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The influence of anxiety, depression, and stress on sensory thresholds in patients with migraine

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Introduction
Migraine is a neurological disorder associated with a high prevalence of anxiety, depression, and stress. Additionally, evidence suggests the presence of central sensitization in these individuals, which contributes to the worsening of the clinical presentation of the disease. However, the relationship between emotional factors and alterations in sensory thresholds in this population is not yet well established.

Objective
To investigate the association between levels of anxiety, depression, and stress and sensory thresholds in individuals with migraine

Methods
This is a cross-sectional study including 52 individuals with migraine. Demographic and clinical data were collected, and emotional states were assessed using the Depression, Anxiety and Stress Scale (DASS-21). Sensory thresholds were evaluated using pressure pain thresholds (midpoint of the trapezius and anterior temporal muscles, bilaterally) and thermal thresholds (cold and heat pain thresholds) in the periorbital region (V1 branch, bilaterally). Spearman's correlation analysis was used to assess associations between variables.

Results
No significant associations were observed between DASS-21 domains or total score and pressure pain thresholds ($p>0.05$). In contrast, the anxiety domain showed a negative correlation with periorbital cold pain threshold (rho=-0.276; p=0.048). Furthermore, positive associations were found between anxiety (rho=0.314; p=0.023), depression (rho=0.329; p=0.017), stress (rho=0.278; p=0.046), and total DASS-21 score (rho=0.355; p=0.010) with heat pain threshold, with magnitudes ranging from weak to moderate.

Conclusion
The results suggest that emotional factors are not associated with peripheral alterations assessed by pressure pain thresholds. On the other hand, emotional factors were associated with thermal thresholds in individuals with migraine, particularly regarding heat sensitivity, reinforcing the interaction between central sensitization and emotional aspects. Clinically, these findings indicate that emotional factors may influence central pain modulation, suggesting the need for therapeutic approaches that integrate both physical and emotional aspects in the management of migraine.

Keywords:
Migraine
Anxiety
Depression
Central sensitization
Stress

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