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Regional inequalities in migraine hospitalizations in the Brazilian Unified Health System: a portrait of the socioeconomic gradient in pain care in Brazil (2016–2025)

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Introduction
Migraine, the second leading cause of disability worldwide, affects 15.8% of Brazilians, predominantly women and working-age adults, imposing a substantial socioeconomic burden. Within the Unified Health System (SUS), migraine hospitalization patterns reflect marked regional disparities, serving as a mirror of the socioeconomic gradient in pain care. A comparative analysis of trends from 2016 to 2025 is therefore essential to map these inequities and inform policies aimed at equitable access to specialized care.

Objective
To analyze temporal trends, costs, and regional disparities in migraine-related hospitalizations in Brazil between 2016 and 2025.

Methods
Descriptive epidemiological time-series study based on secondary data from SIH/SUS via TABNET/DATASUS. All hospitalizations coded under ICD-10 G43 in Brazil from January 2016 to December 2025 were included, with macroregion as the unit of analysis. Variables comprised absolute number of hospitalizations, rate per 100,000 inhabitants (IBGE population estimates), total and mean cost per hospitalization, and mean length of stay. Regional comparisons contrasted lower-infrastructure (North and Northeast) with higher-infrastructure (South and Southeast) regions.

Results
Between 2016 and 2025, 105,704 migraine-related hospitalizations were recorded in Brazil, representing a 54.7% increase (from 8,142 to 12,600). The Southeast led in absolute numbers (n=32,654), followed by the Northeast (n=31,144) and South (n=27,336). However, when analyzing rates per 100,000 inhabitants, the South presented the highest regional mean (8.96), peaking at 13.48 in 2019, more than twice the national average for that year (6.18). The North recorded a growth exceeding 230% in hospitalization rates (from 2.20 in 2016 to 7.30 in 2024), possibly related to expanded hospital access and greater clinical recognition of the condition. Regarding hospital costs, the Northeast concentrated the highest total expenditure (R$ 19.6 million), followed by the South (R$ 14.2 million) and Southeast (R$ 13.7 million). The Northeast also recorded the highest cumulative mean cost per hospitalization (R$ 630.91), while the North reached R$ 814.60 in 2024. Mean length of stay was highest in the Northeast (4.9 days) and North (4.8 days), contrasting with the South (3.1 days) and Central-West (3.0 days).

Conclusion
The analysis revealed a 54.7% growth in migraine hospitalizations in Brazil between 2016 and 2025, alongside marked regional heterogeneity. The South concentrated the highest rates per 100,000 inhabitants, while the North and Northeast presented higher costs and longer lengths of stay, suggesting lower outpatient resoluteness and greater clinical complexity at admission in these regions. The findings confirm a socioeconomic gradient in migraine care within the SUS, in which structural inequalities shape the disease's care profile, reinforcing the need to strengthen specialized neurological care in the most vulnerable regions.

Keywords:
Migraine
Hospitalization
Health inequalities
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Socioeconomic gradient

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