

## RESEARCH LETTERS



## Leprosy in the elderly population and the occurrence of physical disabilities: Is there cause for concern?\*

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Dear Editor,

Leprosy continues to be an important public health problem in many developing countries, particularly Brazil.<sup>1</sup> Although the number of leprosy cases has declined in recent decades, more than 25,000 new cases were diagnosed throughout the country in 2016 alone.<sup>2</sup> Furthermore, recent studies have argued that there are far more cases that remain undiagnosed.<sup>3</sup>

Brazil has undergone a drastic demographic transition. The reduction of mortality rates and subsequent increase in life expectancy, in conjunction with reduced fertility rates, are factors that have contributed to the aging of the population.<sup>4</sup>

This double scenario, characterized concurrently by the persistence of the disease and the aging of the population, suggests that leprosy is a real health problem among elderly people. Additional aspects that further corroborate the need for reflection on this subject include the incapacitating potential of leprosy and the lower immunological competence of elderly people. Concern about the occurrence of physical disabilities has been highlighted. One of the three main goals of the "Global Leprosy Strategy 2016–2020", estab-

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TABLE 1: Sociodemographic and clinical characterization of leprosy cases diagnosed in elderly people at the Dr Altino Lemos Santiago Reference Center, Juazeiro, Bahia, Brazil, 2010–2016

Variable	Degree 0 195	Degree I or II 78
	(71.4%)	(28.6%)
	n (%)	n (%)
<b>Gender</b>		
Female	102 (81.6)	23 (18.4)
Male	93 (62.8)	55 (37.2)
<b>Age Range</b>		
60-69	126 (74.1)	44 (25.9)
70-79	58 (71.6)	23 (28.4)
80 +	11 (50.0)	11 (50.0)
<b>Race</b>		
White	38 (77.5)	11 (22.5)
Black	32 (71.1)	13 (28.9)
Yellow	1 (50.0)	1 (50.0)
Brown	123 (69.9)	53 (30.1)
Unknown	1 (100.0)	0 (0.0)
<b>Schooling</b>		
Illiterate	53 (64.6)	29 (35.4)
Elementary School	104 (71.2)	42 (28.8)
High School	17 (77.3)	5 (22.7)
Higher education	13 (100.0)	0 (0.0)
Unknown	8 (80.0)	2 (20.0)
<b>Home location</b>		
Urban	179(72.8)	67 (27.2)
Rural	15(60.0)	10 (40.0)
Periurban	1(50.0)	1 (50.0)
<b>Clinical Form</b>		
Indeterminate	20 (90.9)	2 (9.1)
Tuberculoid	75 (90.4)	8 (9.6)
Borderline	82 (62.6)	49 (37.4)
Lepromatous	18 (48.6)	19 (51.4)
<b>Operational classification</b>		
Paucibacillary	95 (90.5)	10 (9.5)
Multibacillary	100 (59.5)	68 (40.5)
<b>Entry mode</b>		
New case	180 (75.3)	69 (27.7)
Transfer	04 (66.6)	2 (33.4)
Relapse	11 (64.7)	6 (35.3)
Others	0 (0.0)	1 (100.0)
<b>Detection mode</b>		
Routing	122 (72.2)	47 (27.8)
Spontaneous demand	49 (74.2)	17 (25.8)
Collective examination	1 (50.0)	1 (50.0)
Contact exam	3 (100.0)	0 (0.0)
Others	24 (0.0)	3 (60.0)
Unknown	18 (64.3)	10 (35.7)

Source: SINAN NET – municipal database July 2017

TABLE 2: Logistic regression having as a dependent variable the presence or absence of physical disability in the diagnosis among leprosy cases diagnosed in the elderly at the Dr. Altino Lemos Santiago Reference Center, Juazeiro, Bahia, Brazil, 2010–2016

Variable	Physical disability		p-value	OR	IC 95%
	Degree I or II	Degree 0			
<b>Gender</b>					
Male	55 (37.2%)	93 (62.8%)	0.001	2.62	1.45–4.60
Female	23 (18.4%)	102 (81.6%)			
<b>Age range</b>					
≥ 75	22 (40.7%)	32 (59.3%)	0.027	2.00	1.07–3.73
< 75	56 (25.6%)	163 (74.4%)			
<b>Relapse</b>					
No	72 (28.1%)	184 (71.9%)	0.526	1.39	0.49–3.90
Yes	6 (35.3%)	11 (64.7%)			
<b>Operational classification</b>					
Multibacillary	68 (40.5%)	100 (59.5%)	0.001	6.46	3.14–13.28
Paucibacillary	10 (9.5%)	95 (90.5%)			

Source: SINAN NET – municipal database July 2017

lished by the World Health Organization (WHO), is the reduction of new cases of grade II leprosy to less than one case per million inhabitants.<sup>1</sup>

Thus, all cases of leprosy diagnosed and reported among the elderly population (age 60 or older) at the reference center in the city of Juazeiro, Bahia, Brazil between 2010 and 2016 were included in this study, which seeks to describe the occurrence of physical disabilities and stimulate reflection on this problem.

The following variables were analyzed: municipality of residence, degree of physical incapacity at diagnosis, sex, age, race, level of schooling, area of residence, clinical form, operational classification, entry mode, and detection mode. A simple descriptive analysis of these variables was carried out, and the logistic regression model was used to identify factors associated with the degree of physical disability in order to calculate the odds ratio (OR). Confidence interval and p-value were set at 95% and <0.05, respectively.

