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## Increase in bruxism cases during COVID pandemic

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### Abstract

**Introduction:** Bruxism is currently a very common disorder in patients and there has been an increase in cases since COVID started. Studies and clinical cases have shown that different adverse effects occur as a result.

**Objective:** To provide information about bruxism during the pandemic. It also explains the adverse effects that occur with this disorder: attrition, prosthetic complications, and temporomandibular disorders.

**Methods:** An electronic article search was carried out through the PubMed and Mendeley databases, using the keywords: "bruxism", "COVID", "anxiety", Boolean operators were used as AND and OR.

**Results:** Since the pandemic generated psychological stress, more patients developed bruxism. One of the effects in patients with bruxism is attrition, which occurs due to the grinding and clenching of the teeth. As much force is exerted on the teeth to suffer from this disorder prosthetic treatments tend to present complications. Bruxism and temporomandibular disorders have a great relationship since one lead to the other, signs include facial pain, headache, muscle pain, among others.

**Conclusion:** The pandemic has caused an increase of the cases of patients with bruxism due to the stress generated, which has adverse effects such as attrition, prosthodontics complications and temporomandibular disorders. It is important to detect this disorder in the patients before it starts to damage dental health and to know how to manage the cases depending on the problems they have.

**Keywords:** COVID, bruxism, anxiety

### 1. Introduction

Bruxism is a repetitive activity of the masticatory muscles characterized by clenching or grinding teeth, or by strengthening or pushing the jaw <sup>[1]</sup>. It is nonfunctional activity of the dentomaxilar apparatus with repetitive and unconscious movements <sup>[2]</sup>.

There are two types of bruxism that can occur during the day with a awake patient and at night when sleeping. A study showed that the prevalence of bruxism in awake patients is 15.2% and in patients who sleep 32% <sup>[1]</sup>. Awake bruxism refers to clenching teeth and jaws during wakefulness. Sleep bruxism is defined as clenching or grinding of teeth during sleep <sup>[3]</sup>.

Different causes of bruxism have been studied, in adults some of them are stress, smoking, alcoholism, consumption of coffee, insomnia, anxiety <sup>[4]</sup>. Other psychosocial factors, such as depression and catastrophism, can influence on this disorder <sup>[5]</sup>.

In December 2019, coronavirus disease 2019 (COVID-19), began to spread worldwide <sup>[6]</sup>. The World Health Organization declared it as a pandemic and a public health emergency of international importance in March 2020.

COVID-19 has affected health and wellbeing globally. In addition to health, monetary, community, the psychological impacts of this pandemic are increasingly being reported in the scientific literature <sup>[7]</sup>. Bruxism is now a disorder that becomes more common with the presence of COVID.

With the emergence of COVID, people's common psychological responses to the pandemic included stress, concern, and sadness <sup>[6]</sup>. All of these can influence oral and maxillofacial syndromes, such as temporomandibular (TMD) and bruxism, which could further aggravate orofacial pain <sup>[8]</sup>.

Bruxism is one of the most commonly found conditions in patients and having an increase in cases since COVID started increase the importance to study and report on this disorder. The purpose of this review article is to share the information that has been investigated by far about bruxism. Its relationship with COVID and its adverse effects such as attrition, prosthodontics complications, TMD will be explained.

## 2. Methodology

A search was conducted by looking for published articles using the PubMed database and Mendeley. We reviewed summaries and full texts with information about bruxism, its relationship with COVID, and some of the adverse effects. The Boolean operators AND, NOT were used in the search. Keywords used for the search include: "bruxism", "consequences", "epidemiology", "teeth"

## 3. Results

### 3.1 Bruxism during COVID

As a consequence of the extensive quarantine conditions, which disrupted the standard of living, work, people has faced economic problems. All these conditions, which negatively affected human life, may have had psychological impacts<sup>[9]</sup>.

Psychosocial factors have been reported in the etiology of TMD and it has been suggested that psychological stress is a predisposing factor for these<sup>[10]</sup>. Most of the healthcare professionals such as doctors, nurses were affected, and a study demonstrated the relation between the prevalence of physical symptoms and psychological effects in healthcare workers during the COVID-19 outbreak<sup>[11]</sup>. Somatic and stress symptoms as well as sleep apnea are more prevalent among medical staff than workers in other professions<sup>[12]</sup>.

