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Brazilian interregional comparison of hospitalizations for primary cephalalgic attacks in the Unified Health System

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Introduction
Primary headache disorders, including headache and other cephalalgic syndromes, are important causes of morbidity and functional impairment and may require hospital care within the Brazilian Unified Health System (SUS). In Brazil, regional differences in healthcare network organization, access to diagnosis, and availability of specialized care may influence the profile of hospitalizations for these conditions. Therefore, an interregional analysis of hospitalizations for primary cephalalgic attacks may help identify relevant epidemiological, healthcare-related, and economic patterns within SUS.

Objective
To compare the epidemiological, healthcare-related, economic profile and temporal trend of hospitalizations for primary cephalalgic attacks among Brazilian regions from 2014 to 2024.

Methods
This ecological, retrospective, and descriptive study used secondary data from SIH/SUS, obtained through DATASUS. Hospitalizations for headache and other cephalalgic syndromes, according to the ICD-10 Morbidity List grouping, were analyzed from 2014 to 2024. All five Brazilian regions were included. The variables analyzed were hospitalizations, rate per 100,000 inhabitants, mean length of stay, and hospital costs. Annual rates were calculated using the regional population from the 2022 Demographic Census as a fixed denominator. Temporal trends in rates were assessed by simple linear regression, with $p < 0.05$ considered statistically significant.

Results
From 2014 to 2024, 107,847 hospitalizations for primary cephalalgic attacks were recorded in Brazil. Per 100,000 inhabitants, the highest cumulative rate was observed in the South (92.2), followed by the Northeast (57.5), North (45.7), Southeast (41.1), and Central-West (37.1). Mean length of stay was higher in the Northeast and North, approximately 4.9 and 4.8 days, respectively. The Northeast accounted for the highest cumulative hospital cost, approximately BRL 19.03 million. Linear regression of annual rates showed a significant increasing trend in the North, Northeast, and Central-West ($p<0.05$), whereas the Southeast ($p=0.82$) and South ($p=0.51$) showed no significant temporal trend.

Conclusion
Hospitalizations for primary cephalalgic attacks showed relevant interregional differences in Brazil from 2014 to 2024. The proportional analysis showed the highest cumulative rate in the South, while the North, Northeast, and Central-West showed significant growth in annual rates. Longer mean stays in the North and Northeast and the highest cumulative cost in the Northeast may indicate regional differences in hospital care organization and healthcare burden. These findings reinforce the importance of considering proportional rates and temporal trends when evaluating hospitalizations for headache disorders within SUS.

Keywords:
Hospitalization
Epidemiology
Primary headache disorders
Unified Health System
Interregional analysis

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