

# Exploring the Link between Sleep Quality and Temporomandibular Disorders

Alexandru Vlasa

**Keywords:** Sleep quality, Temporomandibular disorders, Temporomandibular joint.

*The Journal of Contemporary Dental Practice* (2024): 10.5005/jp-journals-10024-3647

Sleep quality plays a crucial role in maintaining overall health and well-being. In recent years, researchers have been increasingly investigating the intricate relationship between sleep and various health conditions, including temporomandibular disorders (TMD).<sup>1</sup>

Temporomandibular disorders encompass a range of conditions affecting the temporomandibular joint (TMJ) and surrounding muscles. Temporomandibular disorders can manifest as pain, restricted jaw movement, and other related symptoms. Sleep quality, on the other hand, is a multifaceted aspect of overall health that involves various physiological and psychological processes.<sup>2,3</sup> This article seeks to elucidate the intricate interplay between sleep quality and TMD.

Recent research suggests a bidirectional relationship between sleep quality and TMD. Disrupted sleep patterns, such as insomnia or sleep apnea, may contribute to the development or exacerbation of TMD symptoms. Conversely, individuals with TMD may experience compromised sleep quality due to pain and discomfort associated with the disorder.<sup>4-10</sup>

One proposed mechanism linking sleep quality and TMD involves muscle tension and bruxism (teeth grinding). Poor sleep may contribute to increased muscle tension in the jaw and face, potentially exacerbating TMD symptoms.

Sleep disturbances can impact the central nervous system, influencing pain perception and modulation. Altered pain sensitivity may contribute to the development or persistence of TMD symptoms.<sup>11</sup>

Understanding the relationship between sleep quality and TMD has important clinical implications. Healthcare providers should consider assessing sleep patterns in individuals with TMD symptoms, and vice versa. Comprehensive treatment strategies that address both sleep quality and TMD may yield more effective outcomes.<sup>12-18</sup>

Clinicians face challenges in accurately diagnosing and treating the complex interplay between sleep quality and TMD. Standardized assessment tools, including polysomnography and validated TMD questionnaires, can aid in the comprehensive evaluation of patients presenting with these interconnected concerns.<sup>19-21</sup>

Management strategies should encompass a multidisciplinary approach. Cognitive-behavioral therapy for insomnia, relaxation techniques, and interventions targeting bruxism may be beneficial. Collaboration between sleep medicine specialists and dental professionals is essential for optimizing patient care.

Despite progress in understanding the relationship between sleep quality and TMD, many questions remain unanswered. Future research should explore the long-term impact of sleep interventions

Department of Periodontology and Oral-Dental Diagnosis, Faculty of Dental Medicine George Emil Palade University of Medicine, Pharmacy, Sciences and Technology of Targu Mures, Romania

**Corresponding Author:** Alexandru Vlasa, Department of Periodontology and Oral-Dental Diagnosis, Faculty of Dental Medicine George Emil Palade University of Medicine, Pharmacy, Sciences and Technology of Targu Mures, Romania, e-mail: alexandru.vlasa@umfst.ro

**How to cite this article:** Vlasa A. Exploring the Link between Sleep Quality and Temporomandibular Disorders. *J Contemp Dent Pract* 2024;25(4):293–294.

**Source of support:** Nil

**Conflict of interest:** None

on TMD outcomes, further elucidate the underlying mechanisms, and identify potential biomarkers for risk assessment.<sup>22,23</sup>

In conclusion, the association between sleep quality and TMD is a complex and evolving area of research. Recognizing the bidirectional relationship and understanding the underlying mechanisms are crucial for improving diagnostic accuracy and developing effective treatment strategies. Collaborative efforts between researchers, clinicians, and healthcare professionals are essential to advance our understanding of this intricate interplay and enhance patient care.

## REFERENCES

1. Foss VB, Maddie N, Frankini EL, et al. COVID-19 fatigue: Diagnosis and treatment for the osteopathic physician. *Osteopathic Family Physician* 2023;15(1):12–19. DOI: 10.33181/13090.
2. Kim HK, Kim ME. Principal component analysis of the biopsychosocial features relevant to temporomandibular disorders. *Oral Dis* 2023;29(7):2917–2927. DOI: 10.1111/odi.14463.
3. Tuncer A, Kastal E, Tuncer AH, et al. The effect of sleep hygiene and physiotherapy on bruxism, sleep, and oral habits in children with sleep bruxism during the COVID-19 pandemic. *J Back Musculoskeletal Rehabil* 2023;36(5):1047–1059. DOI: 10.3233/BMR-220235.
4. Chen H, Cornick C, Norman GJ, et al. Triad multisystem phenotype with high risk for developing temporomandibular disorders-Characteristics and potential pathophysiology results from the Orofacial Pain: Prospective Evaluation and Risk Assessment dataset. *Pain* 2023;164(5):1027–1038. DOI: 10.1097/j.pain.0000000000002797.
5. Rosales Leal JI, Sánchez Vaca C, Ryaboshapka A, et al. How confinement and back to normal affected the well-being and thus sleep, headaches and temporomandibular disorders. *Int J Environ Res Public Health* 2023;20(3):2340. DOI: 10.3390/ijerph20032340.

