DOI: https://doi.org/10.36489/saudecoletiva.2021v11i66p6369-6380

Historical and vulnerability factors associated with transmission of leprosy in Brazil

Factores históricos y de vulnerabilidad asociados con la transmisión de la lepra en Brasil

Fatores históricos e de vulnerabilidades associados a transmissão da hanseníase no Brasil

ABSTRACT
Objective: The study aimed to describe the role of the history of public policies and of vulnerability factors still associated with leprosy transmission in Brazil. Method: This is a descriptive study through a bibliographic review based on the search for articles from the last 20 years in databases. Results: It was found that biological, clinical, socioeconomic and political factors are still relevant to maintaining high rates and physical disabilities associated with leprosy in the country. Conclusion: The authors recommend to achieve the objectives proposed by the World Health Organization for the elimination of leprosy, a multiprofessional approach, with actors from the areas of health, human and exact, in integrated actions between primary care, health surveillance and public policy managers.
DESCRIPTORS: Leprosy; Policy; Vulnerability; Streaming.

RESUMEN
Objetivo: El estudio tuvo como objetivo describir el papel de la historia de las políticas públicas y de los factores de vulnerabilidad aún asociados a la transmisión de la lepra en Brasil. Método: Se trata de un estudio descriptivo mediante revisión bibliográfica a partir de la búsqueda de artículos de los últimos 20 años en bases de datos.. Resultados: Se encontró que los factores biológicos, clínicos, socioeconómicos y políticos siguen siendo relevantes para mantener altas tasas y discapacidades físicas asociadas a la lepra en el país. Conclusión: Los autores recomiendan lograr los objetivos propuestos por la Organización Mundial de la Salud para la eliminación de la lepra, un enfoque multiprofesional, con actores de las áreas de salud, humana y exacta, en acciones integradas entre atención primaria, vigilancia de la salud y gestores de políticas públicas.
DESCRIPTORES: Lepra; Política; Vulnerabilidad; Transmisión.

RESUMO
Objetivo: O estudo teve como objetivo descrever o papel da história de políticas públicas e de fatores de vulnerabilidade ainda associados à transmissão da hanseníase no Brasil. Método: Trata-se de um estudo descritivo através de revisão bibliográfica a partir de busca de artigos dos últimos 20 anos em bases de dados. Resultados: Verificou-se que fatores biológicos, clínicos, socioeconômicos e políticos ainda encontram-se sendo relevantes para manutenção de elevados índices e de incapacidades físicas associados à hanseníase no país. Conclusão: Os autores recomendam para atingir os objetivos propostos pela Organização Mundial de Saúde de eliminação da hanseníase, uma abordagem multiprofissional, com atores das áreas de saúde, humanas e exatas, em ações integradas entre a atenção básica, vigilância em saúde e gestores de políticas públicas.
DESCRITORES: Hanseníase; Lepra; Política; Vulnerabilidade; Transmissão.

RECEIVED ON: 01/06/2021 **APPROVED ON:** 02/18/2021

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INTRODUCTION

Leprosy is a highly disabling disease and still stigmatized by its history from past centuries. [1] Worldwide, more than 200,000 new cases are detected annually, with India, Brazil and Indonesia accounting for about 80% of all new cases. [2]

Leprosy presents with a clinical picture that varies from person to person, with the main manifestations: the presence of one or more hypochromic, hyperchromic or erythematous spots; paresthesias at the injury site; papules, tubers and nodules; thickening of the nerves and pain, loss of sensation and/or strength in the affected nerve areas. [1,3,4]

Brazil is the country with the highest incidence and prevalence of leprosy in the world and the only one among the 35 countries of the Pan American Health Organization (PAHO) that has not yet eliminated it as a public health problem. [5] In 2018, 28,660 new cases were registered in Brazil, 13,73% of all new cases detected in the world and 92,6% of cases detected in the Americas. Of these, approximately 8,5% were detected with grade 2 deformity. [6]

Due to the great extent of Brazil, it is known that leprosy is heterogeneously distributed among states and municipalities, with regions with similar health standards to those of developed countries and regions with mortality rates similar to those of the poorest countries in the southern hemisphere. [7,8]

In addition to the territorial size, different factors are associated with the transmission of leprosy in Brazil, and it is important to carry out studies to characterize the vulnerability profiles involved in its transmission and the history of public policies for its confrontation in the country.

