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TITLE

THE USE OF GEOPROCESSING APPLIED TO CASES OF SCHISTOSOMIASIS IN A COMMUNITY IN CAPELA, ALAGOAS

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ABSTRACT

Schistosomiasis, designated as one of the Neglected Tropical Diseases (NTDs) by the World Health Organization (WHO), is under the scope of elimination by 2030, according to the Sustainable Development Goals (SDGs). In Brazil, schistosomiasis mansoni represents a major public health challenge, especially among vulnerable groups subject to poor environmental and sanitary conditions. The country faces notable challenges in the field of sanitation, with a considerable portion of the population lacking basic sewage and drinking water services. Within this broad context, which ranges from waste management to hygiene practices, the use of technologies such as geoprocessing, notably through Geographic Information Systems (GIS), emerges as a fundamental tool for organizing and analyzing spatial data related to public health. This study aims to use geoprocessing techniques, as a pilot study, to assess which techniques would be the most appropriate for the analyses that will contribute to a more complete and agile understanding of schistosomiasis cases spatially. The site chosen for this initial study was a community in Capela, Alagoas. Initially, a mapping of disease conditions was carried out, involving the random selection of participants. Those who agreed to take part provided their consent by means of an Informed Consent Form. The coordinates of the participants' homes were collected using a Garmin GPS, and comprehensive questionnaires were administered on socioeconomic and demographic aspects, sanitation conditions and water habits. Containers were also distributed for collecting feces, which was then collected by the team in charge. The fecal samples were analyzed using the Kato-Katz method to diagnose schistosomiasis mansoni and other helminthiasis. After the diagnosis, all the information was georeferenced using QGIS software, allowing a spatial analysis of the patterns of occurrence of the disease. The results were presented using thematic maps, making it easier to visualize the community's spatial scenario. The Kernel Density Estimation (KDE) technique was used to estimate the intensity of the event throughout the area, revealing more pronounced incidence patterns at three specific points. This pilot study allowed us to outline a future project to be carried out on a larger spatial scale in the state of Alagoas, in order to integrate the analyses for specific recommendations and guidelines for communities, with the aim of mitigating the impacts of the disease and contributing to the promotion of public health. Insights into the relationship between environmental factors and the occurrence of schistosomiasis will support the development of recommendations for local public policies and the implementation of sanitation solutions suited to different environmental and epidemiological contexts.

KEYWORDS

SIG; Schistosomiasis; Sociodemographic Analysis

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