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Association between temporomandibular disorders and headache severity: a systematic review

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Introduction
Headache is a highly prevalent disorder classified as either primary (idiopathic) or secondary (caused by another condition). Furthermore, temporomandibular disorders (TMD) involve the temporomandibular joint and associated structures, representing the second most common musculoskeletal disorder associated with pain and disability. In this context, headache emerges as one of the most prevalent symptoms in TMD patients, since both conditions affect the same nociceptive system and utilize trigeminocervical structures involved in central pain modulation.

Objective
To evaluate the association between TMD and headache severity.

Methods
A systematic review of randomized clinical trials and observational studies was conducted, in accordance with de Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, structured according to the PICO strategy, considering: population (patients with headache), intervention/exposure (presence of TMD), comparison (patients without TMD), and outcomes (headache severity). Furthermore, a literature search was performed in the PubMed/MEDLINE, Lilacs/BVS and Cochrane Library databases through the combination of the following descriptors: "Temporomandibular Joint Disorders" AND "headache", resulting in 3.086 articles identified. The eligibility criteria included studies whose content was pertinent to the research theme, published within the last five years, and available in full text. A total of 11 articles were selected for final analysis.

Results
In accordance with the studies conducted, a significant and bidirectional association between TMD and headache severity was identified. TMD was associated with increased headache intensity and frequency, affecting 97.6% of patients. A monthly frequency of ≥1 day was reported by 62.6% of individuals, and 8.5% experienced episodes on more than 15 days. The lack of a direct association between these conditions and age or gender was evident. Notably, one study specifically aimed to assess the prevalence and type of TMD in pediatric patients due to headache, in which the latter was reported as a major complaint in 55% of cases, suggesting that this relationship extends to younger groups. TMD was also analyzed as a possible trigger factor for the manifestation of tension-type headache, as well as a predictor of it becoming chronic. In parallel, TMD was identified in 25% of headache patients, with a higher incidence observed among those with migraine compared to other primary headache diagnoses. Moreover, interventions targeting tension-type headache produced significant improvements in TMD scores, with statistical analysis showing meaningful benefits across all intervention groups (F=5.1, p=0.03), reinforcing their bidirectional association and suggesting that treating one condition may influence the other.

Conclusion
A significant and bidirectional association between TMD and headache severity highlights the need of multidisciplinary management of individuals when both conditions coexist.

Keywords:
Temporomandibular joint disorders
Headache
Comorbidities

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