METHOD

The article is a descriptive study through bibliographic review. The research was carried out in the Scielo (Scientific Electronic Library Online) and Pubmed databases using the descriptors: leprosy AND politics AND Brazil; leprosy AND transmission AND Brazil, in Portuguese and English. As an inclusion criterion, it was established that the articles should be complete, published in the last 20 years in indexed journals, present discussions about factors involved in leprosy vulnerability and control in Brazil and be written in Portuguese or English. During the reading process, the main factors were pointed out to answer the guiding question: which vulnerability factors are still involved with leprosy transmission in Brazil? In order to assess the role of the policies involved in the leprosy scenario in the country, the main public coping actions have been historically raised during the last years. During the reading process, the main factors were identified to answer the guiding question: what are the vulnerability factors are still involved with leprosy transmission in Brazil? In order to assess the role of the policies involved in the leprosy scenario in the country, the main public actions of confrontation have been raised historically during the last years.

RESULTS

After a critical evaluation by the authors, the data found in the notes were gathered and the main information was synthesized in text format. According to the literature analysis, the data will be presented according to the main biological, clinical and epidemiological, geographic, socioeconomic and political factors involved in the continuity of leprosy prevalence in Brazil.

Biological factors

Considering the parasite-host relationship, only 5% of individuals in contact with the pathogen are susceptible to leprosy. As the variability of M. leprae is low, the genetic profile and polarization of the host's immune response are crucial in combating the pathogen. [9,10,11] Alterations in the PARK2, IL-10 and LTA genes and in the coding variations of TLR1 and SLC11A1 are examples of an association with leprosy per se as they reduce the production of IL-6 and CCL2 in macrophages. [12]

In 2009, the genome-wide association of leprosy (GWAS), described the main genes involved in the response to leprosy 13, the main ones being the NOD2 and LACC1 routes. The NOD2 receptor recognizes the dipeptide muramil and signals the production of pro-inflammatory cytokines necessary for antimicrobial activity. [13,14] LACC1 interacts directly with NOD2, producing species reactive to oxygen and producing pro-inflammatory cytokines. Polymorphisms in LACC1 are a risk factor due to reduced signaling via LACC1-NOD2. [15] Another example is the HLA-A*28 gene, related to the dimorphic and virchowian clinical form. [16] Other polymorphisms associated with the beginning of polarization for clinical forms are still being investigated. [17] Related to the pathogen, changes in the M.

leprae tetratricopeptide (TTC) may be contributing to resistance to polychemotherapy. [18, 19]

Clinical and epidemiological factors

Leprosy is more prevalent in men than in women and they are at a higher risk of being diagnosed with grade two physical disability. [20] Among the factors involved are the delay in seeking health services and the lack of more programs aimed at men's health, and the chance of not adhering to treatment is three times greater than that of women. [20,21]

When drawing the epidemiological profile in Brazil, Veloso et al., 2018, revealed the indeterminate form as the least frequent, being justified by the difficulty of diagnosis as it has a low number of injuries. [22]

In Brazil, the most affected age group is the economically active, with an indirect impact on the economy, especially when the diagnosis is late and the individual already has physical disabilities. [22] The failure to perform sputum smear microscopy or its non-notification, reveals that it is still a neglected examination in the diagnosis and classification of leprosy. [8,23] WHO has established that efforts to reach the 2020 targets must focus on timely detection of cases before disabilities occur, especially with the examination of collectives. [24]

