LUMEN ET VIRTUS

Epidemiological and clinical profile of leprosy patients in the municipality of Mossoró from 2015 to 2021

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ABSTRACT

Leprosy is an infectious-contagious disease of compulsory notification, chronic and millennial, with a predilection for the nervous periphery, skin and Schwann cells, and carries a strong social component, with the incidence and prevalence of this disease persisting today. National treatment is free, but the presence of this pathology is unevenly distributed in Brazil, with the occurrence of geographic spaces considered hyperendemic, such as the municipality of Mossoró/RN, the locus of the study. The objective of this study was to analyze the epidemiological and clinical profile of leprosy cases in this municipality. This was a retrospective, descriptive study with a quantitative approach and of an epidemiological nature, carried out based on secondary data obtained through the Notifiable Diseases Information System (SINAN) regarding leprosy cases between the years 2015 and 2021. The highest incidence of leprosy cases was found in 2015 and the lowest in 2020. The profile of the patients was characterized by a predominance of males, age between 40 and 69 years, brown ethnicity, incomplete elementary school, notably from the 1st to the 4th grade, multibacillary operational classification, dimorphic and virchowian clinical forms, with more than five lesions,

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defining the operational typology that is the majority. There is a percentage that had the record of the number of doses made ignored or, when made, they were below what was recommended by the protocols. It is concluded that it is imperative to insert new epidemiological and clinical technical variables, the appropriate and adequate completion of the notification forms in order to complete the information.

Keywords: Leprosy, Notifiable Disease, Endemic Diseases, Social Vulnerability, Public Health.

INTRODUCTION

Leprosy is an infectious disease whose etiological agent is Mycobacterium leprae, which is of the order Actinomycelalis that presents itself in the form of an alcohol-resistant bacillus, with little or almost no mobility and obligatory intracellular character. Mycobacteriumleprae has the immunopathogenic characteristics of high infectivity and low pathogenicity, which means infecting many individuals, but few of them actually get sick (BRASIL, 2019). The disease is chronic, sometimes silent and with gradual evolution. The pathogen has a low replication rate and affinity for skin cells, nerve periphery and Schwann cells. The cellular demyelination generated in the axons of peripheral nerves, through immunological reactions, favors the colonization of Schwann cells, which, ultimately, increases the resistance and life span of Hansen's bacillus (JIN; AN; LEE, 2017).

Transmission occurs through a sick person, who carries Hansen's bacillus, who has not been treated, who eliminates the bacillus into the environment, thus contaminating vulnerable people. In this logic, the primary transmitter route for the elimination of the pathogen by the untreated leprosy patient is the infection of the upper airways, and it is important to emphasize that for contamination to exist, direct and prolonged contact with the patient is necessary, and not just a punctual and/or indirect moment (ALMEIDA; MILAN, 2020).

The diagnosis of the disease is eminently epidemiological and clinical, with a suggestive history and in endemic regions and through general physical and dermatoneurological examination, with the intention of detecting elementary lesions or skin areas with altered sensitivity and/or impairment of the nervous periphery, with sensory, motor or autonomic modifications (SARAIVA et al, 2020).

Treatment is done using the multidrug therapy regimens (MDT) recommended by the World Health Organization (WHO), which, when strictly complied with, promote the recovery of patients. MDT is formed by the association of the medications Dapsone, Clofazimine and Rifampicin, and the therapy is completed between six and nine months, depending on the classification of the disease. The choice of drugs also depends on the classification of the disease, which is subdivided into paucibacillary and multibacillary (OLIVEIRA, 2019).

It is a pathology that, although the scientific evidence of the efficacy of MDT is robust, there are still clinical scenarios in which the patient is left without therapy instituted or even there is interruption of the regimen. This perspective is given, notably by the duration of treatment, the possibility of adverse reactions, although rare, but also by the fears and fears that surround the disease (NEIVA; GRISOTTI, 2019).

Despite being chronic, it is curable, historically considered one of the oldest in the world, with records dating back to Egypt, permeating biblical quotations and other religious and ancient scriptures, which, in part, justifies, to a large extent, this ideological perpetuation in the history of

humanity that also influences the anguish and apprehension experienced by patients (SANTACROCE; BLACK; CHARITOS; BOTTALICO, 2021).

It is considered an active public health problem in the world, especially in Brazilian territory, one of the few nations that has not yet succeeded in completely eradicating this pathology, being positioned as the second most endemic nation on the planet for leprosy, which reflects national public health obstacles in the effective control of this infection (SOUZA; LUNA; MAGALHÃES, 2018). In 2020 alone, data from the Ministry of Health showed that Brazil diagnosed 17,979 new cases of leprosy, representing 93.6% of the total in the Americas (JESUS; MONTAGNER; MONTAGNER; ALVES; DELDUQUE, 2023).

