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# Impact of the COVID-19 pandemic on public hospital spending for headache admissions in Sergipe/Brazil from 2018 and 2024

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**Introduction**
Headache disorders generate a substantial, often underestimated economic burden on public health systems. In Brazil, the COVID-19 pandemic abruptly reorganized hospital activity, suspending elective care and redirecting resources, with potential effects on spending for conditions such as headache that are sensitive to access. Inflation-adjusted, regionalized evidence on this impact is lacking, particularly in the Northeast.

**Objective**
To analyze the impact of the COVID-19 pandemic on public hospital spending for headache admissions in Sergipe from 2018 and 2024.

**Methods**
Ecological time-series study of secondary SIH/DATASUS data on headache hospitalizations (ICD-10 G43–G44) in Sergipe. Admissions, reimbursed costs, mean cost per admission, length of stay, and deaths were extracted for 2018–2024. Monetary values were deflated to 2024 reais using the IPCA. Three periods were compared: pre-pandemic (2018–2019), pandemic (2020–2021), and post-pandemic (2022–2024); trends were assessed by log-linear regression.

**Results**
From 2018 to 2024, 299 headache admissions were recorded, predominantly among women (66.9%; F:M ratio 2.02:1), totaling R$ 103,466 nominal (R$ 121,254 in 2024 reais). Real spending fell sharply in the pandemic period: the annual mean dropped 54.9% versus pre-pandemic (R$ 10,548 vs R$ 23,384), reaching its nadir in 2020 (−56.9% versus 2019). Mean real cost per admission nearly halved, from R$ 622 (pre-pandemic) to R$ 330 (pandemic). Admissions then recovered strongly, rising 182% from 2020 to 2024, yet real cost per admission remained well below baseline (R$ 348 post-pandemic), so 2024 concentrated 26.4% of all admissions but only 22.1% of real spending. Consequently, post-pandemic annual spending stayed 23.9% below pre-pandemic levels, and overall real spending showed no upward trend (p=0.92) despite rising volume. Mean length of stay did not decline (pre-pandemic 7.8, pandemic 7.9, post-pandemic 8.3 days), indicating the lower real cost per admission was not driven by shorter stays.

**Conclusion**
The pandemic was followed by a steep, lasting reduction in inflation-adjusted hospital spending for headache in Sergipe. The post-pandemic rebound was driven by admission volume rather than cost intensity, as real spending per admission did not recover. This decoupling of volume from expenditure suggests lower-complexity admissions and possible underfunding relative to growing demand, underscoring the need to monitor financing of headache care and to reinforce outpatient management to curb avoidable hospital costs.

**Keywords:**
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