Inadequate treatment is an important risk factor for disease transmission, as multibacillary patients continue to transmit the bacteria. The relapse of the disease can occur years after the irregular and/or ineffective polychemotherapy, with the possible appearance of strains resistant to treatment, constituting a risk to society. [1]

Reaction episodes, which may appear before, during or after treatment, are found in 30 to 50% of individuals. In 2015, approximately 5,5% of new cases in Brazil were detected grade 2 deformity, with serious injuries that compromise the functionality of the affected limb or organ and 67,86% were multibacillary. [2]

The degree of physical disability is indirectly related to the population's lack of information about the disease's clinic, the time between the disease and its diagnosis and the lack of access to services with professionals trained to detect leprosy early. 5,7% of people who discover they have leprosy in Brazil, already have sensitive and / or motor injuries that could have been avoided. [25] Thus, the degree of disability is an indicator for assessing the effectiveness of early diagnosis and people's adherence to treatment. [26] It is recommended that health managers be aware of possible increases in multibacillaries and the number of treatment dropouts and physical disabilities.

Social and economic factors

Socioeconomic conditions have a great influence on the distribution and spread of leprosy, with a close relationship with precarious housing conditions, low education and income and with migratory movements. [27,28]

The home transmission of leprosy is associated with a 2,9 to 5,0 times greater risk when you already have a case in the family. [29] As transmission occurs through the airways through intimate contact, prolonged contact with an individual with high numbers of bacilli and untreated predisposes to contagion. [30] Housing with a large number of people in the same environment is a vulnerability factor for the maintenance of the bacillus transmission chain. [1,31,32]

The high rate of cases in individuals with low education is an indirect marker of precarious self-care. [1,29,32] Formal education provides knowledge about health needs, seeking medical assistance and greater access to health services. 33 The high level of education has already been identified as a protective factor against leprosy and to complete the polychemotherapy scheme. [32,34]

Leprosy also has a profound relationship with migratory movements, since they facilitate the spread of the disease [27], being important actions integrated in primary care for the screening of possible cases of infections, reception and monitoring of families arising from migratory effects in their territories.

Geographic factors

With the great extent of Brazil, leprosy is heterogeneously distributed, with regions with health standards similar to those of developed countries and regions with mortality rates similar to those of the poorest countries in the southern hemisphere. [8, 35] The highest prevalence coefficient is in the Midwest, North and Northeast, traditionally considered to be socio-economically unfavorable regions. 36 The South and Southeast region, on the other hand, have a lower prevalence rate and a high cure rate. [8]

In this context, geoprocessing, defined as a set of mathematical and computational techniques that are used to produce cartographic materials [31], it allows visualizing the distribution of diseases and injuries in the community. PAHO itself recommends that countries with a large territorial extension make use of spatial analysis so that health services are reorganized to meet the needs of the population. [37] This analysis is used to identify areas with high incidence related to social inequalities, helps to improve epidemiological surveillance measures and to elucidate the spatial trend that leprosy follows according to the reality of each location. [28,36, 38]

Currently, the quality of case reporting influences the geoprocessing and analysis of territorialization data. When assessing the quality of the data in some places referring to leprosy, part of the notifications in SINAN are incomplete or differ between their own information. [39] Improvements in notifications are important to outline epidemiological and spatial profiles of leprosy, making it possible to plan public policies aimed at the real needs of the population.

Historical and political factors

Public leprosy elimination policies are developed around the world. In 1991, WHO set a goal to reduce the prevalence rate from 1 for every 10.000 inhabitants by 2000. 40 From 1998 onwards, control actions for primary care were decentralized. [41,42] In 2004, with the National

Leprosy Elimination Program (PNEH), there was a redirection of leprosy care policies to municipalities. This enabled the visibility of leprosy distribution in the country with activities based on the reality of each location. [42]

In 2005, without success in eliminating leprosy, Brazil launched the National Leprosy Elimination Plan 2006-2010, with the objective of decentralizing Primary Care, the commitment of state and municipal governments to take charge of offering jobs to individuals living with leprosy, the guarantee of polychemotherapy and training of health professionals. [1]