In Brazil, leprosy is an endemic, neglected disease, linked to inequalities and social inequities, in addition to the skin blemishes, which exposes the dimension of the problem and supports the need for continuous public policies aimed at this issue. Despite the high morbidity and its potential to cause deformities and disabilities over the years, it is necessary to increasingly reinforce the perspective of early diagnosis and free and broad therapy, with a very accessible cure (PINHEIRO; LINS; GOMES; SIMPSON; MENDES; MIRANDA, 2019).

Leprosy, like Tuberculosis, is a chronic disease that does not have a uniform national distribution, acquiring a higher proportion in some regions of Brazil (DIAS; SILVA, 2022). Most of the studies carried out on leprosy in recent years have had municipal coverage, highlighting the cities of the North and Northeast of Brazil and the vulnerability existing in the disease (JESUS; MONTAGNER; MONTAGNER; ALVES; DELDUQUE, 2023).

In Rio Grande do Norte, the western city of Mossoró has a high incidence coefficient of this disease, being considered a priority for the State Public Health Department (SESAP/RN) in the articulation and execution of health actions that act to break the transmission chain, and it should be noted that there is a very strong association between socioeconomic determinants and these chronic communicable diseases such as Leprosy and Tuberculosis (DIAS; SILVA, 2022).

In this sense, the study is justified by the need to analyze the epidemiological and clinical characteristic traits of patients affected by leprosy in a municipality recognized by the national literature as having a high incidence of cases of this pathology, and which lacks further studies on the various variables immersed in the socioeconomic, geographical, historical and health care context in the western region of Rio Grande do Norte.

Thus, this article aims to characterize the sociodemographic and clinical profile of leprosy patients diagnosed in Mossoró from 2015 to 2021.

METHODOLOGY

This was a cross-sectional study with a quantitative and descriptive approach, based on the notifications of leprosy cases in the municipality of Mossoró in the state of Rio Grande do Norte, in the period between 2015 and 2021. Data collection was carried out through the Department of Informatics of the Unified Health System (DATASUS), forms from the Notifiable Diseases Information System (SINAN) and state tabulation applications of these systems, such as TABWIN and TABNET, fed by the Department of Epidemiological Surveillance of the Municipal Secretariat of Mossoró.

With an area of 2,099.334 km² and an estimated population of 303,792 people, the municipality of Mossoró is 289 km from the capital of the state of Natal, being the second largest city in Rio Grande do Sul in terms of economic development, urban dynamism and population size (IBGE, 2021). This municipality was chosen as the locus of the study due to the hyperendemicity of leprosy in this location, with mean detection coefficients compatible with this framework, with values much higher than the state of Rio Grande do Norte (NOBRE et al, 2016).

For data analysis, graphs and tables with sociodemographic and clinical variables were constructed using the Microsoft Excel 2010 program. The sociodemographic variables analyzed were year of diagnosis, gender, age group, and schooling. The clinical variables analyzed were operational class at diagnosis, clinical form of notification, skin lesions, therapeutic regimen at notification, number of doses in paucibacillary and number of doses in multibacillary. The collected data were tabulated in the Office software, using simple descriptive statistical analysis.

The present study did not require submission to the Research Ethics Committee because it is a research based on secondary data and in the public domain.

RESULTS AND DISCUSSION

Regarding sociodemographic data, the variables year of diagnosis, gender, age group and education were investigated. In the period between 2015 and 2021, 548 cases of leprosy were reported in the municipality of Mossoró, as shown in Table 1, representing an average of 91 cases per year. During the period analyzed, there was a reduction in the incidence of leprosy in the municipality from 39.9 new cases per 100 thousand inhabitants in 2015 to 21.7 new cases in 2021.

Table 1 – Incidence of leprosy cases in the municipality of Mossoró in the period from 2015 to 2021. Mossoró/RN, 2023.

Year	Number of new cases
2015	115
2016	73
2017	93

2018	82
2019	61
2020	58
2021	66
Total	548

Source: Data extracted from SINAN from the Ministry of Health's DATASUS platform.
Prepared by the authors

The year 2015 had the highest incidence of the disease (39.9/100 thousand inhabitants); and the one with the lowest incidence was 2020 (19.3/100 thousand inhabitants). These findings take into account the absolute values found in DATASUS and based on the municipality's population estimate for each correlated year (IBGE, 2021).

