

BACKGROUND

Temporomandibular disorders (TMDs) are a common cause of non-odontogenic orofacial pain in children and adolescents and can affect essential functions such as chewing and speaking.

While associations between TMD and psychological or systemic conditions are well established in adults, **evidence in pediatric populations remains limited.**

This study aimed to **evaluate the prevalence of TMD-related symptoms and their association with psychological and systemic comorbidities in a large pediatric population.**

METHODS & MATERIAL

Study Design: Cross-sectional study using de-identified data from the BigMouth dental repository (January 2014 – May 2025).

Inclusion Criteria:

- ✓ Pediatric patients (5-17 years of age)
- ✓ Available data collected during patient intake on presence of TMD signs and symptoms
- ✓ Absence of congenital syndromes and cancer diagnoses

Outcomes:

Demographics	TMD signs and symptoms*	Comorbidities**
<input type="checkbox"/> Sex (females, males) <input type="checkbox"/> Age (children 5-9 years vs. adolescents 10-17 years)	<input type="checkbox"/> TMJ noises ("Popping, clicking, or other noises from the jaw") <input type="checkbox"/> TMJ locking ("Locking of the jaw") <input type="checkbox"/> Parafunctional habits ("Clenching, bruxing, grinding") <input type="checkbox"/> Jaw pain ("Difficulty and/or pain upon chewing, talking, or using the jaw")	<input type="checkbox"/> Psychological (self-reported anxiety, depression) <input type="checkbox"/> Systemic (sleep apnea, GI conditions, migraine, headache)

* From electronic dental record intake forms
 ** From checklist of conditions in the medical history intake form

POSITIVE ANSWER -> "Painful TMD"
 NEGATIVE ANSWER -> "Non-painful TMD"

Statistical Analysis:

- ✓ Sex- and age-based differences in TMD signs and symptoms were analyzed with Pearson's chi-square tests.
- ✓ *Painful TMD vs. non-painful TMD* groups were compared in prevalence of psychological and systemic comorbidities with Pearson's chi-square tests.
- ✓ Multivariable logistic regression analysis was conducted to identify factors associated with painful TMD.

RESULTS

Participants: A total of 13,678 patients aged 5–17 years were included in the study (Fig 1).

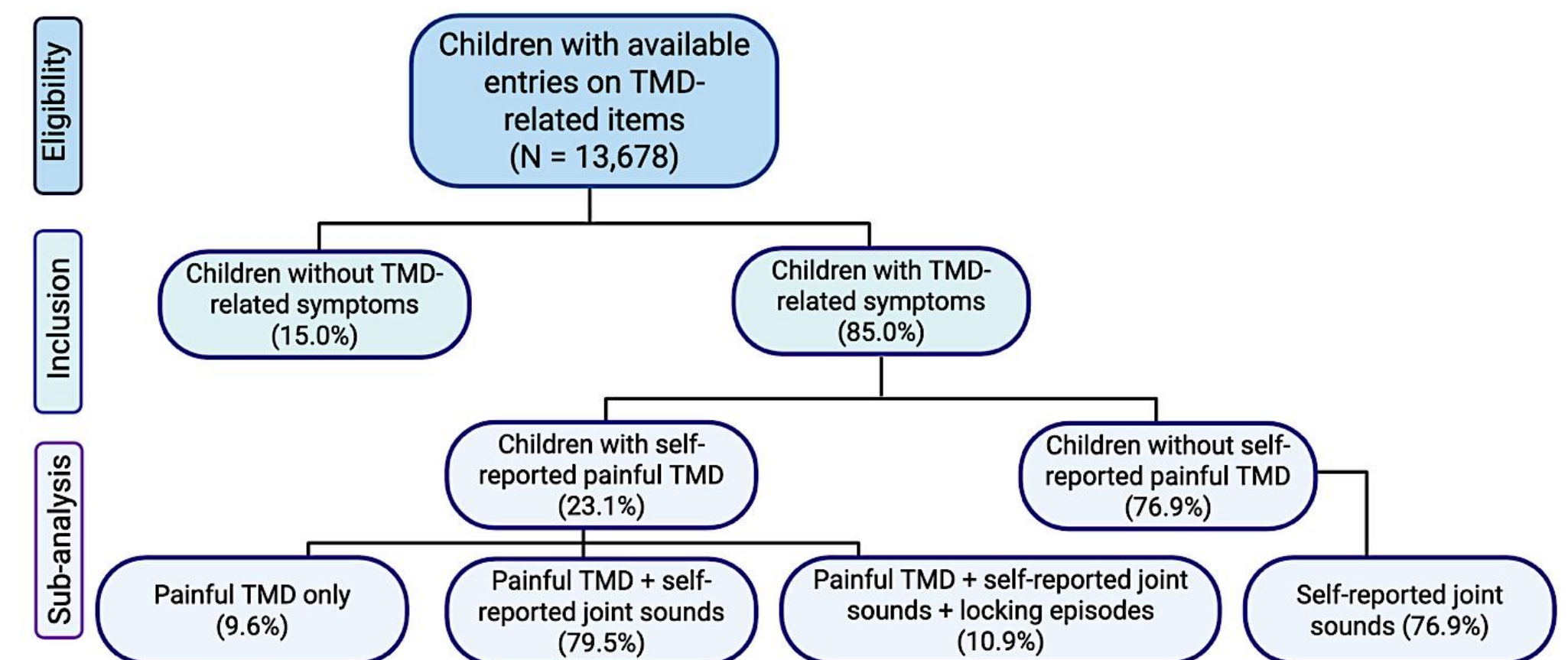


Fig 1. Participant flowchart.