Among the 273 elderly individuals diagnosed, 28.6% were diagnosed with some type of disability. The proportion of elderly males with disability was almost 2.6 times higher than that of women. The proportion of elderly people with disabilities increased with age, as well as with low level of schooling in both sexes (Table 1).

At the same time, an increase in the proportion of physical disabilities was associated with multibacillary forms of the disease (borderline and lepromatous). Of the individuals with multibacillary operational classification, 40.5% already had some degree of disability, compared to only 9.5% in paucibacillary cases (Table 1). This confirms that the higher the bacillary load, the greater the risk of neural damage and physical incapacities.

Regarding entry mode, 75.3% of new cases did not present any physical incapacity at the moment of diagnosis. With respect

to this variable, relapsed entry deserves attention. Notwithstanding the fact that it represented only 6.0% of cases, more than one third of these presented some degree of disability (Table 1).

Regarding mode of detection, referrals (61.9%) and spontaneous demand (24.2%) stood out. When analyzed according to the presence of disability, two facts deserve attention. The first one concerns the contact test, in which none of the subjects presented any incapacity; however, this mode is not very expressive, representing only 1.1% of the total cases. This finding reinforces the idea that early diagnosis prevents the occurrence of disability. The second fact relates to the number of ignored or blank fields, which totaled 10.2% (Table 1).

The logistic regression analysis showed an association between physical disability and the following variables: gender (OR 2.62,  $p = 0.001$ ), age group (OR 2.00,  $p = 0.027$ ), and operational classification (OR 6.46,  $p = 0.001$ ), thus reinforcing the aforementioned findings (Table 2).

The results obtained in this study suggest the existence of a relationship between leprosy in the elderly population and the occurrence of physical disabilities. This study observed the following: the presence of some degree of physical incapacity in one third of patients at the time of diagnosis; an increased proportion of cases accompanying advanced age and low level of schooling; the prevalence of multibacillary forms; and, finally, a higher frequency of leprosy in males.

In view of the above, it should be noted that the increase in the number of leprosy cases in the growing elderly population will require that healthcare providers implement specific actions in their areas of care, and that public policies address this issue with programs to control leprosy.<sup>5</sup> □

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## High prevalence of psoriasis in a family from Goiás State, Brazil\*

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Dear Editor,

Psoriasis is a complex, multifactorial, chronic inflammatory disease involving the skin, characterized by keratinocytes hyperproliferation and vascular alteration, presenting clinical variability; it may or may not be associated with inflammation of the joints.<sup>1</sup>

Psoriasis prevalence studies are more numerous than incidence studies in the literature, probably because notification of the disease is not mandatory.<sup>2</sup> Therefore, this study determined the prevalence of psoriasis in a family in Goiás State, Brazil, according to the phenotype defined through clinical diagnosis at a private clinic and a public hospital. Data were collected between 2003 and 2016. Patients provided informed consent for use of their data for research and publication in scientific journals.

As shown in the pedigree chart of 156 members of this family from Goiás, 37 individuals presented vulgar, pustular or arthropathic psoriasis, representing a prevalence of approximately 23%. Of these patients with psoriasis, 20 (54%) were male, and 17 (46%) were female (Figure 1). Non-psoriatic clinical manifestations included severe and extensive follicular hyperkeratosis throughout the body, which was diagnosed in 1 patient whose father had severe psoriasis. Eleven individuals presented nonspecific skin lesions that could progress to psoriasis, and 3 of these individuals subsequently had a clinical diagnosis of psoriasis confirmed.

This study found that men were more affected by the disease than women, but the values did not present significant difference. The majority of studies have also reported a higher prevalence of the disease in males and adults, although psoriasis may occur equally in both genders and at any age.<sup>2</sup>

Prevalence data found in this study were higher than the values reported in the Central-West region and in the Brazilian capitals. Recently, Romiti *et al.* (2017) reported the psoriasis prevalence in Brazil.<sup>3</sup> According to the study, the prevalence of the disease varies between 1.10% and 1.51%, showing that, within the Brazilian capitals, differences exist between geographical regions and between age groups. Another study reported a psoriasis prevalence of 2.15% in the São Paulo State population.<sup>4</sup>

Monogenic or Mendelian disorders present a classic Mendelian segregation pattern, *i.e.*, fixed proportions among progeny. The pattern is characterized by a recognizable inheritance and by the presence of a phenotype highly correlated with a single gene at the causal locus of the disease. The multifactorial inheritance pattern, however, results from complex interactions of various genetic and environmental factors.<sup>5</sup>

The etiopathogenesis of psoriasis is very complex and not yet fully known. It is considered an immuno-mediated genetic disease, involving interaction with the environment and exhibiting a multifactorial inheritance pattern.<sup>1,5</sup> As seen in the pedigree chart shown here, psoriasis does not present Mendelian inheritance, but is instead multifactorial.

The present study showed a high prevalence of psoriasis in a family from the Goiás State, Brazil, finding a multifactorial pattern of inheritance, with more men than women being affected by the disease. Future studies may be conducted to analyze and determine disease-related mutations in this family, relating to the clinical phenotype. □