



IJS

International Journal of Sciences

Published online 01 15, 2022
ISSN 2763-5392



The Prevalence of Mansonic Schistosomes in the Municipality of Glória do Goitá (Pernambuco), between 2010 -2020

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To cite this article:

Farias, J.E.; Lima, A.F.P.S.; Silva, E.T.B.; Silva, E.B.; Lima, J.B.A.S.; Costa, L.L.L.; Silva, E.V.; Neto, F.M.A.; Nery, A, H.B.; Santana, A.J.; Muniz, D.B.; Alvares, E.B.S.O. *The Prevalence of Mansonic Schistosomes in the Municipality of Glória do Goitá (Pernambuco), between 2010 -2020. International Journal of Sciences*. Vol. 3, No. 1, 2022, pp.15-18. ISSN 2763-5392.

Received: 11 24, 2021; **Accepted:** 12 26, 2021; **Published:** 01 15, 2022

Abstract: This research aims to describe the prevalence of schistosomiasis, in the municipality of Glória do Goitá, PE, 2010-2020. This is a cross-sectional, prospective, descriptive epidemiological study that is applied to a quantitative and qualitative approach, which will be carried out using consolidated records data from 2010 to 2020 in the municipality of Glória do Goitá, in the state of Pernambuco, about the cases registered in the Schistosomes control program system (SISPCE). The municipal health department only has information from 2019, 2020 and 2021. The information for the years 2011 - 2018 was not made available, because the system was corrupted. In addition, during the years 2019, 2020 and 2021, the population worked for investigation/diagnosis of schistosomiasis in the municipality of Glória do Goitá, Pernambuco consolidates a total of 6,418 individuals; number of tests performed consolidates a total of 4,954; presenting a general proportion of positive localities in the studied period of 6.48%. With this study, it is expected to evaluate the prevalence of cases of schistosomiasis in the municipality of Glória do Goitá, in the period 2010 - 2020. In addition to publications, this research, in fulfilling its objectives, is in line with national policies on epidemiological surveys with the purpose of implementing new prophylactic measures to combat this parasite.

Keywords: Endemic Diseases. Neglected diseases. Descriptive Epidemiology. Transmission

1. Introduction

Schistosoma mansoni is the etiological agent causing schistosome mansoni, being a helminth that presents an intermediate host, the freshwater snails of the genus *Biomphalaria*. The species *Biomphalaria glabrata* demonstrates a high rate of susceptibility to the parasite, exhibiting wide territorial distribution (CARVALHO *et al.*, 2018).

Therefore, it is important to point out that this is the second most important parasitosis in terms of mortality and morbidity worldwide, behind malaria only. Infection is prevalent in 56 countries and territories with tropical and subtropical climate, with over 25 million individuals living in areas at risk of infection, Brazil stands out among the 10 endemic countries of the Americas, due to high rates of infection and deaths (WHO, 2020).

In addition, 2.5 to 8 million people are affected by the *Schistosoma mansoni* parasite in Brazil, characterized as an endemic disease in 19 federative units. The epidemiological situation of this parasitosis is more severe in the Northeast and Southeast macro regions, highlighting the continuous distribution of cases along the coast of the country, in Rio grande do Norte to Minas Gerais following the course of important hydrographic basins (KATZ, 2018).

Since Pernambuco is considered the Federative Unit of Brazil that exhibits in the last ten years, the highest rates of endemicity for this parasitosis, presenting 102 endemic municipalities of a total of 185 municipalities in the state, consolidating a mortality rate five times higher than the national average, one of these areas that indicate these high values in the Zona da Mata Norte, region to which the chosen municipality is part, so it will be necessary to carry out a study describing the prevalence of mansonic schistosomes in in the municipality of Glória do Goitá, in the period 2010 - 2020 (COSTA *et al.*, 2017; OLIVEIRA *et al.*, 2018).

Therefore, in order to subsidize preventive actions in areas and populations most vulnerable to infection, this research aims to describe the prevalence of schistosomiasis, in the municipality of Glória do Goitá, PE, 2010-2020.

2. Methodology

This is a cross-sectional, prospective, descriptive epidemiological study, and the quantitative and qualitative approach is applied, using data recorded and consolidated in the period from 2010 to 2020 in the municipality of Glória do Goitá, in the state of Pernambuco, about the cases reported in the Schistosomiasis Control Program System (SISPCE).

Study site

The municipality of Glória do Goitá is located in the State of Pernambuco, in the territory of the Zona da Mata Norte, with approximately 30,847 inhabitants with a territorial area of 234,214 km². The municipal office has a temperature ranging from 21°C to 32°C, with remnants of Atlantic forest. Its Human Development Index was 0.640 in 2010 (IBGE,

2017). The average concentration of income distribution has a Gini index of 0.5287 with 16.55% of the population on the poverty line, denoting marked social inequality (IBGE, 2010). (Figure 01).



Figure 01. Municipality of Glória do Goitá/PE. Source: <https://cualbondi.org/br/a/r303732/gloria-do-goita/>

Study population

The study population consisted of individuals who conducted the coscopic survey during the period 2010 - 2020, in the municipality of Glória do Goitá, to whom the results of the tests were consolidated in the SISPCE.