In 2010, Ordinance No. 3,125 was published, which approved the Guidelines for Leprosy Surveillance, Care and Control, which advocated actions for the entire SUS Primary Care network and guaranteeing specialized care in the outpatient and hospital network whenever necessary, thus strengthening comprehensive care and health promotion in Brazil. [43]

However, in 2011 the Ministry of Health considered the results insufficient and incompatible with the capacity of SUS. Trying to solve this problem, the General Coordination of Leprosy and Diseases in Elimination was created, whose main objective was to strengthen the response to leprosy and other infectious diseases endemic in the low-income population and considered neglected. [1]

Since then, the "Integrated plan of strategic actions for the elimination of leprosy, filariasis, schistosomiasis and onchocerciasis as a public health problem, trachoma as a cause of blindness and control of geo helminthiasis" was launched between 2011 and 2015. [1, 35] One of the main objectives of the plan was to guarantee access to health services for the poorest population, optimizing resources to combat these diseases. And in 2016, this same team launched the "Guidelines for surveillance, care and elimination of leprosy as a public health problem" that aimed, in addition to eliminating the disease, standardizing the care of the person with leprosy and standardizing the surveillance procedures valid for all the national territory. [18,43]

Already more recently, WHO launched in 2016 the Leprosy Elimination Strategy 2016-2020, with the aim of globally interrupting transmission or eliminating it and reducing grade 2 deficiencies in newly detected cases to below 1 per million population in global level by 2020. [2] The strategy was based on strengthening government control, coordination and partnership in providing sufficient resources and subsidizing research, in combating leprosy and its complications, in combating discrimination and in promoting social inclusion. [2]

In addition, strengthening strategies to avoid abandoning polychemotherapy is extremely important.

All leprosy elimination plans and strategies instituted in Brazil since 1991, with the introduction of polychemotherapy and the increase in the detection of new cases, were the cause of the decrease of about 90% in the global number of cases in the last two decades.[1] The reduction in the rate of detection of new cases occurred mainly in the south and southeast, where most municipalities were able to control leprosy. [8] However, in the north, central-west and northeast regions, the reduction in the coefficient is slow and insufficient. [44]

DISCUSSION

Before the vulnerability factors found for the prevalence of leprosy in Brazil, evaluations of the implementation of municipal leprosy control programs and the Family Health Strategy (FHS) regarding the diagnosis, classification and treatment of leprosy are still of great relevance for the achievement of the goals established by the WHO.

Health actions, including the active search for an early diagnosis and establishment of appropriate treatment, consist of important coping strategies that can be carried out to eliminate the emergence of new cases and diseases associated with leprosy. 45,46 In schools in the municipalities, case search actions may be carried out in children under 15 years of age.[47,48]

Another important aspect for addressing issues of vulnerability is the need for training activities for FHS professionals regarding the basic actions that can be taken aiming at the control of leprosy and the prevention of disabilities. [49]

The awareness of health professionals to be more careful in filling out the information in the notification forms is also an important strategy for surveillance policies and future situational retrospective studies in different territories.

In addition, strengthening strategies to avoid abandoning polychemotherapy is extremely important. Taking into account the particularities of each individual, location and health service, there are a plurality of factors involved in interrupting and abandoning treatment. [50,51] These factors must be known and specific actions for each local need must be carried out. Actions like these may prevent transmission, disease progression and the development of physical disabilities in the infected individual.

CONCLUSION

In recent years, Brazil has advanced in public policies and actions to combat new cases and decrease the number of diseases related to leprosy. However, the country still faces challenges to eliminate its transmission. The country's epidemiological scenario highlights the need for integration between health professionals, both human and exact, in a multiprofessional way, to work in primary care and health surveillance. This integration will be important to understand the situation of leprosy in the country, as well as in health planning to face it. ■

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