionnaire.• GENOTYPE:Isolation of genomic DNA from a peripheral blood sample with EDTA.DNA treatment for 30 minutes at 37ºC to remove RNA residues.DNA quality and integrity were assessed using standard spectrophotometric and electrophoretic methods.The rs6313 alleles from the HTR2A gene were identified using TaqMan Assays-on-Demand and TaqMan Genotyping Master Mix.Procedures were conducted using real-time PCR. | • The questionnaire for self-reported bruxism showed high reliability, with a Cronbach's alpha coefficient of 0.869.• Correlation between bruxism and anxiety, as well as neuroticism.• Correlation between bruxism and the HTR2A gene, specifically with the rs6313 polymorphism.• Bruxism has a strong genetic basis, which is directly linked to psychological traits such as anxiety and neuroticism. |
| Marpaung C et al. | 2018 | Cross - sectional study | Assessment of the Epidemiology of Temporomandibular Disorders (TMD) Related to Pain and Sounds in the Temporomandibular Joint (TMJ) in a Group of Adolescents. Correlation of Psychological, Social, and Biological Risk Factors with TMJ Pain and Sounds | 4,285 students, aged 10-22 years | • Distribution of a questionnaire to students in Dutch schools for data collection.<br>• The questionnaire included 17 questions on: demographics, daytime bruxism, sleep, TMJ signs and symptoms, and psychosocial and behavioral factors.<br>• Most questions were derived from the Dutch translation of RDC/TMD and a questionnaire on oral hygiene habits.<br>• The questions focused on personal habits related to TMJ:<br><br>Social information: parental origin, educational level.<br>Psychological information: assessment of feelings of sadness.<br>Biological information: gender, teeth grinding (bruxism), and habits potentially related to bruxism. | Prevalence of TMJ pain: 21.6% overall (26.1% ♀, 17.6% ♂)<br>Prevalence of TMJ sounds: 15.5% overall (19.3% ♀, 11.7% ♂)<br><br>Strongest predictors of TMJ pain:<br>• Female gender<br>• Increasing age<br>• Nocturnal bruxism<br>• Biting of lips/cheeks<br>• Stress<br>• Feelings of sadness<br><br>Strongest predictors of TMJ sounds:<br>• Female gender<br>• Increasing age<br>• Daytime bruxism<br>• Biting of lips/cheeks |

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| Thetakala RK et al. | 2018 | Cross - sectional study | Determination of the Prevalence of Nocturnal Bruxism and Its Relationship with Oral Health-Related Quality of Life (OHRQoL) Among Inmates in a Correctional Facility | 212 male (♂) inmates, aged 18-80 years | • 1,198 male prisoners (650 convicted, 548 in custody).<br>• Information was collected using a closed-ended questionnaire.<br>• The first section included general information such as age, marital status, educational level, employment status before imprisonment, smoking habits, and duration of imprisonment.<br>• The second section assessed Oral Health-Related Quality of Life (OHRQoL), consisting of two elements related to bruxism in each of the seven domains of origin. The data pertained to the presence of functional or psychosocial impacts caused by dental and oral problems.<br>• The third section referred to events from the past six months and was completed through a personal interview with a researcher. | • The prevalence of nocturnal bruxism was 31.6% among prisoners.<br>• A statistically significant correlation was found between the duration of imprisonment and bruxism.<br>• Prisoners with bruxism had higher average scores on the Oral Health Impact Profile (OHIP-14) compared to those without bruxism. |
| Gouw S et al. | 2019 | Observational study | Investigation of the Potential Correlation Between Self-Reported Daytime Bruxism (AB) and Nocturnal Bruxism (SB) with Anger and Irritability | 55 adults with "probable Awake Bruxism (AB)" or "probable Sleep Bruxism (SB)" | • Use of a daily diary with Numeric Rating Scales (NRS) to assess:Living standardsAwake bruxism (AB) and sleep bruxism (SB)AnxietyStressAngerFrustrationConsumption of alcohol, cigarettes, and caffeine | • A strong correlation was found between bruxism, anger, and frustration, with a weaker correlation between anger and anxiety.• An increase of one unit in nocturnal bruxism was associated with a slight increase in anger (0.03 units) and frustration (0.04 units).• Sadness and smoking influenced nocturnal bruxism, while sadness and anxiety affected daytime bruxism. |