Analyzing this reality at the state and national level, in the year in which Mossoró had the highest incidence of the disease in the period studied, Brazil registered 28,761 new cases, which was the highest number of increases achieved in one year. During these 6 years, the final analysis of the data shows a reduction in the number of cases despite periods in which they will present themselves in a stable way and without reduction, with the year 2021 closing the record of 15. 155 new cases. At the same time, the state of Rio Grande do Norte registered 269 new cases in 2015, with a subsequent decrease or stabilization, ending 2021 with 163 new cases (BRASIL, 2021).

It is worth noting that the logistics of the time curve in the analyzed period behaved similarly between the national, state and municipal spheres, in terms of peak incident in 2015 and reductions in the years that follow, with occasional peaks of incidence within the analyzed interval. It is also noteworthy that, considering Mossoró to be the largest city in the state, after the capital, the share corresponding to the total is reasonable both in the year of highest incidence and in the years that follow, such as in 2015 that of the 269 cases in RN, 115 occurred in Mossoró.

Relevant studies have already shown that the city is considered hyperendemic for the occurrence of leprosy, with high rates of the average detection coefficient. In addition, there is a high concentration of cases in the urban area, due to the agglutination of patients in poorer regions and, in many situations, the detection of new cases is processed during active search health activities. This entire local and regional scenario attests to the reason why it is considered a priority municipality for the control of the endemic disease in the state (NOBRE et al, 2016; DAYS; SILVA, 2022).

Still in this scenario, it is worth establishing a parallel between Mossoró and a municipality in the North of the country: Castanhal-Pará. This city is located in the state of Pará and has an estimated population of 195,253 inhabitants, is among the five largest in the region, being a kind of local metropolis. The state of Pará, where this city is located, was the fourth in number of people with leprosy in 2015, with the overall detection rate of new cases at 35.2/100 thousand inhabitants. In

2014, Castanhal-Pará had the highest prevalence rate, with 73 cases, and in 2015, there was the lowest occurrence of leprosy cases, totaling only 40 cases, and between 2004 and 2010, it was considered hyperendemic for the same pathology, due to the high local incidence coefficient (CUNHA; RODRIGUES; LABOR; CROSS; RODRIGUES; SANTOS, 2019).

Both are main cities within their states, have similarity in terms of population and Human Development Index (HDI), however, they diverged in the peak years of leprosy incidence, notably in 2015 with diametrically opposite occurrences in rates of increase. This means that there is no temporal pattern of incidence in all places already considered or still considered hyperendemic, this occurs precisely because there are several factors that are related to the health-disease process.

Table 2 – Incidence of leprosy cases in the municipality of Mossoró by age group, sex, race, and level of education, from 2015 to 2021. Mossoró/RN, 2023.

	Years						
	N 115	N 73	N 93	N 82	N 61	N 58	N 66
	2015	2016	2017	2018	2019	2020	2021
Age Group (years) N %	N %	N %	N %	N %	N %	N %	
1 a 4	- -	1 1,3%	- -	- -	- -	1 1,7%	- -
5 a 9	8 6,9%	2 2,7%	2 2,1%	2 2,4%	1 1,6%	- -	- -
10 a 14	20 17,3%	1 1,3%	3 3,2%	1 1,2%	1 1,6%	2 3,4%	2 3%
15 a 19	4 3,4%	3 4,1%	1 1,07%	1 1,2%	2 3,2%	4 6,8%	- -
20 a 29	8 6,9%	2 2,7%	6 6,4%	6 7,3%	4 6,5%	5 8,6%	2 3%
30 a 39	14 12,1%	10 13,6%	12 12,9%	7 8,5%	8 13,1%	9 15,5%	8 12,1%
40 a 49	22 19,1%	8 10,9%	21 22,5%	21 25,6%	18 29,5%	7 12%	15 22,7%
50 a 59	17 14,7%	20 27,3%	19 20,4%	23 28%	9 14,7%	16 27,5%	16 24,2%
60 a 69	10 8,6%	15 20,5%	20 21,5%	8 9,7%	8 13,1%	8 13,7%	11 16,6%
70 a 79	7 6,08%	8 10,9%	5 5,3%	9 10,9%	8 13,1%	5 8,6%	9 13,6%
80 +	5 4,3%	3 4,1%	4 4,3%	4 4,8%	2 3,2%	1 1,7%	3 4,5%
Gender	N %	N %	N %	N %	N %	N %	N %
Male	54 46,9%	43 58,9%	55 59,1%	46 56,1%	38 62,2%	39 67,2%	44 66,7%
Female	61 53,1%	30 41,1%	38 40,9%	36 43,9%	23 37,7%	19 32,8%	22 33,3%
Race/Color	N %	N %	N %	N %	N %	N %	N %
Ign/Branco	4 3,5%	4 5,4%	9 9,7%	5 6,1%	3 4,9%	- -	5 7,6%
White	29 25,2%	20 27,4%	19 20,4%	18 22%	16 26,2%	11 19%	8 12,1%
Black	16 13,9%	6 8,2%	5 5,4%	5 6,1%	11 18%	1 1,7%	6 9,1%
Yellow	2 1,7%	1 1,4%	1 1,1%	- -	- -	- -	- -