According to a survey made in China the prevalence of anxiety, depression, and sleep quality of the people were 35.1%, 20.1%, and 18.2%, respectively. Younger people reported a significantly higher prevalence of these symptoms than older people<sup>[13]</sup>.

It is concluded that the COVID-19 pandemic increased the number of population with masticatory muscle pain<sup>[14]</sup>. According to a review there is a high prevalence of severe-to-moderate somatization and depression in patients with temporomandibular disorder<sup>[15]</sup>. Screening for depression and anxiety should be considered in the diagnosis of patients with or facial pain attributed to a TMD<sup>[16]</sup>.

COVID has brought a lot of stress to the population in general, due to the changes in life that we used to have, problems with the economy, work, among others. Many people lost their job, some companies went bankrupt, lots of families lost members and healthcare workers saw patients dying day by day. This is something that affects people psychologically in different ways, one of the problems that it causes is bruxism, which leads those who suffer it to present different adverse effects.

### 3.2 Attrition

Dental attrition is caused by teeth contact forming wear facets upon enamel<sup>[17]</sup>. As a result of COVID, there has been rise of patients who present characteristics of dental wear, due to the grinding and clenching of the jaw. Studies have shown increasing levels of bruxism and TMD in those with an aggravated psych emotional state<sup>[18]</sup>.

Although the presence of dental wear helps us to identify patients with bruxism with a current history of grinding the teeth, we can't base a diagnosis on this<sup>[19]</sup>. We can't measure

the severity of bruxism by attrition, it is necessary to review other factors to give a good diagnosis<sup>[20]</sup>. Muscle activity while sleeping is something that reflects if there is tooth attrition and the risk of TMD<sup>[21]</sup>.

Conducting an inspection, searching for early signs of dental wear and drawing up a detailed anamnesis can play a key role in establishing a patient's risk of bruxism and dental fracture. Having diagnosed several patients who come with pain with dental fractures, the frequency of this disorder has also been increasingly seen in dental practices<sup>[22]</sup>.

The main consequences of bruxism are headaches and dental wear<sup>[23]</sup>. Dental wear is a multifactorial condition, leading to the loss of dental hard tissues, enamel, and dentin<sup>[24]</sup>. Detecting dental wear is important because it helps us to identify if a patient has bruxism<sup>[25]</sup>. The polysomnographic register can be used to see the incidence of teeth grinding<sup>[26]</sup>. A study found that 8.2% of the participants reported teeth grinding and therefore had consequences that required dental treatment<sup>[27]</sup>. To analyze the behavior of the masticatory muscles, electromyography (EMG) has been widely used and the studies have emanated from many different paradigms<sup>[28]</sup>. Bruxist patients have been associated with 4 clinical signs: dental wear, abfractions and damage in occlusal fossa<sup>[29]</sup>. It has been observed that there is more wear on the cusps than in the central fossa of the teeth<sup>[30]</sup>.

One of the adverse effects of bruxism is attrition. However, not all patients with attrition suffer from bruxism. That is why it is important to make a good diagnosis, that is, to analyze several factors to determine assertively what the patient suffers. There are some tests that can help us to differentiate such as the polysomnography (sleep study). Bruxism and attrition go hand in hand, it is important to provide sufferers with solutions to avoid excessive wear of their teeth.

### 3.3 Prosthetic Complications

Bruxism can act as a high risk factor for several negative health effects, such as pain of the masticatory muscles, damage of the oral mucosa, dental wear and failure of prosthetic treatments<sup>[18]</sup>.

This disorder is a risk factor for mechanical problems when placing dental implants<sup>[31]</sup>. Generating excessive occlusal force can lead to implant failure, therefore, it is important to detect bruxism prior to treatment and give proper treatment as guards or inject botulinum toxin<sup>[32]</sup>. Talking with the patient, effective electromyographic records and cautious selection of predictor variables are important factors for the successful performance of a longitudinal clinical study on the association between sleep bruxism and peri-implant complications<sup>[33]</sup>.