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| Scarpini S et al. | 2023 | Umbrella review | Synthesis of Available Evidence from Systematic Reviews on Factors Associated with and Treatment Approaches for the Clinical Management of Nocturnal Bruxism in Children | 6 reviews | • Databases used: MEDLINE/PubMed, Web of Science, Embase, OpenGrey.<br>• Systematic reviews (SRs) published on nocturnal bruxism in children were included.<br>• The AMSTAR-2 tool was used to evaluate the methodological quality.<br>• Information was analyzed regarding factors such as sleep conditions, respiratory changes, personality traits, and psychosocial parameters.<br>• Reviewed treatment approaches included psychological and pharmacological therapies, occlusal devices, physiotherapy, and surgical treatment. | • Nocturnal bruxism in children is challenging to assess and manage due to insufficient evidence on effective management strategies.<br>• Available documentation mainly addresses factors related to bruxism, such as sleep duration and quality. Factors like snoring, restless sleep, insomnia, sleep posture, room noise, and lighting can influence bruxism.<br>• There is no proven causal link between restless sleep and bruxism. Adopting healthy sleep habits does not appear to play a decisive role in eliminating bruxism.<br>• Bruxism has been associated with personality traits and psychosocial parameters, such as anxiety. However, systematic reviews indicate a high risk of bias and a lack of standardized criteria for evaluating these parameters.<br>• Although a connection between nocturnal bruxism and psychosocial factors is widely reported, there is no biological basis linking jaw movement directly to anxiety. Bruxism is more strongly associated with respiratory obstruction than with psychological factors like anxiety.<br>• There is a biological basis for the link between reduced oxygenation and nocturnal bruxism. Individuals with sleep apnea often exhibit jaw movement immediately after apnea episodes, suggesting a protective physiological response.<br>• There is insufficient evidence to support any specific treatment strategy. Reviews show that pharmacological therapies and other approaches, such as occlusal splints or psychological treatments, do not yield clear results, mainly due to the low quality of available studies. |

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| Osses-Anguita AE et al. | 2023 | Observational case-control study | Investigation of the Impact of the COVID-19 Pandemic on Bruxism in First-Year Dental Students, Along with the Study of Various Psychological Symptoms Associated with It | 274 first-year students :i) 2018-2019 (pre-pandemic group): 92 students (72 ♀, 20 ♂)ii) 2020-2021 (pandemic group): 91 students (71 ♀, 20 ♂)iii) 2021-2022 (post-pandemic group): 91 students | • Exclusion Criteria: Individuals were excluded if they abused alcohol, used drugs, antidepressants, anxiolytics, or opioids, were pregnant, or had a history of severe psychiatric disorders.• Location: Faculty of Dentistry, Complutense University of Madrid.• Bruxism Assessment:Questionnaire by Pintado et al. for sleep and awake bruxism.Questionnaire on jaw muscle tension/stiffness using a visual analog scale (0-10).• Psychological Assessment Tools:a) STAI: Measurement of state and trait anxiety.b) ST-DEP: Assessment of state and trait depression.c) BSI-18: Evaluation of depression, anxiety, and somatization.d) CRI-A: Assessment of stress-coping strategies (cognitive/behavioral and approach/avoidance).e) NEO-FFI: Measurement of five personality factors (neuroticism, extroversion, openness, agreeableness, and conscientiousness).• Statistical Analysis:a) Kruskal-Wallis $\chi^2$ test for group comparisons.b) Mann-Whitney and Wilcoxon tests for pairwise comparisons.c) Analysis conducted with SPSS 26 software.• Sample Size Calculation: Based on a conservative estimate of 11% prevalence of awake bruxism in the general population. | • Significant differences in the prevalence of daytime bruxism were observed between groups. The pandemic group (16.5%) had a lower prevalence compared to the pre-pandemic (39.1%) and post-pandemic (37.4%) groups.• The prevalence of nocturnal bruxism was higher in the pandemic group (47.2%) compared to the pre-pandemic (18.4%) and post-pandemic (30.7%) groups.• The post-pandemic group exhibited higher anxiety levels compared to the pandemic and pre-pandemic groups.• Higher levels of neuroticism, agreeableness, and positive adaptation were observed in the post-pandemic group compared to the pre-pandemic group.• Lower levels of depression and resignation/acceptance were found in the pre-pandemic group compared to the pandemic and post-pandemic groups.• No significant differences were observed on any psychological scale between individuals with daytime bruxism and non-bruxers.• A correlation between agreeableness (p = 0.05) and nocturnal bruxism was recorded, distinguishing individuals with nocturnal bruxism from non-bruxers. |
| TMJ: | temporomandibular joint | | | | | |