Brown	64 55,6%	42 57,5%	59 63,4%	54 65,9%	31 50,8%	45 77,6%	47 71,2%
Indigenous	- -	- -	- -	- -	- -	1 1,7%	- -
Schooling	N %	N %	N %	N %	N %	N %	N %
Ign/Branco	20 17,4%	11 15,1%	19 20,4%	10 12,2%	8 13,1%	6 10,3%	17 25,7%
Illiterate	12 10,4%	12 16,4%	10 10,7%	11 13,4%	6 9,8%	6 10,3%	7 10,6%
1st to 4th incomplete grade of EF	20 17,4%	2027,4%	18 19,3%	15 18,3%	16 26,2%	19 32,7%	17 25,7%
Complete 4th grade of EF	12 10,4%	4 5,5%	2 2,2%	15 18,3%	7 10,4%	2 3,4%	4 6,1%
5th to 8th grade incomplete EF	27 23,5%	13 17,8%	20 21,5%	13 15,9%	7 10,4%	5 8,6%	710,6%
Complete Elementary School	7 6,1%	3 4,1%	7 7,5%	6 7,3%	2 3,2%	4 6,9%	1 1,5%
Incomplete high school	8 6,95%	1 1,4%	2 2.2˙%	1 1,2%	4 6,5%	3 5,2%	3 4,5%
Complete high school	6 5,2%	6 8,2%	10 10,7%	8 9,8%	7 10,4%	8 13,8%	8 12,1%
Incomplete higher education	- -	- -	- -	1 1,2%	1 1,6%	1 1,72%	- -
Complete higher education	1 0,9%	2 2,7%	4 4,3%	2 2,4%	3 4,9%	3 5,2%	2 3%
Not applicable	2 1,7%	1 1,4%	1 1,1%	- -	- -	1 1,72%	- -

Source: Data extracted from SINAN from the Ministry of Health's DATASUS platform.
Prepared by the authors

In terms of age, in 2015 the most affected age groups were 40 to 49 years (19.15%) and 10 to 14 years (17.3%), and the least affected were 15 to 19 years (3.4%) and 80 years or older (4.3%), as shown in Table 2. In 2016, the highest prevalence occurred between 50 and 59 years (27.3%) and between 60 and 69 years (20.5%), and the 10 to 14 year age group, the highest percentage in 2015, was the lowest among the age ranges analyzed.

In the years 2017 to 2021, despite variations between age ranges, the most prevalent age groups, between 40 and 69 years old, remained close, with the maintenance of low involvement below 30 years old, 80 years old or older, and without a new peak in child rates.

In view of this result, it is plausible to deduce that the individuals who most experience leprosy are the adult population, economically active, specifically between 30 and 59 years old, which potentially influences the macroeconomic indicators of the city, since people of this age are likely to suffer the numerous consequences arising from the pathology.

Examples of repercussions are the lack of treatment instituted or done incompletely, adverse effects of medications, disabling dermatological and neurological lesions. These consequences from the point of view of analyzing the productivity and activities of the individual cause a social cost that cannot go unnoticed when it exists (CAVALCANTE; LAROCCA; CHAVES, 2020).

It should be noted that, although the peak incidence in 2015 was the highest and included the highest rate in the age group of 10 to 14 years, this temporal behavior was punctual in the analysis of the 6 consecutive years, but denotes the caution for potential dissemination at ages outside the life periods with the highest prevalence, which ends up contemplating the life of children and adolescents, which, in the near future, also tends to form the economically active population of the place.

This evaluation shows the importance of containing the transmissibility network in a broad and unrestricted way to age groups and social spaces, since, as the socioeconomic component ends up agglutinating in the problem of leprosy, human agglomerations and intimate contact at home or in the neighborhood fosters the perpetuation of these incidence scenarios (BERNARDES; OLIVE TREE; GRATTAPLAGIA; MELO; FRANCE; PEREIRA, 2021).

Regarding the gender variable, a greater number of affected men was observed, in general in the temporal analysis carried out, in line with Table 2. In 2018, the lowest male incidence was obtained in the time analyzed, with 56.1% of the total. In the year in which the highest incidence was obtained in males was in 2020, with a total of 67.2% of new cases.

