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TITLE

TIME SERIES AND SPATIAL DISTRIBUTION OF SCHISTOSOMIASIS MANSONI IN FOUR HISTORICALLY ENDEMIC STATES IN BRAZIL

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ABSTRACT

Introduction: Schistosomiasis is present in most Brazilian states, especially in the Northeast and Southeast regions. In the Northeast, the states of Alagoas (AL), Bahia (BA), Pernambuco (PE), and Sergipe (SE) stand out as endemic areas for the disease. Objective: To analyze the temporal trends and spatial distribution of Schistosoma mansoni positivity in four states of Northeast Brazil between 2012 and 2021. Methods: This ecological study analyzed the states of AL, BA, PE, and SE using data from the Schistosomiasis Control Program Information System (SISPCE). Temporal trend analysis used a regression model adjusted through the Joinpoint program. Annual percent change (APC) and average annual percent change (AAPC) were calculated. Additionally, maps illustrating the spatial distribution of raw positivity rates were constructed. Results: During the study period, 193,569 positive cases of schistosomiasis were recorded in AL, BA, PE, and SE, with AL having the highest number of positives (N = 73,325 (37.8%)). In the trend analysis, PE showed a decreasing trend in positivity rates between 2012 and 2016 with APC = -20.5 (95% CI: -29.0 to -1.0; p = 0.003). Over the entire period from 2012 to 2021, positivity for the disease in PE also showed a significant reduction, with AAPC = -10.9 (95% CI -16.8 to -4.6; p <0.005). Although AL had the highest number of cases, its positivity rates decreased throughout the study period, with an AAPC of -9.6 (95% CI -11.4 to -7.7; p = 0.004). In contrast, the states of SE and BA showed stable trends throughout the period, with AAPC of -6.2 (95% CI: -12.0 to 0.1; p = 0.053) and -1.0 (95% CI: -11.3 to 10.6; p = 0.840), respectively. Conclusion: This study demonstrates that despite AL having the highest percentage of positive cases among the states with the highest infection rates of Schistosoma mansoni in Northeast Brazil, the state showed decreasing trends. However, it is still necessary to maintain control measures, especially in endemic areas of the disease. Additionally, the lack of data updates in SISPCE was a limiting factor for this work, as it prevented the measurement of positive cases in the states studied after 2021.

KEYWORDS

Spatial Analysis; Temporal Trends; Neglected Diseases

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