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Epidemiological overview and clinical impact of hospitalizations for pediatric headaches in Brazil: a retrospective analysis spanning a decade

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Introduction

Primary headaches are highly prevalent in the pediatric population. Although most cases are benign and managed on an outpatient basis, refractory or severe attacks often result in hospital admissions, a scenario that reflects critical shortcomings in primary care, early diagnosis, and prophylaxis. Understanding the epidemiological profile of these hospitalizations in Brazil is essential to highlight the hidden burden of the disease, thereby informing the development of more effective public health policies and the optimization of healthcare resources.

Objective

To analyze the clinical and epidemiological profile of hospital admissions due to headache syndromes in the pediatric and adolescent population aged 0 to 19 years in the Brazilian Public Health System between January 2016 and March 2026.

Methods

A nationwide retrospective ecological analysis was conducted using the Brazilian Hospital Information System (SIH/SUS) via DataSus. The study included hospitalizations for migraine and other headache syndromes in patients aged 0 to 19 years. The variables analyzed included age, sex, region, length of stay, mortality, and costs.

Results

Over the ten-year period, 18,421 pediatric hospitalizations for headache were recorded. A marked increase in hospitalizations was observed among late adolescents (ages 15–19), accounting for 41.7% of the cohort, followed by the 10–14 age group (32.0%). A significant predominance of females (62.5%) was identified, with the gender disparity increasing after puberty, highlighting the influence of neuroendocrine factors. Geographically, the Southeast (33.5%) and Northeast (31.7%) regions reported the highest volumes of admissions, potentially reflecting both population density and regional variations in neuropediatric outpatient coverage. Notably, while the national average length of hospital stay was 3.6 days and overall mortality was negligible (0.21%, n=38), the Northeast region accounted for the vast majority of deaths (n=25) and had a prolonged average length of stay (4.4 days), highlighting profound regional disparities in access to intensive care and in the complexity of cases.

Conclusion

The data reveal a critical paradox in the field of healthcare. Despite low mortality rates, the morbidity associated with pediatric headaches places a significant burden on hospital infrastructure. The disproportionate hospitalization rates among female adolescents and prolonged hospital stays highlight profound deficiencies in primary prevention and outpatient treatment of acute cases; furthermore, we can also correlate these female-specific factors with well-known hormonal and psychosocial factors. To mitigate this burden, an urgent paradigm shift is needed, focused on strengthening training in primary care and expanding equitable access to specialized pediatric neurology.

Keywords:
Migraine disorders
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