This predominance of males in the incidence of cases is reflected in women's greater search for self-care and health services. Men have historically relegated their health to the background and neglected care, a scenario that has prospects for change, but with a strong ideological component rooted in society (GARCIA; OLIVE TREE; CARDOSO; BIRTH; BERNARDI, 2019).

Thus, it is necessary to recognize gender as a determining factor in the occurrence and severity of leprosy (SOUZA et al, 2018). In view of this, it is important to highlight the importance of carrying out health education activities in the disease in addition to the performance of the Family Health Strategy in Primary Health Care in the articulation and execution of increasingly earlier diagnoses of the pathology for the male segment, in view of this greater prevalence, aiming to combat, including greater disabilities resulting from greater severity generated even by partial care or treatment failures due to abandonment (PEREIRA; SILVA; DAYS; MARTIN; SILVA; ALENCAR, 2019).

The exception in the evaluation of prevalence by sex occurred in 2015, where a higher incidence of new cases was observed in women (53.1%) compared to men (46.9%). This time moment draws attention because it coincides with other atypical findings in the curve of the years analyzed, such as the highest incidence in the age group of 10 to 14 years. Once again, it is important to affect different portions of the typical for the epidemiology of the disease, such as women and children/adolescents, when there are moments of higher peak incidence.

From the ethnic-racial point of view, it is plausible to connect the epidemiological profile of leprosy with the fruits of colonization established in Brazil. This is because the colonial context of

the slave regime generated progressive social exclusion and marginalization and a subsequent process of urbanization of the cities with the peripheries relegated to the black class abolished from slavery, but attached to the shackles of the socioeconomic system. In this way, local human agglomerations were affected in a different way, making this segment vulnerable, which collaborated and collaborates for the prevalence of leprosy in black and brown skin (SIQUEIRA et al, 2021).

In fact, with regard to race/color, it is notable that this same diverse colonization generated a consequent miscegenation in the national territory, with the brown ethnicity acquiring an important participation in the absolute numbers of the population, in addition to the self-identification of the population (MOREIRA et al, 2022).

In this reasoning, according to table 2, it can be seen that the brown ethnicity is the one with the highest occurrence of new cases throughout the period analyzed, with a tendency to increase its participation in the total number of cases compared to the other ethnicities. For example, the year 2015 with the participation of 55.6% of the total, and, in 2021, collaborate with 71.2%, with an increasing curve, with the exception of 2019, which accounted for 50.8% of the total, and, in parallel, a greater occurrence of new black individuals affected.

It should also be mentioned that the white race is consolidated as the second most affected ethnicity in this analyzed profile of local incidence of leprosy, however, with a general trend towards a decrease in the behavior of the linear temporal analysis, with the highest percentages in 2015 (25.2%) and 2016 (27.4%), with the lowest incidence in 2021 (12.1%).

Regarding education, most patients are between incomplete elementary school, mainly incompleteness from the 1st to 4th grade in the foreground (with a peak of 32.7% in 2020), and incompleteness from the 5th to 8th grade (with a peak of 23.5% in 2015) in the background. In addition, the level of illiteracy oscillates in the second position, with a tendency to stabilize in the last years evaluated, and complete high school, with an increase in the last years under analysis. In addition, although it is a small number from a proportional point of view, the progressive increase in leprosy diagnoses in individuals with higher education is noteworthy

Individuals with less education tend to seek health services less or neglect greater care. These are people who do not have health insurance, due to lower income, less educational access and a lower chance of having private health insurance (SILVA; TOWERS; PEIXOTO, 2020).

A study carried out in a municipality in the northwest of São Paulo between 2014 and 2019 showed that the largest number of patients (31.1%) had incomplete schooling between the 1st and 4th grades, which indicates a lower level of formal education (MENEZES; LUIZ; CAMPOI; MAFRA, 2021).

A study carried out in the Jequitinhonha Valley also observed similar results, bringing in addition to the evaluation of schooling, the inversely proportional statistical correlation between the

variables schooling and degree of disability. The chance of presenting disabilities at the diagnosis of leprosy in the absence of schooling was 82% higher in this study when compared to those with elementary schooling, and, if having a high school level, the chance was even higher (LAGES; KERR; BUENO; NIITSUMA; LANA, 2018).

The educational level of individuals affected by leprosy prevails in fewer years of schooling in general. This scenario reflects the vulnerability component of this segment, which is potentially linked to precarious socioeconomic conditions (MARQUES; CABRAL; TUESDAYS; SANTANA; SILVA, 2017).

In this temporal analysis, it is imperative to highlight the unknown/blank cases in this item of education, present in table 2, constituting the second highest number recorded in 2017 (20.4%) and 2021 (25.7%). This information is worrying for the municipal scenario as it indicates that many data on leprosy end up not being included. It should be remembered that it is a pathology of compulsory notification and that the existing forms for proper registration are the instruments that give a technical "voice" to incident and prevalent cases.

