

# Stress: The Silent Damage to your Teeth

Raainah Khan Marwat

1st Year BDS, Islamabad Medical and Dental College, Islamabad, Pakistan

## Key points:

- Introduction
- Bruxism
- Temporomandibular Joint Disorders (TMDs)
- Treatment and Control
- Conclusion

## Introduction

Evidence has shown that psychological stress correlates strongly to poor oral health and its deterioration. These everyday stresses can cause problems like bleeding gums or continuous pain in the mouth with a negative perception by the individual regarding oral health. Stress can weaken the immune response and increase jaw muscle tension, which can cause teeth grinding (bruxism) or jaw disorders (TMDs). It was found that stress's impact on oral wellbeing usually becomes more noticeable as we grow older. Therefore, it shows that stress management is not only important for mental well being but it also plays a crucial role in preventing dental problems. In light of that, aspiring dentists must realize that stress should be considered and included in the diagnosis and treatment plan for these disorders.<sup>1</sup>

## Bruxism

Bruxism is a common medical condition in which the clenching or grinding of your teeth by the thrusting of the mandible takes place, either during sleep (sleep bruxism) or while awake (awake bruxism). Bruxism can often induces headaches, temporomandibular joint (TMJ) pain, masticatory muscle pain, mechanical tooth wear, prosthodontic complications and cracked teeth. This article is intended to present the pathophysiology, consequences, types and treatment methods of

bruxism. Concerning the causative factors, we include stress, oral parafunctions, as well as changes that occur in the Central Nervous System (CNS).<sup>2</sup>

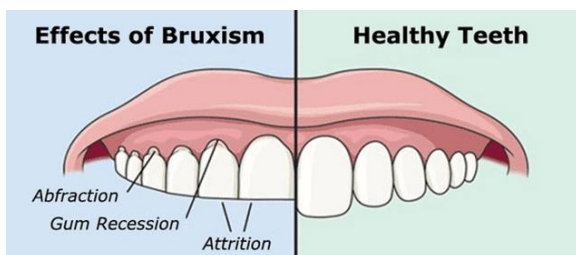
Bruxism is a non-functional involuntary muscle activity which happens to affect more than one third of the total population at some time in their lives. Many factors have been identified to comprise the etiopathogenesis of bruxism and has therefore been considered multifactorial. Among the most accepted causes is stress. Long-standing reasoning suggests that it causes increased muscle tension and lowered pain threshold. Presently, data suggests that exposure to chronic stress, distress, as well as allostatic load may propel neurological degeneration and weaken critical neuronal pathways highly implicated in orofacial involuntary muscle activity. These morphological and functional changes to nerves and neuronal tracts, provide information that needs to be taken under consideration for successful treatments. Bruxism can also affect the central nervous system. It may activate the hypothalamic-pituitary-adrenal (HPA) axis, which leads to higher levels of stress hormones like cortisol in the saliva and corticosterone in the blood. This stress response can make bruxism worse over time.<sup>3</sup>



**Figure 1:** *Clinical presentation of bruxism.*<sup>7</sup>

### Temporomandibular Joint Disorders (TMDs)

These are common conditions that affect the jaw joint and can cause pain and discomfort. The necessary diagnosis of TMD may be done by using DC/TMD (Diagnostic Criteria for Temporomandibular Disorders). Patients may report symptoms including pain in the joint, inability to open and close the mouth, clicking sounds, and tenderness in the jaw muscle areas. Factors leading to this include anxiety and bruxism which are related to the development or aggravation of symptoms of TMD. Most importantly, bruxism while sleeping exerts forces onto the muscles and joints, resulting in damage or pain. Among TMDs, disc displacement with reduction and local myalgia is more often encountered. In disc displacement, the cushioning disc in the joint moves out of its normal position but returns when the mouth is opened. Myalgia refers to muscle pain, especially in jaw muscles. Among research reports, high academic year students are more likely to be affected and that both bruxism and anxiety reported strong associations with TMD symptoms.<sup>4</sup>



**Figure 2:** *The effects of bruxism.*<sup>8</sup>

### Treatment and Control

There is still not enough data to define and support a standardised approach to its treatment. Remote first-aid treatment for patients suffering from orofacial pain varies from self-massage of painful and tense areas, stretching, thermotherapy, drug therapy, relaxation techniques, meditation, and mindfulness-simple applications that can be administered via mobile or the Internet. Ethical and legal implications have to be taken into consideration in the remote modes of triage, diagnosis, and treatment of patients with chronic orofacial pain. Other treatment plans include:

1. Oral appliance therapy (OAT), which may involve the use of many different styles of stabilization splints to protect the teeth and minimize grinding.
2. Cognitive-behavioral treatment (CBT); in this context, it focuses primarily on changing negative thoughts, which, in turn, become an image for behavior-any thoughts for the stress and any experiences related to it.
3. Biofeedback therapy (BFT) focuses on the patient's ability to actually be able to control his/her jaw muscle activity via feedback from the devices that monitor it.

The results showed that oral appliances might reduce the frequency of bruxism episodes but are not superior to other types of splints. There was limited evidence to support the effectiveness of CBT. BFT and some drugs were shown to reduce selected signs of bruxism but presented side effects.<sup>5</sup>

### Conclusion

In conclusion, stress can seriously harm oral health by causing bruxism, which wears down teeth, affects the jaw, and creates a cycle of more stress and damage. Recognizing and managing stress is important for protecting the teeth and overall well-being.<sup>6</sup>

## References

1. Hensel AL, Goma N. Social and economic capital as effect modifiers of the association between psychosocial stress and oral health. *PLoS One*. 2023 May 18;18(5):e0286006.
2. Matusz K, Maciejewska-Szaniec Z, Gredes T, Pobudek-Radzikowska M, Glapiński M, Górna N, Przyszańska A. Common therapeutic approaches in sleep and awake bruxism—an overview. *Neurologia i neurochirurgia polska*. 2022;56(6):455-63.
3. Spandidos DA, Zoumpourlis V, Papakosta VK. Neurobiology of bruxism: The impact of stress. *Biomedical Reports*. 2024;20(4).
4. Homeida L, Felemban E, Kassab W, Ameen M, Aldahlawi S. Temporomandibular joints disorders (TMDs) prevalence and their relation to anxiety in dental students. *F1000Research*. 2022 Apr 27;11:271.
5. Emodi-Perlman A, Eli I. One year into the COVID-19 pandemic—temporomandibular disorders and bruxism: What we have learned and what we can do to improve our manner of treatment. *Dental and Medical Problems*. 2021;58(2):215-8.
6. Minakuchi H, Fujisawa M, Abe Y, Iida T, Oki K, Okura K, Tanabe N, Nishiyama A. Managements of sleep bruxism in adult: A systematic review. *Japanese Dental Science Review*. 2022 Nov 1;58:124-36.
7. <https://moladental.com/bruxism-and-teeth-grinding/>
8. <https://royalimplant.com/blogs/what-is-bruxism-and-does-it-affect-oral-health/>