



## EBD spotlight: Is bruxism associated with temporomandibular joint disorders?



**Manas  
Dave<sup>1</sup>**  
reflects on  
topics in  
our sister

journal *Evidence-Based  
Dentistry*.

**I**s bruxism associated with temporomandibular joint disorders? A systematic review and meta-analysis was published in *Evidence-Based Dentistry* in 2023.<sup>1</sup>

### Background

Temporomandibular disorders (TMD) is a collective term for a group of musculoskeletal conditions that cause pain and/or dysfunction in the TMJ and/or its associated structures. TMD is the most common type of non-odontogenic orofacial pain<sup>2</sup> affecting 22–30% of the population, commonly between the ages of 20–40 years.<sup>1</sup> The aetiology of TMD is considered multifactorial, related to biological, psychological, social and environmental factors. Bruxism is defined as repetitive jaw-muscle activity characterised by clenching or grinding of the teeth and/or bracing or thrusting of the mandible with two distinct circadian manifestations; either occurring during sleep (sleep bruxism) or

### Author information

<sup>1</sup>Dr Manas Dave qualified from the University of Manchester with degrees in pathology and dentistry. He undertook postgraduate training in Newcastle and Middlesbrough before returning to Manchester where he is an NIHR Academic Clinical Fellow in Oral and Maxillofacial Pathology and Honorary Lecturer in Dentistry. Manas has achieved postgraduate qualifications in Medical Education, Dental Public Health and Pathology Informatics. He has published extensively across numerous journals including the *BMJ*, *Lancet* and *BDJ*, has extensive teaching experience of both undergraduate and postgraduate students and is a recipient of numerous personal and research awards.

during wakefulness (awake bruxism).<sup>3</sup>

Some studies show a positive correlation between bruxism and TMD however others have reported conflicting results. Therefore, the aim of this systematic review was to investigate the relationship between bruxism and TMD.

**Methods**

An electronic database search of PubMed, Web of Science, Scopus, Cochrane, Wiley, ProQuest and Embase was conducted for studies until March 2022. Additionally, the grey literature was searched (Google Scholar and Open Grey). Only studies in English that were cross-sectional, case control and cohort (prospective and retrospective) that evaluated the association between bruxism and TMD were included. Risk of bias was assessed using the Newcastle-Ottawa Scale and odds ratio (OR) extracted to quantify the risk of TMD. For studies where an OR was not calculated, the index was calculated based on the data provided in the primary studies.

patients for patients with awake bruxism compared to without sleep bruxism

- A publication bias (using Begg’s test and Egger’s test) was indicated in this meta-analysis.

**Conclusions**

The authors concluded: ‘...bruxism is positively related to TMDs; the presence of bruxism increases the risk of developing TMDs in the future...’

**Commentary**

This systematic review and meta-analysis confirmed the authors’ pre-study questions; that is, to determine if bruxism is positively associated with TMD. The authors have shown this association in both cohort and case-control studies with awake bruxism associated with a higher probability of TMD compared to sleep bruxism. Clinicians should actively check clinical signs and enquire about bruxism in their patients to ensure steps for mitigation can

**BDJ Team**

Quality CPD for UK DCPs



Stay up-to-date!  
10 hours of FREE verifiable CPD

Check out:  
BDJ Team CPD 2023



go.nature.com/  
TeamCPD23



*‘Clinicians should actively check clinical signs and enquire about bruxism in their patients to ensure steps for mitigation can be introduced early to reduce the risk of developing TMD.’*

**Results**

- Twenty studies were included (11 cross-sectional and nine case-control) that had been conducted in Europe, North America, South America and Asia
- In 18 studies, TMD was determined by the Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD) whilst two studies used the Diagnostic Criteria for Temporomandibular Disorders (DC/TMD). A self-reported method was used in 15 studies and a clinical evaluation used in five studies
- Any type of bruxism was found to be a risk factor for TMD (OR = 2.42, 95% CI: 2.01–2.82)
- There was a significant association between sleep bruxism and TMD (OR = 2.12, 95% CI: 1.81–2.43). The results indicate a higher probability (OR = 2.72) of TMD

be introduced early to reduce the risk of developing TMD.

**References**

1. Mortazavi N, Tabatabaei A H, Mohammadi M, Rajabi A. Is bruxism associated with temporomandibular joint disorders? A systematic review and meta-analysis. *Evid Based Dent* 2023; doi: 10.1038/s41432-023-00911-6.
2. Kapos F P, Exposto F G, Oyarzo J F, Durham J. Temporomandibular disorders: a review of current concepts in aetiology, diagnosis and management. *Oral Surg* 2020; **13**: 321–334.
3. Lobbezoo F, Ahlberg J, Glaros A G *et al*. Bruxism defined and graded: an international consensus. *J Oral Rehabil* 2013; **40**: 2–4.

<https://doi.org/10.1038/s41407-023-2020-1>