Prevalence and Symptoms Distribution

The most common TMD-related symptoms were teeth grinding (13.1%), temporomandibular joint noises (8.2%), pain on chewing (4.0%), and jaw locking episodes (1.1%).

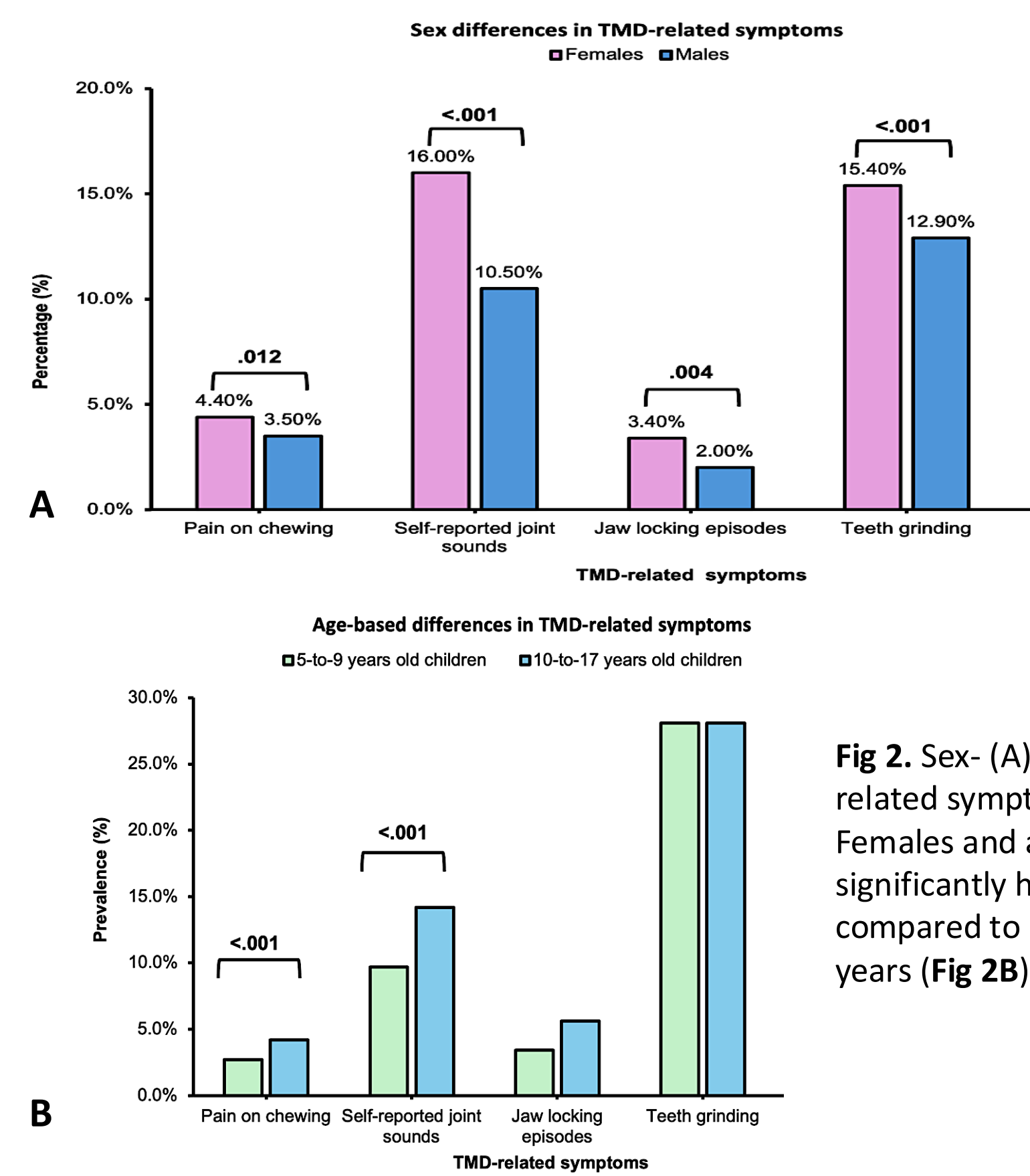


Fig 2. Sex- (A) and age-based (B) differences in TMD-related symptoms. Females and adolescents aged 10-17 years had significantly higher prevalence of painful TMD compared to males (Fig 2A) and children aged 5-9 years (Fig 2B), respectively.

Associated Comorbidities

Children and adolescents with painful TMD showed higher prevalence of headache, depression, anxiety, and sleep apnea compared to those without painful TMD (Fig 3). Psychological comorbidity was the strongest factor associated with painful TMD (OR = 2.37, 95% CI 1.76, 3.19).