Fischer et al. [13] found no significant association between bruxism and sex. However, they noticed significant differences in Bruxists in relation to aspects of personality, such as extraversion, anxiety, "tough attitude", independence and the need for control.

In the research of Lúcia de Almeida Carvalho et al. [14], who studied 394 police officers in Brazil, 45.69% of participants experienced emotional anxiety, while 48.3% reported grinding their teeth during sleep. A significant association was found between emotional stress and bruxism, although no significant difference was found in the effect of type of work (office work or patrol) on the occurrence of bruxism.

Serra-Negra et al. [15] detected bruxism during sleep in 35.3% of children. Although the majority of children without bruxism belonged to socially vulnerable groups, i.e. groups with limited or no access to basic social and public goods, no significant correlation was found between social status and bruxism. In addition, the majority of children without bruxism lived with their parents, and a correlation was found between intense neuroticism and participation in housework with bruxism. The rate of bruxism was higher in children with a

high level of neuroticism and in those who participated in housework. And this research team found no association of bruxism with gender.

Sutin et al. [16] concluded that 22% of subjects developed bruxism during sleep, 67% were confirmed non-bruxists and for 11% no positive or negative result can be confirmed. People with emotional stability did not report bruxism, while those with high neuroticism scores showed a greater predisposition to bruxism.

Ahlberg et al. [17] found that anxiety and anxiety are directly related to the onset of bruxism. The associations between general anxiety, severe anxiety and bruxism were significant, with those who frequently experienced bruxism showing higher rates of anxiety, with Cortese et al. [18] observed a high incidence of conscientiousness and high levels of neuroticism in the group of children with bruxism.

Serra-Negra et al. [19] recorded sleep bruxism in 35% of their sample, with the largest proportion in socially vulnerable groups. However, no statistically significant correlation was found between social status and bruxism. In contrast, the study revealed an association of bruxism with neuroticism and an increased sense of responsibility. Specifically, children with a high level of neuroticism and an increased sense of responsibility were twice as likely to develop bruxism compared to children with lower levels of these two variables. However, no significant association between anxiety and bruxism was identified. The same research team [20] conducted a study on bruxism in 183 dental students at a Brazilian university. Students were divided into three groups according to their semester of study: 87.5% students of the 1st semester, 72.7% of the 4th semester and 90.3% of the 10th semester participated in the survey. The average sleep of the students was recorded at 6.8 hours, with the minimum being 4 hours. It was found that students in the last semester had higher rates of sleep-related dysfunctions, compared to those in the first half of the year. Sleep quality was associated with the two types of bruxism (nocturnal bruxism and daytime bruxism), while sleep disturbances were associated with bruxism.

