

Epidemiological profile of leprosy in the elderly population in the state of Tocantins from 2017 to 2021

Perfil epidemiológico de hanseníase na população idosa no estado do Tocantins de 2017 a 2021

Perfil epidemiológico de la lepra en la población anciana del estado de Tocantins de 2017 a 2021

RESUMO

Objetivo: Analisar o perfil epidemiológico dos casos de hanseníase na população idosa Tocantins de 2017-2021. Método: Trata-se de um estudo epidemiológico de caráter retrospectivo, quantitativo e exploratório-descritivo que apresenta como público a população idosa do Tocantins. Os dados foram obtidos por meio de consultas à base de dados do Sistema de Informações de Agravos de Notificação (SINAN), disponibilizados no Departamento de Informática do Sistema Único de Saúde (DATASUS) no período de 2017 a 2021. Resultados: Foram notificados 1742 casos durante o recorde temporal, predominou o sexo masculino (65%), na faixa etária de 60-69 anos (58%), parda (61%), grau de escolaridade de 1ª a 4ª série incompleta do Ensino Fundamental (29%), classificação operacional multibacilares (91%) e forma clínica dimorfa (69%). Conclusão: Importante promover conhecimento dos possíveis determinantes e condicionantes da doença no Tocantins, para que assim, implementar ações de controle da patologia, diagnóstico precoce e tratamento adequado evitando as consequências da doença nos idosos.

DESCRIPTORES: Perfil Epidemiologia; Hanseníase; Idosos; Tocantins

ABSTRACT

To analyze the epidemiological profile of leprosy cases in the elderly population of Tocantins from 2017-2021. This is a retrospective, quantitative and exploratory-descriptive epidemiological study that presents the elderly population of Tocantins as its public. Data were obtained through consultations to the database of the Notifiable Diseases Information System (SINAN), made available at the Department of Informatics of the Unified Health System (DATASUS) in the period from 2017 to 2021. 1742 cases were reported during the period. time record, male predominated (65%), aged 60-69 years (58%), brown (61%), incomplete 1st to 4th grade of elementary school (29%), operational classification multibacillary (91%) and borderline clinical form (69%). It is important to promote knowledge of the possible determinants and conditions of the disease in Tocantins, so that, in this way, implement actions to control the pathology, early diagnosis and adequate treatment, avoiding the consequences of the disease in the elderly.

DESCRIPTORS: Epidemiology; Leprosy; Elderly; Tocantins

RESUMEN

Analizar el perfil epidemiológico de los casos de lepra en la población anciana de Tocantins en el período 2017-2021. Se trata de un estudio epidemiológico retrospectivo, cuantitativo y exploratorio-descriptivo que presenta a la población anciana de Tocantins como su público. Los datos se obtuvieron a través de consultas a la base de datos del Sistema de Información de Enfermedades de Declaración Obligatoria (SINAN), puesta a disposición en el Departamento de Informática del Sistema Único de Salud (DATASUS) en el período de 2017 a 2021. Durante el período se notificaron 1742 casos. predominó el sexo masculino (65%), de 60 a 69 años (58%), pardos (61%), 1º a 4º de primaria incompletos (29%), clasificación operacional multibacilar (91%) y forma clínica límite (69%). Es importante promover el conocimiento de los posibles determinantes y condiciones de la enfermedad en Tocantins, para que, de esa forma, implementen acciones de control de la patología, diagnóstico precoz y tratamiento adecuado, evitando las consecuencias de la enfermedad en los ancianos.

DESCRIPTORES: Perfil Epidemiología; Lepra; Ancianos; Tocantins

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ORCID: 0000-0001-6543-5652**INTRODUCTION**

Leprosy, known in antiquity as leprosy, is an infectious and contagious disease with chronic evolution caused by a bacterium called *Mycobacterium leprae* or Hansen's bacillus, because it is one of the oldest diseases that affect humanity and that can result in permanent consequences and social stigma, since it constitutes a public health problem, especially in low and medium development countries.