A widely used analysis for leprosy is through the Madrid classification (1953), which analyzes the disease in four ways by clinical and sputum smear microscopic characteristics: indeterminate (paucibacillary), tuberculoid (paucibacillary), dimorphic (multibacillary) and virchowian (multibacillary) (FILHO, 2020). This classification takes into account the host's immune pole, with the indeterminate and dimorphous group having a stable response and the tuberculoid and virchowian groups with an unstable response (SOUZA, 2022).

Within these subdivisions, the operational classes are grouped into clinical forms according to the number of existing skin lesions, with paucibacillary cases with up to 5 lesions and multibacillary cases with more than 5 lesions and/or positive sputum smear microscopy, and these forms are used to facilitate the diagnosis and implementation of treatment with multidrug therapy (MDT) (OLIVEIRA; CAMARGO, 2020). Positive sputum smear microscopy is used as a complementary test when available, since a negative sputum smear microscopy does not exclude the diagnosis of leprosy (KAIZER; SARTORI, 2022).

From the point of view of the clinical variables researched in the study, the operational class in the diagnosis is one of the milestones. Throughout the period analyzed, there was a higher prevalence of multibacillary cases, in accordance with table 3, with an upward trend over the years visualized, despite the stabilization in 2021 with a value close to that of 2015. Especially in 2015, the highest absolute number of multibacillary cases in the period was evidenced (69 cases) and, in 2020, the highest proportional occurrence of multibacillary cases was recorded (70.7%).

With regard to the clinical forms in accordance with the Madrid classification, the present study found the highest incidence of the dimorphic form (with the lowest incident value in 2018 with

26.8% and the highest total participation in 2021 with 40.9%), followed by the leprowian form (with the lowest incident value in 2015 with 19.1% and the highest total participation in 2018 with 32.9%), as shown in Table 3. It is noteworthy that at the end of the period analyzed, there was a trend of not only prevalence of these two forms, but also of linear growth of these.

These data corroborate the perspective of the following variables: the number of skin lesions, where the involvement predominated with more than 5 lesions in all the interval, which defines the multibacillary form, with a peak of participation in 2021 (51.5%) and the therapeutic regimen in notification, with the majority participation of the regimen for the multibacillary forms as well, with 75.7% of the MDT portion with 12 doses in 2021.

Such a predominance of multibacillary forms in the years evaluated signals a delay in diagnosis, and they are the main sources of infection, due to the fact that they present a large number of bacilli in the cutaneous dermis and mucous membranes, potentially eliminating them into the environment. In view of this problem, household contacts are six to 10 times more likely to be affected by leprosy compared to the general population (CAMPOS; BAPTIST; GUERREIRO, 2018; SAINTS; MARTIN; FILE; COSTA, 2022).

Both in terms of operational class and clinical form according to the Madrid classification, it is estimated that there is a higher local prevalence of the multibacillary, virchowian and dimorphic forms. This reflects a delicate panorama, in which, in addition to the delayed diagnosis already discussed, there is latent underreporting in the due clinical moments, and also exposes a certain endemic stabilization of leprosy in force in the municipality, which, due to these poles and categorized profiles of the disease being high sources of transmitting load, is thought to continue the focus locally.

A similar study carried out in the municipality of Goianésia in the state of Goiás between 2015 and 2018 found that most of the patients surveyed were multibacillary, inherent to the dimorphic and lepromatous clinical forms, calling the debate to the need for effective control in the region and to consider compliance with public policies in areas considered priorities (ESPÍNDOLA et al, 2020).

Treatment is done with a free scheme offered by the SUS, which is different for paucibacillary and multibacillary cases. Paucibacillary patients use rifampicin and dapsone, with a supervised monthly dose and a self-administered daily dose, with therapy completed with 6 doses, within 9 months. Multibacillary drugs use rifampicin, dapsone, and clofazimine, with a supervised monthly dose and self-administered daily doses, and treatment is completed with 12 doses, within 18 months (BRASIL, 2021).

Table 3 – Incidence of leprosy cases in the municipality of Mossoró, analyzing the clinical variables, operational class at diagnosis, clinical form of notification, skin lesions, therapeutic regimen at notification, number of doses in paucibacillary and multibacillary, in the period from 2015 to 2021. Mossoró/RN, 2023.