Türkoğli et al. [21] identified at least one psychiatric disorder in 42.9% of patients with nocturnal bruxism and 17.1% of controls. They found that static and dynamic anxiety, sensitivity to anxiety, and severity of depression symptoms were higher in the nocturnal bruxism group.

Montero et al. [22] report that 35.9% of the adults studied developed bruxism, with 20.2% of them developing it during sleep. Bruxists had higher levels of anxiety and phobia about dental work. It was observed that the likelihood of developing bruxism decreases with increasing age and increases with the presence of features, such as neuroticism, extraversion and smoking.

The Gomes et al. [23] studied 769 preschool children and found that 73.1% had bruxism. They observed significant differences in children's self-confidence in relation to factors such as maternal schooling, dental

visits, dental health, and parents' sense of cohesion. Children attending public kindergartens were more likely to experience self-confidence problems due to oral problems, including bruxism, compared to children attending private kindergartens.

Cruz-Fierro et al. [24] examined the phenotype, psychotype and genotype of bruxism. This multidimensional approach (phenotype, psychotype, genotype) could help to better understand bruxism, both physically and psychologically, as well as the genetic factors that may influence it. The researchers found a weak correlation between neuroticism and self-reported bruxism ($r = 0.337$), as well as between anxiety and self-reported bruxism ($r = 0.393$). They also found that there is a significant genetic link between bruxism and specific gene polymorphisms associated with the serotonergic system, which affects mood and anxiety. One of the main findings was the association with the HTR2A gene, and more specifically with the rs6313 polymorphism. This polymorphism was found to be associated with nocturnal bruxism because of its role in regulating serotonin, which affects the response to stress and anxiety. In addition, other polymorphisms in serotonergic receptor genes, such as HTR1A, HTR2C and SLC6A4, which are linked to emotional regulation, were examined. These findings demonstrate the strong genetic basis of bruxism, which is directly linked to mental traits such as anxiety and neuroticism.

Marpaung et al. [25] found that 21.6% of the Dutch adolescents they studied experienced pain in CPD, while 15.5% experienced sounds related to CPD. The gender differences were evident, with girls showing higher rates of both pain and sounds in CPG, regardless of age. The researchers concluded that pain is influenced by factors such as gender (with women having increased rates), increasing age, bruxism during sleep, biting of the lips and/or cheeks, anxiety and sadness. On the other hand, sounds in CPG are directly related to anxiety and a person's sense of sadness, while also finding a high degree of affinity between pain and noise in CPG.

Thetakala et al. [26] studied a sample of prisoners in a prison and found that 31.6% of prisoners had active bruxism. They found a significant correlation between length of prison stay and prevalence of active bruxism, as well as between bruxism and poor oral health.

Gouw et al. [27] reported that bruxism is mainly associated with emotional states, such as anger and frustration, with a weaker association with anxiety. They found that an increase in nocturnal bruxism leads to an increase in anger and frustration, although measurements showed significant variations between individuals, suggesting a possible interaction of these emotions.

Scarpini et al. [28], in their umbrella review, evaluating the relevant reviews, conclude that nocturnal bruxism in children is difficult to assess and treat due to a lack of sufficient data on management strategies. Possible causative factors include sleep duration and quality, snoring, restless sleep, insomnia and noise during sleep.

No causal relationship between restless sleep and bruxism has been proven, and adopting healthy sleep habits does not appear to have a significant impact. Bruxism is associated with respiratory obstruction, and a decrease in oxygenation appears to have a biological link to the onset of bruxism. However, the researchers say there is insufficient evidence to support any treatment strategy. Pharmacological therapies and other approaches, such as dental splints and psychological therapies, do not seem to have a clear therapeutic effect. According to the research team, the available work evaluated shows a high degree of bias and better designed studies are required for the proper clinical management of bruxism.