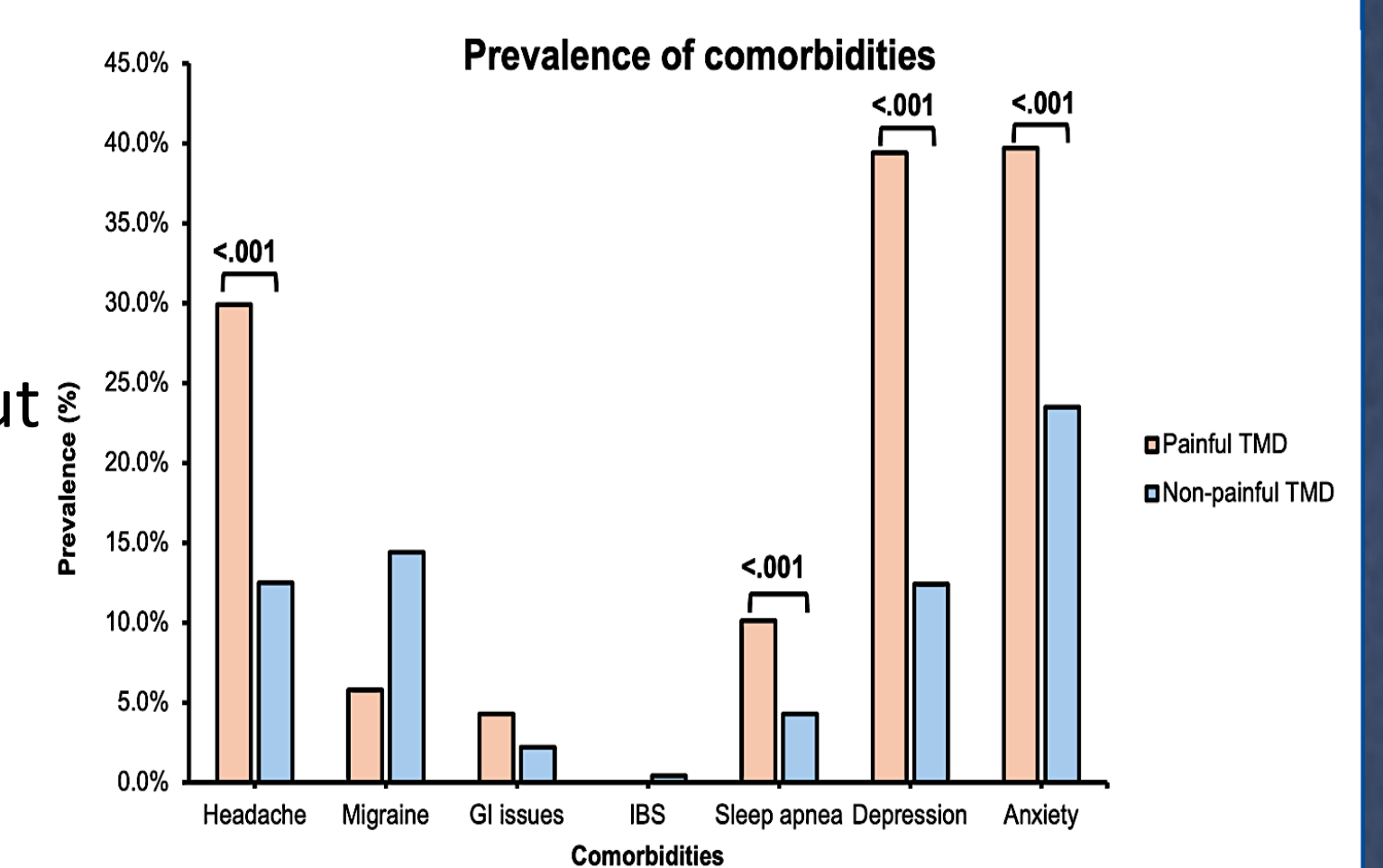


Fig 3. Difference in psychological and systemic comorbidities between pediatric patients with and without painful TMD.

CONCLUSIONS

- ✓ TMD-related symptoms are more prevalent in females and increase with age.
- ✓ Painful TMD is strongly associated with psychological (e.g., depression and anxiety) and systemic comorbidities (e.g., headache and sleep apnea).
- ✓ These findings highlight that pediatric TMD is not solely a mechanical condition and underscore the need for early screening and multidisciplinary management.

REFERENCES

1. Nilsson IM, List T. Does adolescent self-reported TMD pain persist into early adulthood? A longitudinal study. *Acta Odontol Scand.* 2020;78(5):377-383.
2. Schiffman E, Ohrbach R, Truelove E, et al. Diagnostic Criteria for Temporomandibular Disorders (DC/TMD) for Clinical and Research Applications: recommendations of the International RDC/TMD Consortium Network and Orofacial Pain Special Interest Group. *J Oral Facial Pain Headache.* 2014;28(1):6-27.
3. Fillingim RB, Ohrbach R, Greenspan JD, et al. Psychological factors associated with development of TMD: the OPPERA prospective cohort study. *J Pain.* 2013;14(12 Suppl):T75-T90.