Variables	Years						
	N 115	N 73	N 93	N 82	N 61	N 58	N 66
	2015	2016	2017	2018	2019	2020	2021
Operating Class in Diagnosis N %							
Paucibacilar	46 40%	26 35,6%	34 36,6%	27 32,9%	21 34,4%	17 29,3%	18 27,3%
Multibacilar	69 60%	47 64,8%	59 63,4%	55 67,1%	40 65,6%	41 70,7%	40 60,6%
Clinical Form of Reporting N %							
Ign/Branco	7 6,1%	2 2,7%	4 4,3%	3 3,6%	1 1,6%	7 12,1%	- -
Undetermined	28 24,3%	9 12,3%	7 7,5%	8 9,7%	7 11,4%	3 5,1%	8 12,1%
Tuberculoid	22 19,1%	15 20,5%	25 26,9%	19 23,1%	14 23%	11 19%	11 16,6%
Dimorphic	36 31,3%	29 39,7%	31 33,3%	22 26,8%	22 36,1%	20 34,5%	27 40,9%
Virchowiana	22 19,1%	16 21,9%	24 25,8%	27 32,9%	16 26,2%	15 25,8%	19 28,8%
Unclassified	- -	2 2,7%	2 2,1%	3 3,6%	1 1,6%	2 3,4%	1 1,5%
Skin lesions n %							
Informed 0 or 99	25 21,7%	18 24,6%	12 12,9%	9 11%	10 16,4%	1525,8%	12 18,1%
Single lesion	37 32,1%	16 21,9%	23 24,7%	15 18,3%	8 13,1%	6 10,3%	8 12,1%
2-5 injuries	13 11,3%	14 19,1%	24 25,8%	18 21,9%	11 18%	18 31%	12 18,2%
>5 injuries	40 34,7%	25 34,2%	34 36,5%	40 48,7%	32 52,4%	19 32,7%	34 51,5%
Therapeutic Regimen at Notification N %							
Ign/Branco	- -	1 1,3%	- -	- -	1 1,6%	1 1,7%	1 1,5%
PQT/PB/6 Doses	46 40%	26 35,6%	34 36,5%	27 32,9%	20 32,7%	17 29,3%	15 22,7%
PQT/MB/12 Doses	69 60%	46 63%	59 63,4%	55 67,1%	40 65,6%	38 65,5%	50 75,7%
Other Esq. Subs.	- -	- -	- -	- -	- -	2 3,4%	- -
Number of Deuces Paucibacilar N %							
Unfilled/Ign	36 31,3%	12 16,4%	13 14%	17 20,7%	9 14,7%	15 25,8%	40 60,6%
No dose	- -	- -	- -	- -	- -	- -	- -
Less than 6	8 6,9%	7 9,6%	11 11,8%	4 4,8%	6 9,8%	8 13,7%	11 16,6%
6 doses	24 20,8%	14 19,1%	27 29%	16 19,5%	13 21,3%	11 18,9%	3 4,5%
greater than 6	1 0,8%	1 1,3%	1 1%	- -	1 1,6%	- -	1 1,5%
Number of doses Multibacillary N %							
Unfilled/Ign	- -	- -	- -	- -	- -	- -	- -
No dose	35 30,4%	12 16,4%	14 15,1%	15 18,2%	9 14,7%	12 20,6%	45 68,1%
<12	34 29,5%	25 34,2%	43 46,2%	22 26,8%	25 40,9%	21 36,2%	19 28,8%

12 doses	40 34,7%	32 43,8%	35 37,6%	42 51,2%	26 42,6%	25 43,1%	2 3,03%
13 a 23	2 1,7%	- -	- -	- -	1 1,6%	- -	- -
24 doses	4 3,5%	4 5,4%	1 1,1%	3 3,6%	- -	- -	- -
> 24	- -	- -	- -	- -	- -	- -	- -

Source: Data extracted from SINAN from the Ministry of Health's DATASUS platform.
Prepared by the authors.

Regarding the number of doses per clinical form of the operational class, the study found, in general, two major limitations for combating the chain of perpetuation of leprosy transmission at the municipal level and the effectiveness of treatment and cure in treated patients.

The first of these was the low fill-in/ignored field in the number of doses for paucibacillary, which had a significant increase from previous years evaluated for the year 2021 (60.6%) along with the increase in the number of doses less than 6, which is the minimum recommendation of supervised doses for this type, with the highest value in 2021 (16.6%) of the 6 years seen on the platform.

The second obstacle is that, although in the number of doses for multibacillary drugs, the unfilled field has not acquired statistical value, which is a positive point, on the other hand, the number of patients who did not take any dose has increased

After that, there was some stabilization, but with a subsequent significant increase, taking the proportion of 68.1% in 2021, which was a year of important rises in the epidemiological indices of the disease in the city, as the other parameters already evaluated show. Added to these problems are the taking of doses in the profile of greatest contagion, the multibacillary, below the 12 minimum supervised doses that are recommended by the therapeutic protocols.