¹ Thus, this pathology is transmitted when a person with the infectious form of the disease, the multibacillary, who is not undergoing treatment, eliminates the bacteria through the upper airways through droplets of aerosols released in saliva, sneezes and droplets in general. ^{2,3}

Thus, this pathology is transmitted when a person with the infectious form of the disease, the multibacillary, who is not undergoing treatment, eliminates the bacteria through the upper airways through droplets of aerosols released in saliva, sneezes and droplets in general. ² In this regard, treatment is essential for curing leprosy and also for closing the source of infection, as it interrupts

the chain of transmission of the disease, controlling the endemic disease and contributing to the elimination of the pathology, since the main therapeutic regimen used is known as single multi-drug therapy (MDT), since it presents an association of dapsone, rifampicin and clofazimine and the duration of treatment will depend on the operational classification of leprosy, since it has paucibacillary (PB) and multibacillary forms. ⁴

In this sense, when leprosy is not treated early, it can cause a series of damages to the individual's functionality, as it causes loss of sensitivity, muscle atrophy, loss of the phalanges of the fingers and toes, collapse of the nasal cartilage and the auricle, among other conditions that compromise the physical, psychological and social aspects, which causes stigma and isolation of the patient with the disease. ⁵ Therefore, among the diseases that influence the functional decline of the elderly population, leprosy stands out, since it brings as a consequence the physical disability that is already altered due to the physiological change of aging, as it compromises the peripheral nerves, which may potentiate the func-

tional difficulties and result in more severe conditions of the disease. ⁶

Thus, in 2020, 127,396 new cases of the disease were reported to the World Health Organization (WHO), of these reported cases, 19,195 (15.1%) occurred in the Americas region and 17,979 were reported in Brazil, as it corresponds to 93.6% of the number of new cases in the Americas, and because of this, Brazil ranked second among the countries with the highest number of cases in the world, behind only India. Thus, in the same year, the state of Tocantins ranked second among the Federative Units (FU) with 53.95 new cases of leprosy per 100,000 inhabitants. ⁷ In this regard, leprosy is a public health problem, and because of this, the Ministry of Health presents strategies to combat leprosy in Brazil, based on the implementation of a Leprosy Care Policy in the Unified Health System (SUS), through comprehensive and integrated care for patients at both the basic and high complexity levels, contemplating actions aimed at diagnosis, treatment, prevention of disabilities and physical and social rehabilitation. ⁹

Therefore, it appears that, to add to

the actions of promotion, prevention and control of leprosy, emphasizing the knowledge of endemicity. The present study aims to characterize the epidemiological profile of the elderly population with leprosy in the state of Tocantins from 2017 to 2021, so that an early diagnosis can be obtained, as well as the promotion of pathology prevention strategies.

METHODS

This is a retrospective and quantitative epidemiological study. Thus, the epidemiological methodology allows examining the incidence and/or prevalence of the health condition related to certain characteristics of specified populations.⁸

In this way, secondary data from the Notifiable Diseases Information System (SINAN) were used through access to the Public Domain Generic Tabulator (TABNET), in the section “epidemiology and morbidity”, starting with the topic “leprosy”. Therefore, data collection was carried out between the years 2017 to 2021 and the population studied were the elderly in the state of Tocantins. Therefore, the study sample was the verification of the number of leprosy cases in the elderly population, gender, race, education, operational classification and clinical form in the period from 2017 to 2021. Thus, as for the bibliographical research, it was carried out on the platforms of the Scientific Electronic Library Online (SCIELO), Latin American and Caribbean Literature in Health Sciences (LILACS) and the National Library of Medicine (Pubmed). Therefore, the Google Sheets program was used for descriptive statistical analysis and to assist in the preparation of tables and graphs.