Bruxist patients exert a lot of force that can cause damage in prosthodontic treatments such as restorations, resins, prostheses, implants, etc. That is why it is important to detect if the patient has this disorder prior to performing treatments to select the right way and material to restore it, and provide information, care and sometimes treatment such as occlusal guards to prevent deterioration of rehabilitation.

### 3.4 Temporomandibular Disorders

Studies have shown the relationship between bruxism and TMD<sup>[34]</sup>. A significant association has been reported between masticatory muscle pain, depression and anxiety<sup>[35]</sup>. The socio-economic and psychological factors have been associated with prevalence and severity of TMD<sup>[36]</sup>. The relationship between or facial pain and elevated levels of stress could also be explained by its connection with parafunctions of the masticatory system<sup>[34]</sup>. Psychological

distress and widespread pain are significant determinants in perceived temporomandibular pain and bruxism<sup>[37]</sup>.

TMD are neuromuscular and musculoskeletal disorders that affect the jaw and muscles of mastication causing pain<sup>[38]</sup>. Common symptoms include facial pain, migraine, pain and tenderness in the masticatory muscles, reduced jaw mobility, and pain and sounds in temporomandibular joint<sup>[39]</sup>. The number of clinicians using botulinum toxin as a treatment for has increased. In one study they found that after one month of follow-up after applying botulinum toxin, the self-perceived pain in myofascial TMD patients was reduced, pressure pain threshold was enhanced and electromyographic evaluations decreased<sup>[40]</sup>.

There is a strong relationship between TMD and bruxism. Patients with often show pain. Treating these disorders is extremely important to avoid problems and discomfort in those who present it. Usually a guard is indicated, depending on the case. One of the treatments that has been most used today is the application of botulinum toxin, which when applied relaxes the muscles and this gives patients a rest and removes pain. The effect of this treatment is temporary, it has to be done every certain period of time.

#### 4. Conclusions

Bruxism if a form of the body to release the stress. There has now been an increase in the number of cases suffering from bruxism because the arrival of COVID caused a lot of psychological problems worldwide. Patients suffering from bruxism tend to have various adverse effects such as attrition, deterioration in prosthodontics treatments and temporomandibular disorders. That is why it is important to detect when someone has it to prevent the presence of these effects and if they have already occurred, fix it. The psychological part is very important because even if dentists put a lot of effort in the treatment, managing the effects of bruxism in the mouth and taking care after finishing with dental guards or splints, at the end of the patients are not able to manage their emotions the problem will be there, dental treatments help the patients with appearance and function but they don't disappear bruxism. The patients with bruxism need to look for a way to release stress such as practicing an activity that relaxes them or depending on the level some require help from a psychologist or psychiatrist.

