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#### TITLE

**TEMPORAL TREND IN MORTALITY FROM SCHISTOSOMIASIS MANSONI IN THE STATE OF ALAGOAS: AN ANALYSIS OF THE LAST 10 YEARS**

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#### ABSTRACT

**Introduction:** Schistosomiasis mansoni is a neglected tropical disease caused by the Schistosoma mansoni trematode. Brazil is considered one of the most endemic countries for morbidity, and among the most affected areas is the state of Alagoas (AL), located in Northeast Brazil. **Objective:** To analyze the temporal trends of the mortality rate due to schistosomiasis mansoni in Alagoas, between 2013 and 2022. **Methodology:** This is an ecological study of a time series, based on data from the Mortality Information System (SIM). We considered all deaths due to schistosomiasis between 2013 and 2022 that occurred in the state of Alagoas. We considered the variables sex, age group, and ethnicity. The segmented linear regression model (Joinpoint) was used to calculate the annual percent change (APC) and the average annual percent change (AAPC), along with their respective 95% confidence intervals (CI). We used a maximum of 9,999 Monte Carlo permutations for the analysis. Mortality rates were classified as decreasing, stable, or increasing, considered significant when  $p < 0.05$ . **Results:** During the analysis period, there were 522 deaths due to schistosomiasis mansoni. The overall mortality rate due to schistosomiasis mansoni remained stable, considering the entire analysis period (AAPC -4.3; 95% CI: -9.1 to 0.8,  $p = 0.1$ ). Regarding sex, females showed a decreasing trend (AAPC = -6.1; 95% CI: -11.6 to -0.2;  $p = 0.001$ ) throughout the entire analyzed period. With respect to age group, between 2013 and 2022, mortality rates significantly increased among the 0 to 9 years age group and the 10 to 19 years age group (AAPC = 3.5; 95% CI: 2.2 to 4.8 and APC = 8.8; 95% CI: 7.0 to 10.7,  $p = 0.001$ , respectively). Between the time segment of 2016 to 2022, the 40 to 69 age group showed a decrease in mortality rates with APC = -13.0 (95% CI: -20.7 to -4.5). Furthermore, among the groups aged  $\geq 70$  years, the rates also decreased (AAPC = -6.9; 95% CI: -13.0 to -0.5) considering the entire analysis period. Regarding ethnicity, only indigenous people showed a decreasing trend (AAPC = -11.3; 95% CI: -15.6 to -6.8). **Conclusion:** The trend analysis revealed an overall stability in mortality rates due to the disease in the state. An increase in mortality among children and a reduction among the elderly were also observed. This may indicate an improvement in the diagnosis and early treatment of schistosomiasis mansoni for specific age groups, as well as suggest infections with high parasite burdens, which may result in more severe cases of the disease among young people. Thus, understanding variations in mortality rates by gender, age, and ethnicity allows for directing efforts and resources to the most affected areas and populations.

#### KEYWORDS

Schistosoma mansoni; Time Series; Deaths

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