



Editorial

Temporomandibular Disorders Related Pain among Sleep & Awake Bruxers: A Comparison among Sexes and Age

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According to the current international consensus [1], bruxism should be divided into two circadian manifestations as awake bruxism (AB), which is “a masticatory muscle activity during wakefulness characterised by repetitive or sustained tooth contact and/or by bracing or thrusting of the mandible and is not a movement disorder in otherwise healthy individuals”, and sleep bruxism (SB), which is “a masticatory muscle activity during sleep that is characterised as rhythmic (phasic) or non-rhythmic (tonic) and is not a movement disorder or a sleep disorder in otherwise healthy individuals”. Bruxism is currently considered as a behavior and not as a parafunction or disorder in otherwise healthy individuals. It is a very complex phenomenon of central origin [2,3] that can affect the sleep structure [4], and can occur alone or with comorbidities such as obstructive sleep apnea (OSA), gastroesophageal reflux disease, insomnia, headache, orofacial pain, periodic limb movement, rapid eye movement behavior disorder, sleep epilepsy, anxiety disorders and depression [5–7].

Temporomandibular disorders (TMD) can be defined as a set of clinical problems involving the masticatory muscles, the temporomandibular joints, and related structures, and is related to alterations in the structure, function, or physiology of the masticatory system and may be associated with other systematic and comorbid medical conditions [8]. TMD is not a single disorder, rather it is the umbrella term that covers 37 entities in accordance with the taxonomy of Diagnostic Criteria for Temporomandibular Disorders (DC/TMD) [9]. Part of temporomandibular disorders are painful conditions that may co-occur with AB and SB [10–16].

Therefore, we encourage reading the important and novel articles published in this Special Issue, entitled “Temporomandibular Disorders Related Pain among Sleep & Awake Bruxers: A Comparison among Sexes and Age”. The articles are related, but not limited, to: the assessment of SB intensity in tobacco smokers and alcohol drinkers, assessment of masticatory muscle electromyographic (EMG) activity in both children diagnosed with pain-related TMD and AB and in children without TMD, symptoms of sleep masticatory muscle activity among women and their association to OSA, assessment of the effect of the current COVID-19 pandemic on the prevalence of bruxism, oral parafuncions and painful TMD among dental patients and to evaluate the influence of the pandemic on both sexes, testing the association between a single observation point self-report and ecological momentary assessment (EMA) of AB, cardiovascular implications of SB, and others. It is worth noting that readers can probably find, for the first time in the literature, research about the prevalence of TMD and bruxism among sex workers [17].

Conflicts of Interest: The authors declare no conflict of interest.