RESULTS

The State of Tocantins is considered hyperendemic for leprosy, since according to the epidemiological bulletin of

leprosy for 2021 and 2022, Tocantins occupied the second position among the FUs with 96.44 and 53.95 new cases per 100,000 inhabitants, respectively. Thus, the epidemiological data indicate that 1742 cases of leprosy were diagnosed in the elderly in the state of Tocantins in the period from 2017 to 2021 and in Table 1 it is possible to observe the disposition of cases in the studied period. Thus, in Graph 1 it is shown that the year 2018 saw an increase in reported cases compared to the previous year, since in 2017 it had 367 (21.1%) reported cases and in 2018 it had 479 (27.5%) cases. This finding is in line with the 2020 epidemiological bulletin, as it showed that in 2018, Tocantins was the Fede-

ration Unit that had the highest overall detection rate, with 84.87 new cases per 100,000 inhabitants, the highest among the country's capitals.

Table 2 shows the sociodemographic profile of elderly people with leprosy in the State of Tocantins, according to gender, age group, color/race and education between the period from 2017 to 2021.

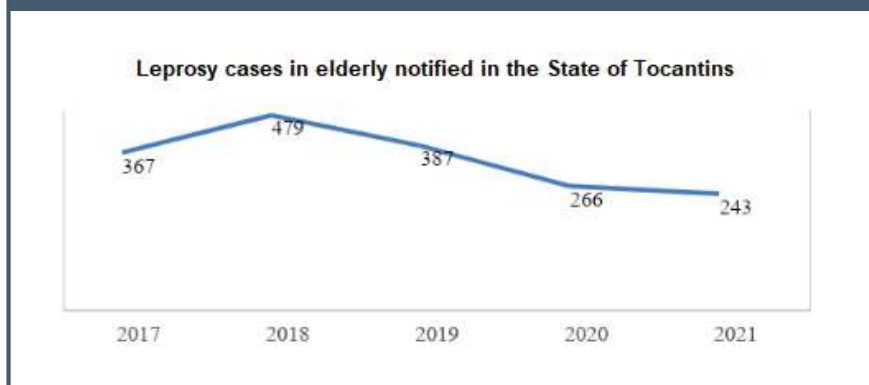
Cases reported in elderly people with leprosy had a prevalence in males with 1127 (65%) cases and the age group 60-69 years old with 1008 (58%) cases of leprosy, followed by age 70-79 years with 554 (32%) cases of the pathology. Thus, the race had a predominance in the brown color with 1,067 (61%) of the cases and as for the education was

Table 1. Distribution of leprosy cases in the elderly population diagnosed in the State of Tocantins in the period between 2017 and 2021.

Variable	N (Cases)	%
Ano		
2017	367	21,1%
2018	479	27,5%
2019	387	22,2%
2020	266	15,3%
2021	243	13,9%
Total	1742	100%

N= absolute frequency;
%= relative frequency.
Source: Ministry of Health/SVS - Notifiable Diseases Information System - Sinan Net (DATASUS).

Graph 1: Distribution of leprosy cases in the elderly population diagnosed in the State of Tocantins in the period 2017-2021.



Source: Ministry of Health/SVS - Notifiable Diseases Information System - Sinan Net (DATASUS).

of individuals of 1st to 4th incomplete grade of Elementary School presenting 502 (29%) of the notified cases.

In table 3, there was a prevalence in the multibacillary operational classification, with 91% (1591) of the cases, followed by paucibacillary with 9% (151), whereas the borderline multibacillary clinical forms obtained 1194 (69%) of the notified cases and the Vichovian with 233 (13%) of the cases. Thus, in Graph 2, it is possible to observe the clinical form of leprosy in the elderly in Tocantins from 2017 to 2021.

