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Predictors of short-term response to multimodal treatment in individuals with temporomandibular disorders

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Introduction
Physiotherapy is a safe, simple, and potentially beneficial intervention for individuals with temporomandibular disorders (TMD). Nevertheless, understanding the characteristics of patients who respond best to this treatment is crucial. Exploring these predictive factors allows for more targeted, effective interventions for each individual, with significant implications for clinical outcomes and cost-effectiveness in practice.

Objective
To identify predictive factors of short-term response for craniofacial disability to multimodal treatment including manual therapy, therapeutic exercise and pain education for individuals with TMD.

Methods
A prospective cohort of 105 participants with TMD assessed at baseline and after 6 weeks. Treatment response was defined as a reduction >-5.3 points in the Craniofacial Pain and Disability Inventory (CF-PDI). Predictors were analyzed using elastic net regression followed by multivariable logistic regression. Its performance was assessed considering the explained variance, calibration, and discrimination. Internal validation of the prediction models was further evaluated in 500 bootstrapped samples.

Results
Fifty-two (49.5%) of the participants were classified as responders to treatment. The model incorporated the following predictors: age (OR = 1.01; 95% CI: 0.99– 1.03); maximum jaw opening (OR = 0.99; 95% CI: 0.98 – 1.00); neck disability (OR = 1.00; 95% CI: 0.99 – 1.02); and pressure pain threshold in the neck muscles (OR = 0.99; 95% CI: 0.97 – 1.01). Although individual confidence intervals included 1, the combined variables demonstrated predictive value. The model showed moderate discrimination (AUC = 0.70) and acceptable calibration.

Conclusion
A combination of age, jaw mobility, neck disability, and cervical pressure pain threshold can moderately predict short-term clinical response to multimodal treatment in patients with TMD. While individual clinical factors may not be strong standalone predictors, their collective assessment provides a useful tool for screening potential responders, supporting more personalized therapeutic planning in clinical practice.

Keywords:
Temporomandibular joint disorders
Physical therapy modalities
Prognosis
Treatment outcome

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