#### Conflict of Interest

Not available

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#### References

- Flueraşu MI, Boçşan IC, Țig IA, Iacob SM, Popa D, Buduru S. The Epidemiology of Bruxism in Relation to Psychological Factors. *Int J Environ Res Public Health*. 2022 Jan 8;19(2):691.
- Barbosa TS, 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;72:299-314.
- Berger M, Szalewski L, Szkutnik J, Ginszt M, Ginszt A. Different association between specific manifestations of bruxism and temporomandibular disorder pain. *Neurol. Neurochir. Pol*. 2017;51:7-11
- Kuhn M, Türp JC. Risk factors for bruxism. *Swiss Dent J*. 2018 Feb 12;128(2):118-124
- De Leeuw R, Klasser GD. Diagnóstico diferencial y manejo de TMD. En: De Leeuw R, Klasser GD, Editores. *Dolor orofacial: Pautas para la evaluación, el diagnóstico y el tratamiento/Academia Estadounidense del dolor orofacial*. 6ª ed. Quintaesencia Publishing Co. Inc.; Hanover Park, Alemania; c2018. p. 143-207.
- Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, *et al*. Immediate Psychological Responses and Associated Factors during the Initial Stage of the 2019 Coronavirus Disease (COVID-19) Epidemic among the General Population in China. *Int. J Environ Res Public Health*. 2020 Mar 6;17(5):1729.
- Hossain MM, Tasnim S, Sultana A, Faizah F, Mazumder H, Zou L, *et al*. Epidemiology of mental health problems in COVID-19: a review. *F1000Res*. 2020 Jun 23;9:636.
- Almeida-Leite CM, Stuginski-Barbosa J, Conti PCR. How psychosocial and economic impacts of COVID-19 pandemic can interfere on bruxism and temporomandibular disorders? *J Appl Oral Sci*. 2020;28:e20200263.
- Wu Y, Xiong X, Fang X, Sun W, Yi Y, Liu J, *et al*. Psychological status of TMD patients, orthodontic patients and the general population during the COVID-19 pandemic. *Psychol Health Med*. 2021 Jan;26(1):62-74.
- Bayat M, Abbasi AJ, Noorbala AA, Mohebbi SZ, Moharrami M, Yekaninejad MS. Oral health-related quality of life in patients with temporomandibular disorders: A case-control study considering psychological aspects. *Int J Dent Hyg*. 2018 Feb;16(1):165-170.
- Chew NWS, Lee GKH, Tan BYQ, Jing M, Goh Y, Ngiam NJH, *et al*. A multinational, multicentre study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19 outbreak. *Brain Behav Immun*. 2020 Aug;88:559-565.
- Maciaszek J, Ciulkowicz M, Misiak B, Szczesniak D, Luc D, Wiczorek T, *et al*. Mental Health of Medical and Non-Medical Professionals during the Peak of the COVID-19 Pandemic: A Cross-Sectional Nationwide Study. *J Clin Med*. 2020 Aug 5;9(8):2527.
- Huang Y, Zhao N. Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 outbreak in China: A web-based cross-sectional survey. *Psychiatry Res*. 2020 Jun;288:112954.
- Arifagaoglu O, Koseoglu Secgin C, Yuzugullu B. Effect of the COVID-19 pandemic on anxiety in patients with masticatory muscle pain. *J Prosthet Dent*. 2021 Sep 21:S0022-3913(21)00490-X.
- De La Torre Canales G, Câmara-Souza MB, Muñoz Lora VRM, Guarda-Nardini L, Conti PCR, Rodrigues Garcia RM, *et al*. Prevalence of psychosocial impairment in temporomandibular disorder patients: A systematic review. *J Oral Rehabil*. 2018 Nov;45(11):881-889.
- Simoen L, Van den Berghe L, Jacquet W, Marks L. Depression and anxiety levels in patients with temporomandibular disorders: Comparison with the general population. *Clin Oral Investig*. 2020 Nov;24(11):3939-3945.
- Sperber GH. Dental Wear: Attrition, Erosion, and Abrasion - A Palaeo-Odontological Approach. *Dent J (Basel)*. 2017 Jun 17;5(2):19
- Emodi-Perlman A, Eli I, Smardz J, *et al*. Trastornos temporomandibulares y brote de bruxismo como posible factor de empeoramiento del dolor orofacial durante la pandemia de COVID-19: investigación concomitante en dos países. *J Clin Med*. 2020;9:3250.

