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Epidemiological profile of headache hospitalizations in Brazil (2010–2025): a population-adjusted analysis of risk groups and temporal trends

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Introduction
Headaches are among the most prevalent neurological conditions and a leading cause of global disability. In Brazil, comprehensive epidemiological data on hospitalizations are scarce, which limits health policy planning. Standardizing data by population size is essential to reveal hidden disparities and identify high-risk groups that absolute numbers may obscure.

Objective
To characterize the epidemiological profile of headache hospitalizations in Brazil between 2010 and 2025, identifying high-risk groups and temporal trends through population-weighted analysis.

Methods
This is a descriptive-analytical ecological study using data from the SUS Hospital Information System (SIH/SUS) for headache diagnoses (ICD-10: G43–G44). Rates were standardized per 100,000 inhabitants using 2022 Census data, stratified by age, sex, race/color, and region. Statistical analysis included Incidence Ratios (IR), Chi-square tests for proportional distribution, linear regression for trends, and joinpoint analysis to identify inflection points.

Results
A total of 145,113 hospitalizations were recorded, with a 160.3% increase in annual volume between 2010 and 2025. Joinpoint analysis identified 2020 as an inflection point, with growth acceleration (980.9 cases/year) post-2020, potentially linked to the COVID-19 pandemic. Females faced an 85% higher risk than males (IR=1.31). Regarding race/color, the Asian-descendant population presented the highest risk (IR=4.36), while Black (IR=0.32) and Indigenous (IR=0.15) populations were significantly underrepresented, suggesting structural access barriers. Regionally, South region had the highest rate (IR=1.75). Age distribution was bimodal, peaking in young adults (20–49 years) and remaining high among the elderly (≥70 years).

Conclusion
Population-weighted analysis revealed critical disparities invisible in absolute counts, notably the high risk for the Asian-descendant group and potential inequities for Black and Indigenous populations. The significant growth in hospitalizations, accelerated by the pandemic, underscores the need for strengthening primary care, expanding specialized neurology services, and implementing equitable health policies to reduce avoidable hospitalizations.

Keywords:
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