After the conduct with the drugs is completed, the patient undergoes an evaluation, and may be discharged or followed-up. When drug administration is done late, there will potentially be numerous consequences for individuals, such as decreased or even loss of sensitivity, especially in the hands, feet and eyes, in addition to other neurological and also ophthalmological impairments (DOURADO; SAINTS; NOGUEIRA, 2020).

Studies analyze that among the factors that are obstacles to treatment follow-up are the use of alcohol, religious beliefs, personal and family difficulties, feeling of powerlessness in the face of the health status, the prejudice experienced, the distance between the health center and the patient's home, among many other social crossings (SANTOS ; SAINTS; SILVA; SANTOS, 2022).

In order to achieve the goal of eliminating leprosy in endemic countries such as Brazil, strategies are needed that are based on the early diagnosis and cure of the cases that are undergoing treatment. To this end, the various technologies, approaches, and conducts, which also include new protocols, prevention with drugs and vaccines, and the performance of diagnostic tests, among others, are conceived as fundamental for attenuating the contagion network of M. leprae, especially

so that the patient has good adherence and does not abandon the therapy instituted (IGNOTTI; STEINMANN, 2020).

In this sense, continuing education in health emerges as a support in the process of problematizing methodologies within health services, by promoting criticality and filling training gaps in academia, which culminates in transformations in work practice, qualifying human resources. This improvement is fundamental, above all, in Primary Health Care, a care scenario that is known to actively search for new cases of leprosy, are the bridge of dialogue with the population, carry out continuous educational practices and feed the epidemiological bases that foster local and national public policies (MENEZES; COAST; MARTIN; ALVIM, 2023).

For this reason, it is essential to create public policies and adopt health education strategies, considering the sociocultural aspects of the population, ensuring that individuals have the appropriate information regarding the appropriate duration of antibiotic treatments, in addition to warning about the damage to health due to indiscriminate use, abstaining from a public health problem (GARBIN; BAPTIST; GARBIN; SALIBA, 2019).

FINAL CONSIDERATIONS

Leprosy still persists as a serious national and global public health dilemma, and its early diagnosis and treatment remain pressing needs for the effective improvement of multiple care for patients. In this work, it was possible to identify the behavior of leprosy in its clinical and epidemiological features in the municipality of Mossoró, in the state of Rio Grande do Norte. There was a higher incidence of new cases of leprosy in 2015 and a lower in 2020.

The profile of patients in the period was characterized by the predominance of males, aged between 40 and 69 years, brown ethnicity, with incomplete elementary schooling, notably the incompleteness of the 1st to 4th grade, with multibacillary operational classification, dimorphic and virchowian clinical forms, with more than 5 lesions, thus defining the operational typology, which is the majority. Still, there is a reasonable percentage that either had the record of the number of doses made ignored, or, when made, they were below what is recommended by the protocols.

The limited recruitment of variables available in DATASUS was identified as a difficulty in fully carrying out this work, which partially allows a more accurate analysis of the epidemiological and clinical profile of leprosy patients diagnosed and undergoing therapeutic follow-up. Thus, suggestions to the health services responsible for filling out the notification form are essential, with greater documentary detail of the available spaces aiming at greater completeness of information on leprosy.

It is imperative to insert new epidemiological and clinical technical variables, such as profession, presence of associated comorbidities, and impact habits and life such as alcoholism and

smoking, as well as the clinical evolution in the disease timeline in terms of sensitivity and dermatoneurology.

In further studies, with possible evolutions and adjustments to be made in the notification and clinical follow-up documents, it is suggested that the mapping of the profile of leprosy patients be expanded, especially with regard to data on adherence, abandonment of therapy and motivations, as well as forms of diagnosis in leprosy. Especially when dealing with patients from rural realities, such as Mossoró, a medium-sized city in the state of Rio Grande do Norte that polarizes referenced health services, care flows and people from the most varied social strata in the west of Rio Grande do Norte, and which also has high incidence coefficients of leprosy, being hyperendemic for this pathological condition.

To the extent that such measures are seriously placed in local, state and national relief, society will become a space that fosters social inclusion and fully dignifies the health of its members, minimizing millennial gaps left in the history of humanity ideologically by the stigmatizing cutaneous and social character of leprosy.

In further studies, it is suggested that the mapping of the profile of leprosy patients be expanded, especially with regard to data on adherence, abandonment of therapy and motivations, as well as forms of diagnosis in leprosy. Especially when dealing with patients from inland realities, such as Mossoró, a hyperendemic city for the disease in question.

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