DISCUSSION

In this sense, the subsequent years showed a reduction in the number of leprosy cases in the elderly population, since in 2019 367 (22.2%) cases were reported, in the year 2020 it obtained 266 (15.3%) cases of the disease and in 2021 it presented 243 (13.9%) notified cases of the pathology. Thus, the reduction in the number of leprosy cases may be related to the strategies developed by the Ministry of Health to face the pathology in Brazil ⁷. Furthermore, studies show that there was a decrease in the number of cases reported in 2020 due to the pandemic caused by the new coronavirus. ^{3,10}

Thus, among the diagnosed cases of leprosy in the elderly population in the state of Tocantins in the period from 2017 to 2021, it was found that in terms of gender, there was a predominance of males and this result is in agreement with the study that aimed to outline the epidemiological profile of leprosy in Brazil from 2016 to 2020, in which 159,516 leprosy cases registered in Brazil, 56.79% were male. ¹⁵ Therefore, this finding is also similar to a study that carried out research in the northeast region of Brazil in the period 2016-2020, epidemiological data indicated that 67,070 cases of leprosy were diagnosed, since 56.2% were male. ¹⁴ Therefore, authors who observed male predominance justified their findings due to greater expo-

Table 2. Characterization of the sociodemographic profile of the occurrence of leprosy in the elderly in the State of Tocantins, in the period 2017-2021.

Variable	N (Cases)	%
Gender		
Female	615	35%
Male	1127	65%
Age group		
60-69	1008	58%
70-79	554	32%
80 and +	180	10%
Color/Ethnicity		
Yellow	90	5%
White	290	17%
Brown	1067	61%
Black	259	15%
Ign/Blank	29	2%
Indigenous	7	0%
Education degree		
Ign/Blank	373	21%
Illiterate	289	17%
1st to 4th incomplete grade of Elementary School	502	29%
4th complete grade of Elementary School	105	6%
5th to 8th grade incomplete of Elementary School	139	8%
Complete Elementary School	120	7%
Incomplete High School	49	3%
Complete High School	111	6%
Incomplete Higher education	5	0%
Complete Higher education	49	3%
Total	1742	100%

N= absolute frequency;

%= relative frequency.

Source: Ministry of Health/SVS - Notifiable Diseases Information System - Sinan Net (DATASUS).

Table 3 - Distribution of records, according to the operational classification and clinical form of leprosy cases in the elderly population in the state of Tocantins from 2017 to 2021.

Variable	N (Cases)	%
Operational classification		
Paucibacillary	151	9%
Multibacillary	1591	91%
Clinical form		
Ign/Blank	44	3%
Undetermined	113	6%
Tuberculoid	93	5%
Borderline	1194	69%

sure to triggering factors of the disease in their workplaces; low demand for health care; the lack of specific policies; the lifestyle; the costumes; habits and social behaviors.^{9,13}

In this regard, the largest number of cases encompassed the age group of 60-69 years old, since this data was similar to the study carried out in the municipality of Teresina-Piauí in the period from 2011 to 2020, which totaled 4,147 new cases of leprosy and showed a predominance in the age group between 60 and 69 years old, and in addition 3, this finding was also similar to the study that aimed to describe epidemiological indicators and characteristics of new cases of leprosy in the elderly in Brazil between the period 2016-2018, in which 81,205 new cases of leprosy were diagnosed, with , of these, 19,582 (24.1%) occurred in people aged 60 and over.¹⁹ Thus, there was a relative increase in new cases in the elderly population (individuals aged 60 years or older), which is associated with a decrease in disease transmission.¹⁵

Thus, in relation to color/race, there is a predominance of brown race or color, with a frequency of 61%, as observed in some studies. In this sense, this finding is probably due to brown being the predominant ethnicity in Brazil and due to miscegenation and self-identification of the population.^{15,16}

The level of education of the elderly population with leprosy in the state of Tocantins is low, as it is observed that 502 (29%) of the notified cases of the pathology are part of the 1st to 4th incomplete grade of elementary school, and this data is similar to the study carried out in the municipality of Alagoinhas-Bahia in the period 2007 to 2017, in which it was more frequent in individuals with low education, with 14.4% of the reported leprosy cases.¹³