Finally, the results of the study of Osses-Anguita et al. [29], show that the prevalence of nocturnal bruxism was significantly increased in the group of dental students during the COVID-19 pandemic, compared to groups of dental students before and after the pandemic. On the other hand, daily bruxism showed a smaller percentage in the pandemic group, but greater in the groups before and after the pandemic. Also, the post-pandemic group showed higher levels of neuroticism, politeness and positive adjustment than the pre-pandemic group, with the pandemic group having intermediate values. Regarding depression and coping strategies, both the pandemic and post-pandemic groups showed increased levels, compared to the pre-pandemic group. The post-pandemic group experienced the most pronounced psychological effects of the pandemic, with higher levels of anxiety, depression, acceptance/resignation strategies and neuroticism, as well as lower levels of kindness. The increase in positive adjustment in the team after the pandemic suggests possible signs of recovery. Finally, the increased prevalence of nocturnal bruxism in the pandemic group appears to be related to the effects of lockdown and passive stress, while increased roaring during wakefulness in pre- and post-pandemic groups may be related to daily social interactions and increased levels of anxiety.

## Discussion

The present study attempts to investigate the complex nature of bruxism, focusing on the correlation of the phenomenon with specific personality traits of patients. The findings demonstrate that bruxism is a multidimensional phenomenon closely related to emotional and psychological states, while the personalities of individuals play a decisive role in its manifestation.

The link between bruxism and anxiety is clear, with numerous studies confirming that people with bruxism experience high levels of anxiety and mental tension. The studies of Montero et al. [22] and Gomez-Polo et al. [23], as well as Ahlberg et al. [17], demonstrate that stress is a critical factor in the onset and severity of bruxism. Stress seems to influence the intensity of bruxism, reinforcing the need for strategies focused on stress management.

Neuroticism seems to be an equally important factor, as people with high levels of neuroticism show an increased predisposition to bruxism. Carvalho et al. [14] They argue that these individuals exhibit characteristics, such as introversion, irritability, pessimism and restlessness, which make up a mental vulnerability profile. These characteristics appear to be closely related to the onset of bruxism, particularly in people predisposed to anxiety and emotional lability. Although Fischer et al. [30] found no clear evidence of aggression in Bruxists, the profile of people with bruxism includes multiple elements of mental vulnerability. In children, the literature shows that bruxism is particularly prevalent and is often associated with neuroticism, conscientiousness and anxiety. Studies such as that of Serra-Negra et al. [15] highlight the influence of social and environmental factors, while Türkoğli et al. [21] point to susceptibility to stress as an important factor, despite the limited association with depression. In specific social groups, such as prisoners and police officers, research shows that social and occupational pressure plays a key role in the onset of bruxism. The findings of Thetakala et al. [26] and Carvalho et al. [14], show that psychological stress and professional pressure are associated with increased levels of bruxism.

Overall, the results of the study confirm that bruxism is a multifactorial phenomenon, influenced by psychological, emotional and social factors. Its close relationship with anxiety, neuroticism, and other emotional states, such as anger and frustration, highlights the need for a holistic approach to its management. However, questions remain open about individual differences and the systematic impact of each factor, highlighting the need for further research to better understand the phenomenon and develop effective prevention and intervention strategies, such as anger and frustration management.

## Conclusion

From the study of the literature it appears that bruxism is not just a parafunctional habit, but is closely related to various psychological, social, behavioral, factors, which fall within the general framework of "personality traits". The most important factors highlighted include neuroticism, anxiety and intense emotional states such as anger and frustration, while emotional stability seems to protect against bruxism.

For effective management of bruxism, an individualized and more comprehensive approach is recommended, which incorporates not only physical, but also psychological and emotional support of people with bruxism, taking into account their personality traits, in order to address the key causative factors. Understanding the multidimensional etiology of bruxism can help develop better prevention and intervention strategies, improving the quality of life of people affected by this disorder.

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