19. Emodi Perlman A, Lobbezoo F, Zar A, Friedman Rubin P, Van Selms MK, Winocur E. Self-Reported bruxism and associated factors in Israeli adolescents. *J Oral Rehabil.* 2016 Jun;43(6):443-50.
20. Kapagiannidou D, Koutris M, Wetselaar P, Visscher CM, Van der Zaag J, Lobbezoo F. Association between polysomnographic parameters of sleep bruxism and attrition-type tooth wear. *J Oral Rehabil.* 2021 Jun;48(6):687-691.
21. Zeng X, Wang Y, Dong Q, Ma MX, Liu Q, Tan JG. [Study on the correlation between the mandibular masticatory muscle movement and sleep tooth wear]. *Hua Xi Kou Qiang Yi Xue Za Zhi.* 2020 Feb 1;38(1):54-58. Chinese.
22. Dadnam D, Dadnam C, Al-Saffar H. Pandemic bruxism. *Br Dent J.* 2021 Mar;230(5):271.
23. 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 Jan;40(1):2-4.
24. Wetselaar P, Lobbezoo F. The tooth wear evaluation system: A modular clinical guideline for the diagnosis and management planning of worn dentitions. *J Oral Rehabil.* 2016 Jan;43(1):69-80.
25. Abe S, Yamaguchi T, Rompré PH, De Grandmont P, Chen YJ, Lavigne GJ. Tooth wear in young subjects: a discriminator between sleep bruxers and controls? *Int J Prosthodont.* 2009 Jul-Aug;22(4):342-50.
26. Smardz J, Martynowicz H, Wojakowska A, Michalek-Zrabkowska M, Mazur G, Wieckiewicz M. Correlation between Sleep Bruxism, Stress, and Depression-A Polysomnographic Study. *J Clin Med.* 2019 Aug 29;8(9):1344.
27. Khoury S, Carra MC, Huynh N, Montplaisir J, Lavigne GJ. Sleep Bruxism-Tooth Grinding Prevalence, Characteristics and Familial Aggregation: A Large Cross-Sectional Survey and Polysomnographic Validation. *Sleep.* 2016 Nov 1;39(11):2049-2056.
28. Dahlström L. Electromyography studies of craniomandibular disorders: a review of the literature. *J Oral Rehabil.* 1989 Jan;16(1):1-20.
29. Ohayon MM, Li KK, Guilleminault C. Risk factors for sleep bruxism in the general population. *Chest.* 2001 Jan;119(1):53-61.
30. Tsigos N, Tortopidis D, Hatzikyriakos A, Menexes G. Association between self-reported bruxism activity and occurrence of dental attrition, abfraction, and occlusal pits on natural teeth. *J Prosthet Dent.* 2008 Jul;100(1):41-6.
31. Manfredini D, Poggio CE, Lobbezoo F. Is bruxism a risk factor for dental implants? A systematic review of the literature. *Clin Implant Dent Relat Res.* 2014 Jun;16(3):460-9.
32. Song JY. Implant complications in bruxism patients. *J Korean Assoc Oral Maxillofac Surg.* 2021 Apr 30;47(2):149-150.
33. Thymi M, Visscher CM, Wismeijer D, Lobbezoo F. Associations between sleep bruxism and (peri-) implant complications: lessons learned from a clinical study. *BDJ Open.* 2020 Jan 30;6:2.
34. Manfredini D, Lobbezoo F. Relationship between bruxism and temporomandibular disorders: a systematic review of literature from 1998 to 2008. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 2010 Jun;109(6):e26-50.
35. Patel J, Cardoso JA, Mehta S. A systematic review of botulinum toxin in the management of patients with temporomandibular disorders and bruxism. *Br Dent J.* 2019 May;226(9):667-672.
36. Boscato N, Almeida RC, Koller CD, Presta AA, Goettems ML. Influence of anxiety on temporomandibular disorders: An epidemiological survey with elders and adults in Southern Brazil. *J Oral Rehabil.* 2013 Sep;40(9):643-9.
37. Huhtela OS, Nääpänkangas R, Suominen AL, Karppinen J, Kunttu K, Sipilä K. Association of psychological distress and widespread pain with symptoms of temporomandibular disorders and self-reported bruxism in students. *Clin Exp Dent Res.* 2021 Dec;7(6):1154-1166.
38. Sitnikova V, Kämppi A, Teronen O, Kempainen P. Comprehensive evaluation of botulinum toxin treatment outcomes of a patient with persistent myofascial orofacial pain. *Clin Case Rep.* 2021 Aug 30;9(9):e04731.
39. Dahlström L, Carlsson GE. Temporomandibular disorders and oral health-related quality of life. A systematic review. *Acta Odontol Scand.* 2010 Mar;68(2):80-5.
40. DE LA Torre Canales G, Câmara-Souza MB, Poluha RL, Grillo CM, Conti PCR, Sousa MDLR, *et al.* Botulinum toxin type A and acupuncture for masticatory myofascial pain: A randomized clinical trial. *J Appl Oral Sci.* 2021 Jun 4;29:e20201035.

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