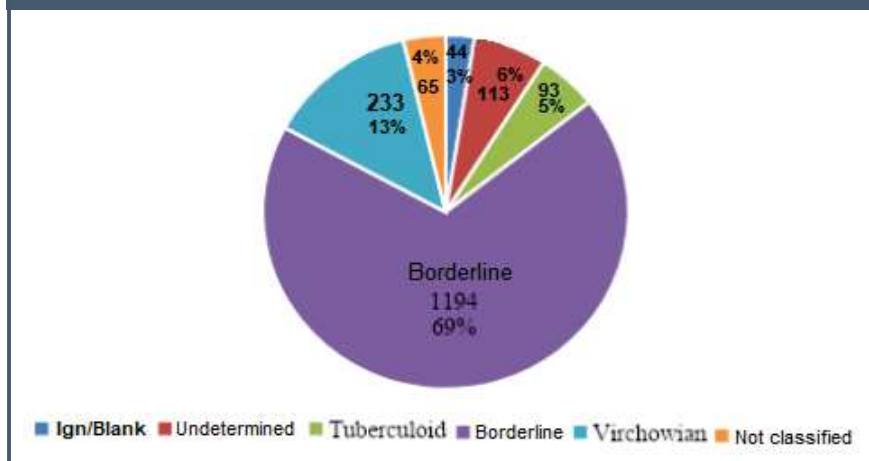
In this respect, this result was similar to the study that carried out the research in the municipalities of the Bico do Papagaio-Tocantins health region in the period 2008-2018¹⁸, since 1257 new

Virchowian	233	13%
Not classified	65	4%
Total	1742	100%

N= absolute frequency;
%= relative frequency.

Source: Ministry of Health/SVS - Notifiable Diseases Information System - Sinan Net (DATASUS).

Graph 2: Clinical form of leprosy cases in the elderly population in the state of Tocantins from 2017 to 2021.



Source: Ministry of Health/SVS - Notifiable Diseases Information System - Sinan Net (DATASUS).

cases of leprosy were notified, and of these, 60.7% were illiterate or had completed only some grade of elementary school, and moreover, similar results were found in other endemic areas of the disease.^{10,7,19} Thus, the educational level seems to be directly related to vulnerability to leprosy, since the lower the level of education, the greater the difficulty in understanding the guidelines regarding the treatment, prevention and self-care related to the diagnosis and understanding and principle of the disease, that is, to an association between high rates of detection of the disease and precarious socioeconomic factors, such as low education and high index of social vulnerability.^{10,19,20}

Therefore, regarding the operational classification and clinical form, according to the Madrid classification, in the elderly population in the state of Tocantins between the years 2017-2021, Multibacillary cases were widely more prevalent (91%), with the borderline type

followed by the Virchowian type, represented 69% and 13%, respectively, of all notified cases of leprosy. Data similar to the study were found in studies that analyzed the epidemiological characteristics of leprosy. 2.3.16 e 18 In this sense, the borderline and Virchowian forms are observed in multibacillary leprosy and determine a more advanced stage of the disease, with high transmission power and a high rate of residual disability.² In this way, authors who observed the predominance of multibacillary cases take into account the late diagnosis, since they are factors that directly reflect on health planning actions, explained by a population little informed about the disease, an inefficient primary and epidemiological health system, leading to the perpetuation of the focus of transmission.^{2,9}

CONCLUSION

Finally, it appears that, in the pre-

sent study, based on the analyzed data on leprosy in the elderly population in the state of Tocantins in the period from 2017 to 2021, it was possible to observe that there was a predominance of males, aged 60-69 years, people of brown color, with a low level of education, the operational multibacillary classification and the most common clinical form was borderline.

Therefore, leprosy is a neglected pa-

thology that is associated with poverty and precarious access to housing, food, health care and education, as it can lead to difficult access to health. Thus, it is of paramount importance to have knowledge of the epidemiological profile of leprosy cases in the elderly population, so that, in this way, it can develop actions that promote the improvement of disease control indicators in the state of Tocantins, aiming to improve aspects

related to education and health, and, moreover, to promote integral and integrated assistance to patients, both at the basic level and at the high complexity level, contemplating actions aimed at diagnosis, treatment, prevention of disabilities and physical and social rehabilitation, so that, in this way, it can avoid the consequences of the pathology in the elderly.

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