6. Minervini G, Franco R, Marrapodi MM, et al. Prevalence of temporomandibular disorders (TMD) in obesity patients: A systematic review and meta-analysis. *J Oral Rehabil* 2023;50(12):1544–1553. DOI: 10.1111/joor.13573.
7. Minervini G, Franco R, Marrapodi MM, et al. Post-traumatic stress, prevalence of temporomandibular disorders in war veterans: Systematic review with meta-analysis. *J Oral Rehabil* 2023;50(10): 1101–1109. DOI: 10.1111/joor.13535.
8. Minervini G, Franco R, Marrapodi MM, et al. Children oral health and parents education status: A cross sectional study. *BMC Oral Health* 2023;23(1):787. DOI: 10.1186/s12903-023-03424-x.
9. Minervini G, Franco R, Marrapodi MM, et al. The association between parent education level, oral health, and oral-related sleep disturbance. An observational crosssectional study. *Eur J Paediatr Dent* 2023;24(3):218–223. DOI: 10.23804/ejpd.2023.1910.
10. Almeida LE, Cicciù M, Doetzer A, et al. Mandibular condylar hyperplasia and its correlation with vascular endothelial growth factor. *J Oral Rehabil* 2023;50(9):845–851. DOI: 10.1111/joor.13487.
11. Ganem A, Rossouw PE, Michelogiannakis D, et al. Antinociceptive efficacy of shamanic healing for the management of temporomandibular disorders: An evidence-based review. *J Relig Health* 2023. DOI: 10.1007/s10943-023-01844-1.
12. Kim EH, Shin SH, Byun SW, et al. Exploring the origins of decreased sound tolerance in tinnitus patients. *Front Neurol* 2023;14:1273705. DOI: 10.3389/fneur.2023.1273705.
13. Elstad E, Bocell FD, Owens TC, et al. Focus groups to inform the development of a patient-reported outcome measure (PROM) for temporomandibular joint disorders (TMDs). *Patient* 2023;16(3): 265–276. DOI: 10.1007/s40271-023-00618-x.
14. Kim Y, Son C, Park YK, et al. Sleep duration and inflammatory mediator levels associated with long-term prognosis in temporomandibular disorders. *J Oral Rehabil* 2023;50(9):830–839. DOI: 10.1111/joor.13494.
15. Di Stasio D, Romano A, Paparella RS, et al. How social media meet patients questions: YouTube review for mouth sores in children. *J Biol Regul Homeost Agents* 2018;32(2 Suppl. 1):117–121. PMID: 29460528.
16. Tortora C, Di Paola A, Argenziano M, et al. Effects of CB2 receptor modulation on macrophage polarization in pediatric celiac disease. *Biomedicines* 2022;10(4):874. DOI: 10.3390/biomedicines10040874.
17. Marrapodi MM, Mascolo A, di Mauro G, et al. The safety of blinatumomab in pediatric patients with acute lymphoblastic leukemia: A systematic review and meta-analysis. *Front Pediatr* 2022;10:929122. DOI: 10.3389/fped.2022.929122.
18. Rossi F, Tortora C, Paoletta M, et al. Osteoporosis in childhood cancer survivors: Physiopathology, prevention, therapy and future perspectives. *Cancers (Basel)* 2022;14(18):4349. DOI: 10.3390/cancers14184349.
19. Poluha RL, De la Torre Canales G, Ferreira DM, et al. Catastrophizing and hypervigilance influence subjective sleep quality in painful TMD patients. *J Oral Facial Pain Headache* 2023;37(1):49–55. DOI: 10.11607/ofph.3269.
20. Uzunçibuk H, Marrapodi MM, Meto A, et al. Prevalence of temporomandibular disorders in clear aligner patients using orthodontic intermaxillary elastics assessed with diagnostic criteria for temporomandibular disorders (DC/TMD) axis II evaluation: A cross-sectional study. *J Oral Rehabil* 2024;51(3):500–509. DOI: 10.1111/joor.13614.
21. Minervini G, Franco R, Marrapodi MM, et al. Conservative treatment of temporomandibular joint condylar fractures: A systematic review conducted according to PRISMA guidelines and the Cochrane Handbook for Systematic Reviews of Interventions. *J Oral Rehabil* 2023;50(9):886–893. DOI: 10.1111/joor.13497.
22. Yap AU, Lei J, Liu C, et al. Comparison of painful temporomandibular disorders, psychological characteristics, sleep quality, and oral health-related quality of life of patients seeking care before and during the Covid-19 pandemic. *BMC Oral Health* 2023;23:438. DOI: 10.1186/s12903-023-03158-w.
23. Zieliński G, Matysik-Woźniak A, Baszczowski M, et al. Myopia & painful muscle form of temporomandibular disorders: Connections between vision, masticatory and cervical muscles activity and sensitivity and sleep quality. *Sci Rep* 2023;13:20231. DOI: 10.1038/s41598-023-47550-6.