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Impact of the COVID-19 pandemic on hospitalizations for migraine and headache syndromes in the Brazilian Public Health System, 2018–2024

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Introduction
Migraine and headache syndromes (ICD-10: G43/G44) are among the leading causes of neurological disability worldwide, disproportionately affecting women of reproductive age and economically active adults. In Brazil, these conditions generate substantial demand for SUS inpatient services. The COVID-19 pandemic severely interfered with hospital care, raising concerns about suppressed demand for non-COVID neurological conditions and whether it differentially affected care access across demographic groups.

Objective
To compare hospitalizations for migraine and headache syndromes in the Brazilian SUS before, during, and after the pandemic, evaluating COVID-19's impact on demographic distribution and assessing post-pandemic suppressed demand.

Methods
Descriptive, retrospective, ecological, and quantitative study using data from the SIH/SUS (DATASUS). All hospital admissions recorded in Brazil between 2018 and 2024 with a primary diagnosis of G43 or G44 (ICD-10) were included. Admissions were grouped into three periods: pre-pandemic (2018–2019), pandemic (2020–2021), and post-pandemic (2022–2024). Data were stratified by type of care (elective/emergency), sex, and age group. Ethical approval was waived given the dataset's anonymized and aggregated nature.

Results
From 2018 to 2024, 74,322 hospitalizations for migraine and headache syndromes were recorded in the SIH/SUS. During the pre-pandemic period, annual admissions peaked at 11,996 in 2019, which declined sharply during the pandemic (μ=8,641.5±94.5; −25.3% vs pre-pandemic), and recovered gradually through the post pandemic period (μ=11,300.3±790.6; −2.3% vs pre-pandemic), with no rebound effect observed. Despite emergency admissions predominated across all periods (94.9%), urgent admissions decreased by 25.8% compared with a 16.5% reduction in elective admissions during the pandemic. Elective care reached its lowest standard in 2024 (n = 409), below pandemic-year levels, suggesting structural barriers to programmed care. Stratified analysis revealed female predominance (66.2%; ratio ≈ 1.96:1), stable across all three periods. The highest burden was concentrated among adults aged 30–39 (18.1%) and 20 29 years (17.2%), indicating that pandemic-related disruptions did not meaningfully alter demographic vulnerability.

Conclusion
Hospitalizations for migraine and headache syndromes in Brazil showed a significant decline during the COVID-19 pandemic, reflecting demand suppression rather than a true reduction in morbidity. Notably, the anticipated rebound effect following the pandemic period was not observed; instead, admissions recovered gradually and remained 2.3% below pre-pandemic levels. The persistent decline in elective admissions suggests structural barriers to programmed neurological care within the SUS. The distribution according to sex and age group remained stable throughout the evaluated periods, preserving the previously observed epidemiological pattern.

Keywords:
Migraine
COVID-19
Hospital admissions
Headache syndrome
Demand suppression

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