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References

1. Lobbezoo, F.; Ahlberg, J.; Raphael, K.G.; Wetselaar, P.; Glaros, A.G.; Kato, T.; Santiago, V.; Winocur, E.; De Laat, A.; De Leeuw, R.; et al. International consensus on the assessment of bruxism: Report of a work in progress. *J. Oral Rehabil.* **2018**, *45*, 837–844. [[CrossRef](#)] [[PubMed](#)]
2. Smardz, J.; Martynowicz, H.; Wojakowska, A.; Wezgowiec, J.; Danel, D.; Mazur, G.; Wieckiewicz, M. Lower serotonin levels in severe sleep bruxism and its association with sleep, heart rate, and body mass index. *J. Oral Rehabil.* **2022**, *49*, 422–429. [[CrossRef](#)] [[PubMed](#)]
3. Wieckiewicz, M.; Bogunia-Kubik, K.; Mazur, G.; Danel, D.; Smardz, J.; Wojakowska, A.; Poreba, R.; Dratwa, M.; Chaszczewska-Markowska, M.; Winocur, E.; et al. Genetic basis of sleep bruxism and sleep apnea-response to a medical puzzle. *Sci. Rep.* **2020**, *10*, 7497. [[CrossRef](#)] [[PubMed](#)]
4. Wieczorek, T.; Wieckiewicz, M.; Smardz, J.; Wojakowska, A.; Michalek-Zrabkowska, M.; Mazur, G.; Martynowicz, H. Sleep structure in sleep bruxism: A polysomnographic study including bruxism activity phenotypes across sleep stages. *J. Sleep Res.* **2020**, *29*, e13028. [[CrossRef](#)] [[PubMed](#)]
5. Lavigne, G.; Kato, T.; Herrero Babiloni, A.; Huynh, N.; Dal Fabbro, C.; Svensson, P.; Aarab, G.; Ahlberg, J.; Baba, K.; Carra, M.C.; et al. Research routes on improved sleep bruxism metrics: Toward a standardised approach. *J. Sleep Res.* **2021**, *30*, e13320. [[CrossRef](#)] [[PubMed](#)]
6. Rofaeel, M.; Chow, J.C.; Cioffi, I. The intensity of awake bruxism episodes is increased in individuals with high trait anxiety. *Clin. Oral. Investig.* **2021**, *25*, 3197–3206. [[CrossRef](#)] [[PubMed](#)]
7. Emadi-Perlman, A.; Manfredini, D.; Shalev, T.; Bracci, A.; Frideman-Rubin, P.; Eli, I. Psychosocial and Behavioral Factors in Awake Bruxism-Self-Report versus Ecological Momentary Assessment. *J. Clin. Med.* **2021**, *10*, 4447. [[CrossRef](#)] [[PubMed](#)]
8. National Academies of Sciences, Engineering, and Medicine; Health and Medicine Division; Board on Health Care Services; Board on Health Sciences Policy; Committee on Temporomandibular Disorders (TMDs): From Research Discoveries to Clinical Treatment. Chapter 2: Definitions and Scope: What are TMDs? In *Temporomandibular Disorders: Priorities for Research and Care*; Yost, O., Liverman, C.T., English, R., Mackey, S., Bond, E.C., Eds.; National Academies Press: Washington, DC, USA, 2020; p. 32.
9. Peck, C.C.; Goulet, J.P.; Lobbezoo, F.; Schiffman, E.L.; Alstergren, P.; Anderson, G.C.; de Leeuw, R.; Jensen, R.; Michelotti, A.; Ohrbach, R.; et al. Expanding the taxonomy of the diagnostic criteria for temporomandibular disorders. *J. Oral Rehabil.* **2014**, *41*, 2–23. [[CrossRef](#)] [[PubMed](#)]
10. Slade, G.D.; Ohrbach, R.; Greenspan, J.D.; Fillingim, R.B.; Bair, E.; Sanders, A.E.; Dubner, R.; Diatchenko, L.; Meloto, C.B.; Smith, S.; et al. Painful Temporomandibular Disorder: Decade of Discovery from OPPERA Studies. *J. Dent. Res.* **2016**, *95*, 1084–1092. [[CrossRef](#)] [[PubMed](#)]
11. Wieckiewicz, M.; Jenca, A., Jr.; Seweryn, P.; Orzeszek, S.; Petrasova, A.; Grychowska, N.; Winocur-Arias, O.; Emadi-Perlman, A.; Kujawa, K. Determination of pain intensity, pain-related disability, anxiety, depression, and perceived stress in Polish adults with temporomandibular disorders: A prospective cohort study. *Front. Integr. Neurosci.* **2022**, *16*, 1026781. [[CrossRef](#)] [[PubMed](#)]
12. Wieckiewicz, M.; Smardz, J.; Martynowicz, H.; Wojakowska, A.; Mazur, G.; Winocur, E. Distribution of temporomandibular disorders among sleep bruxers and non-bruxers—A polysomnographic study. *J. Oral Rehabil.* **2020**, *47*, 820–826. [[CrossRef](#)] [[PubMed](#)]
13. Silva, T.B.; Ortiz, F.R.; Maracci, L.M.; Silva, G.B.P.; Salbego, R.S.; Liedke, G.S.; Marquezan, M. Association among headache, temporomandibular disorder, and awake bruxism: A cross-sectional study. *Headache* **2022**, *62*, 748–754. [[CrossRef](#)] [[PubMed](#)]
14. Cigdem Karacay, B.; Sahbaz, T. Investigation of the relationship between probable sleep bruxism, awake bruxism and temporomandibular disorders using the Diagnostic Criteria for Temporomandibular Disorders (DC/TMD). *Dent. Med. Probl.* **2023**; *ahead of print*. [[CrossRef](#)]
15. Knibbe, W.; Lobbezoo, F.; Voorenendonk, E.M.; Visscher, C.M.; de Jongh, A. Prevalence of painful temporomandibular disorders, awake bruxism and sleep bruxism among patients with severe post-traumatic stress disorder. *J. Oral Rehabil.* **2022**, *49*, 1031–1040. [[CrossRef](#)] [[PubMed](#)]
16. Melo, G.; Duarte, J.; Pauletto, P.; Porporatti, A.L.; Stuginski-Barbosa, J.; Winocur, E.; Flores-Mir, C.; De Luca Canto, G. Bruxism: An umbrella review of systematic reviews. *J. Oral Rehabil.* **2019**, *46*, 666–690. [[CrossRef](#)] [[PubMed](#)]
17. Eli, I.; Zigler-Garburg, A.; Winocur, E.; Friedman-Rubin, P.; Shalev-Antsel, T.; Levartovsky, S.; Emadi-Perlman, A. Temporomandibular Disorders and Bruxism among Sex Workers-A Cross Sectional Study. *J. Clin. Med.* **2022**, *11*, 6622. [[CrossRef](#)] [[PubMed](#)]

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