Data source

The data used in the research were collected from the SISPCE, previously reviewed and validated by the technical team of the Health Surveillance Department of the municipality.

Data analysis

Being useful in the process of organizing, tabulations and data analysis the computer tool, respectively: Microsoft® Excel 2016® version 14.0.7183.5000 (AVIVA, 2000). The method used for parasitological diagnosis was Kato-Katz. The fecal material processing and blade analysis were performed by technicians from the municipal Health Surveillance.

3. Results and Discussion

According to information shared by the technique responsible for the Schistossomosis Control Program in the municipality of Glória do Goitá, Pernambuco, the municipal health department only has information from the years 2019, 2020 and 2021. The information for the years 2011 - 2018 was not made available, because the system was corrupted. The technicians at the state level of the Schistosomes control program are committed to try to solve this event.

In addition, during the years 2019, 2020 and 2021, the population worked for investigation/diagnosis of

schistososome in in the municipality of Glória do Goitá, Pernambuco consolidates a total of 6,418 individuals; number of tests performed consolidates a total of 4,954; presenting a general proportion of positive localities in the studied period of 6.48%. (Table 01 - 02).

Table 01. Period 2019/2020/2021; Total existing locations; population worked (rural area and urban area); Number of tests performed; Overall proportion of positive locations.

Period	Total existing locations in the municipality	Worked Population	Number of Exams performed	Overall proportion of positive locations
2019	101	2.094	3.216	0,91%
2020	101	1.584	784	0,64%
2021	101	1.618	954	4,93%
TOTAL	101	6.418	4.954	6,48%

Source: Schistosomesome Control Program System - SISPEC - 2019-2021, municipality of Glória do Goitá, Pernambuco.

According to the data presented in table 02, the period that presented the highest number of tests performed was the year 2019, presenting 3,216 tests performed, followed by the year 2021, which presented a total of 954 exams and finally the year 2020, with a total of 784 tests performed. Regarding the number of individuals who did not present *Schistosoma mansoni* eggs in the sample, the period with the highest number of individuals who did not have eggs was the year 2019 - 2,079, followed by the year 2021 - 904 and finally the year 2020.

Table 02. Period 2019/2020/2021; total population worked (rural area and urban area); number of tests performed; number of individuals who present eggs

Period	Worked Population	Number of Exams performed	Number of individuals who do not have eggs
2019	2.094	3.216	2.079
2020	1.584	784	779
2021	1.618	954	904
TOTAL	6.418	4.954	3.762

Source: SchistosomesomeControl Program System - SISPEC - 2019-2021, municipality of Glória do Goitá, Pernambuco.

According to Brito *et al.*, 2020, consolidated information from a study conducted in Pernambuco during the years 2010 – 2016, coordinated by the Regional Health, analyzed a total of 70.0% of the population exposed to the risk of contracting *Schistosoma mansoni* infection. Among all the regional health, the highest percentage recorded was by the III Health Region

(100.0%), in 2014, while the I health region recorded the lowest, 47.0% in 2016. (Table 04). When analyzing the prevalence rate of people with 1 - 4; 5 - 16; ≥ 17 , in the municipality of Glória do Goitá, there was a decrease in the prevalence rate of this disease, presenting as responsible for this decline in the endemic curve, combat and control actions, such as: the treatment recommended by the Ministry of Health, directed to individuals diagnosed positive for schistosoma mansoni and the implementation of health education activities.

Table 04. Period 2019/2020/2021; Prevalence of people with 1-4 eggs; prevalence of people with 5-16 eggs; prevalence of people with ≥ 17 eggs.

Period	Prevalence of people with 1-4 eggs	Prevalence of people with 5-16 eggs	Prevalence of people with ≥ 17 eggs
2019	0,91%	0,00%	0,00%
2020	0,64%	0,00%	0,00%
2021	4,93%	0,00%	0,00%
TOTAL	6,48%	0,00%	0,00%

Source: Schistosome Control Program System - SISPEC - 2019-2021, municipality of Glória do Goitá, Pernambuco.

One of the determinants that directly assist in the process of eradication of this type of tropical disease, is the implementation of public policies, in order to ensure an adequate experience regarding the planning and adoption of control and combat measures (WHO, 2020).

Moreover, losses during the performance of the data collection activity and its inclusion in the information system offer limitations to the study. Therefore, the information provided refers only to the percentage of the endemic population that was the target of coproscopic surveys, preventing any population inference from the present analysis.

5. Conclusion

The prevalence rate for mansonic schistosomiasis in the municipality under study, during the period 2019 - 2021 points to a considerable reduction.

Considering the absence of data and information from the period 2010 - 2018, implying limitations in this study, and also that it is even with implementation and operation of the Schistosomiasis Control Program in the municipality of Glória do Goitá, it does not use this Program as a monitoring and evaluation tool.

It is essential to take up a model of consolidation and storage of data related to the Schistosomiasis Control Program, in order to ensure reliable access to the database, opportunistic and directing the correct decision-making related to the implementation of strategic control and combat actions.

6. Acknowledgments

I thank God first because without him I would not have finished another cycle of my life, to my family, to Professor Esp. Emanuella Barros de Souza Oliveira Alvares for accepting to guide me and assist directly in the construction of this work and to all who supported and support me every day.

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