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COMMENTARY

Look at the elephant! Commentary on 'Prevalence of temporomandibular disorders in adult obstructive sleep apnoea patients: A cross-sectional controlled study'

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Abstract

The relationship between obstructive sleep apnoea (OSA) and temporomandibular disorders (TMDs) is complex. Research has shown controversial evidence. The recent study by Bartolucci et al. titled 'Prevalence of temporomandibular disorders in adult obstructive sleep apnoea patients: A cross-sectional controlled study' reported no clear associations between the two conditions. However, it does not take into account the occlusal and mandibular features of the patients, which may justify the hypothetical coexistence of OSA and TMD in a subset of cases. In this letter, we discuss these aspects and possible biases that could have impaired the results.

KEYWORDS
malocclusion, OSAS, temporomandibular disorder, temporomandibular joint

Dear Editor,

We read with great interest the publication by Dr. Bartolucci et al. titled 'Prevalence of temporomandibular disorders in adult obstructive sleep apnoea patients: A cross-sectional controlled study'.[1] We acknowledge the efforts of the authors to address a controversial issue such as temporomandibular disorders (TMDs) in this special population. We also congratulate the colleagues on the attempt to provide a matched control group.

However, we fear that speaking of TMDs and obstructive sleep apnoea (OSA), the elephant in the room could have been overlooked: dental malocclusion and mandibular malposition as risk factors for both conditions. We are also concerned about some methodological issues that could have undermined the results and misled the conclusions.

Malocclusion and mandibular misalignment are claimed to be potential risk factors for both TMDs and OSA.

Unfavourable dental and mandibular positions, especially the deep bite and mandibular retrusion, contribute to nocturnal airway collapse. Oral appliances constitute a proven effective treatment in these cases.[2]

Dentists and stomatologists have historically regarded malocclusion as a predisposing factor for TMDs. This traditional view has been recently criticised by Manfredini et al: in their 2017 systematic revision of the literature they show contrasting results, concluding that there is not enough strong evidence to support this theory.[3] However, carefully scanning their paper, they actually cite plenty of case–control studies asserting an association between TMDs and malocclusion, particularly with a deep bite.[3]

In the light of that, we assume that malocclusion and mandibular misposition could produce a hypothetical co-presence of OSA and TMDs in the same population: instead of speculating direct causation of sleep disorders on the latter, malocclusion with mandibular misalignment may act as an underlying independent risk factor for both conditions, firstly predisposing to OSA or snoring and secondarily to a TMD, in case of coexistent psychosocial determinants, oral parafunction and after a sufficient period of time.

To strengthen our point, a dysfunctional temporomandibular joint has recently been reconsidered as a potential worsening factor of recurrent acute otitis media, otitis media with effusion, and Menière's disease, which in turn have been associated with OSA.[4,5] Noticeably, both Menière's disease and otitis media in its recurrent acute and effusive forms could benefit from treatment with oral appliances, as OSA and TMDs do after a thorough patient selection and a correct design of the devices.

Some final methodological considerations. The Body Mass Index (BMI) of the study group is significantly higher than the BMI of the controls. A recent work by Luzzi et al ascertains a greater effect of the BMI over occlusal parameters on OSA severity.[2] Moreover, the control group consists of simple snorers, a benign condition that could be associated with a retruded bite even before a TMD has become evident. Both these aspects represent important confounders since in the study group OSA could have been caused or worsened by overweight or obesity and parapharyngeal fat, and not by a retrognathic bite, while the simple snorers in the control group could hide a considerable percentage of malocclusion traits. These selection biases could have impaired the endpoints.

Due to these reasons, we think that the occlusal and mandibular features of the patients represent a crucial missing aspect in this work and should have been included to draw more robust conclusions. Also, a more precise selection of patients could have revealed clearer results.

AUTHOR CONTRIBUTIONS

Vincenzo Capriotti was involved in conceptualization, writing—original draft, writing—reviewing and editing; Massimiliano Nardone was involved in supervision, writing—reviewing and editing; Edoardo Bernkopf was involved in supervision, writing—original draft, writing—reviewing and editing.

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DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

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REFERENCES

1. Bartolucci ML, Bortolotti F, Pelligra I, et al. Prevalence of temporomandibular disorders in adult obstructive sleep apnoea patients: a cross-sectional controlled study. *J Oral Rehabil*. 2023;50:318-323. doi:10.1111/joor.13419
2. Luzzi V, Altieri F, Di Carlo G, et al. OSAS severity and occlusal parameters: a prospective study among adult subjects with comorbidities. *Int J Environ Res Public Health*. 2022;19:5517. doi:10.3390/ijerph19095517
3. Manfredini D, Lombardo L, Siciliani G. Temporomandibular disorders and dental occlusion. A systematic review of association studies: end of an era? *J Oral Rehabil*. 2017;44:908-923. doi:10.1111/joor.12531
4. Bernkopf E, Capriotti V, Bernkopf G, et al. Oral splint therapy in patients with Menière's disease and temporomandibular disorder: a long-term, controlled study. *Eur Arch Otorhinolaryngol*. 2023;280:1169-1182. doi:10.1007/s00405-022-07604-3
5. Bernkopf E, Cristalli G, de Vincentiis GC, Bernkopf G, Capriotti V. Temporomandibular joint and otitis media: a narrative review of implications in etiopathogenesis and treatment. *Medicina (Mex)*. 2022;58:1806. doi:10.3390/medicina58121806

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