



Applicability of the instrument “Screening of Activity Limitation and Safety Awareness” in elderly with leprosy^a

Aplicabilidade do instrumento “Screening of Activity Limitation and Safety Awareness” em idosos com hanseníase

Aplicabilidad del instrumento “Screening of Activity Limitation and Safety Awareness” en personas de edad avanzada con lepra

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ABSTRACT

Objective: To analyze the applicability of Screening of Activity Limitation and Safety Awareness (SALSA) for the evaluation of the functional capacity of the elderly with leprosy. **Method:** Descriptive and transversal research, developed with 77 elderly people with Hansen's disease accompanied at the Reference Center in Dermatology, in Fortaleza, Ceará, from June to August 2015, through the application of SALSA and two other scales already validated for use in elderly. For the analysis, descriptive and inferential statistics were used. **Results:** There was convergence between the scales ($p=0.0000$) on the evaluation of functional capacity. The variables age and gender showed a larger number of associations with the activities evaluated, whereas, in the clinical variables related to leprosy, just the grade of disability presented a relationship with more than two activities. **Conclusion and Implications for practice:** The SALSA has contributed to the effective evaluation of functional capacity in the population studied, being more influenced by age than by leprosy. SALSA's application is recommended in the initial consultations as a tool for screening of the functional capacity of older people with leprosy.

Keywords: Leprosy; Geriatric Assessment; Personal Autonomy.

RESUMO

Objetivo: Analisar a aplicabilidade da *Screening of Activity Limitation and Safety Awareness* (SALSA) para a avaliação da capacidade funcional de idosos com hanseníase. **Método:** Pesquisa descritiva, transversal, desenvolvida com 77 idosos com hanseníase acompanhados no Centro de Referência em Dermatologia, em Fortaleza, Ceará, de junho a agosto de 2015, por meio da aplicação da SALSA e de outras duas escalas já validadas para uso em idosos. Para a análise, utilizou-se estatística descritiva e inferencial. **Resultados:** Houve convergência entre as escalas ($p=0,0000$) na avaliação da capacidade funcional. As variáveis idade e sexo apresentaram maior número de associações com as atividades avaliadas, ao passo que, nas variáveis clínicas relacionadas à hanseníase, apenas o grau de incapacidade física apresentou relação com mais de duas atividades. **Conclusão e Implicações para a prática:** A SALSA contribuiu para a avaliação eficaz da capacidade funcional na população estudada, sendo mais influenciada pela idade do que pela hanseníase. Assim, recomenda-se a sua aplicação nas consultas iniciais como instrumento de rastreio da capacidade funcional de idosos com hanseníase.

Palavras-chave: Hanseníase; Avaliação Geriátrica; Autonomia Pessoal.

RESUMEN

Objetivo: Analizar la aplicabilidad del *Screening of Activity Limitation and Safety Awareness* (SALSA) para evaluación de la capacidad funcional de personas mayores con lepra. **Método:** Investigación descriptiva, transversal, desarrollada con 77 personas mayores con enfermedad de Hansen acompañadas por el Centro de Referencia en Dermatología, en Fortaleza, Ceará, desde junio hasta agosto de 2015, mediante la aplicación de la SALSA y otras dos escalas ya validadas para uso en personas de edad avanzada. Para el análisis, se utilizó estadística descriptiva e inferencial. **Resultados:** Hubo convergencia entre las escalas ($p=0,0000$) en la evaluación de la capacidad funcional. Los variables edad y sexo mostraron mayor número de asociaciones con las actividades evaluadas, mientras que en las variables clínicas relacionadas con la lepra, apenas el grado de incapacidad física presentó relación con más de dos actividades. **Conclusiones:** La SALSA ha contribuido a la efectiva evaluación de la capacidad funcional en la población estudiada, siendo influenciada más por edad que por la lepra. **Implicaciones para la práctica:** Su aplicación se recomienda en las consultas iniciales como una herramienta para la detección de la capacidad funcional de personas mayores con lepra.

Palabras clave: Lepra; Evaluación Geriátrica; Autonomía Personal.

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INTRODUCTION

The social representations built on aging are commonly associated with disease and dependence, which raises constant questions about the increase in life expectancy of the population and its association with increased morbidity and impact on quality of life, considering the biological decline brought by the physiological process of aging, occasionally accompanied by disease and functional changes.¹

Thus, diseases with disabling and chronic outcomes that may potentiate functional limitations stand out, such as leprosy, an infectious disease that even when diagnosed early, generates negative social and economic impacts on people affected, including after discharge, and which has shown increasing prevalence in the elderly population.²

In 2017, 210,671 new leprosy cases were diagnosed in the world, Brazil being among the three countries with the highest detection rates of new cases, accounting for 26,875 cases. In Ceará, between 2014 and 2018, 8,536 new cases of the disease were reported, with highlight to the capital city of Fortaleza with 2,601 (30.4%) cases.³

In geriatric evaluation, functional assessment determines functional impairment, as well as the degree of dependence and the types of care that will be required to meet it, determining factors for their personal autonomy. For this evaluation is usually implemented the analysis of performance Activities of Daily Living (ADL) and Instrumental Activities of Daily Life (IADL). The ADL are related to self-care (eating, bathing, dressing, mobilizing, walking, going to the bathroom, and maintaining control over their physiological needs), while IADL are related to the participation of the elderly in their social environment, indicating the ability to lead an independent life (using transportation, handling medicine, shopping, performing light and heavy household chores, using the telephone, preparing meals, and taking care of their own finances).⁴

The aspects related to disability, dependence and personal autonomy are crucial when trying to measure the quality of life in the elderly and the rest of society. It is estimated that each year, about 10% of the population over 75 years old becomes dependent on one or more activities, which prevents the elderly living or staying at home alone, among other negative consequences in their social routine.⁵

Management of physical disabilities in leprosy is initiated through the Simplified Neurological Assessment (SNA), which includes examination of the face, nose, eyes, upper limbs and lower limbs. The results of this evaluation are classified according to the Grade of Disability (GD), an instrument that indicates the existence of disabilities and/or deformities resulting from the disease, which may compromise the functionality of the person affected by the disease.⁶

However, in addition to identifying disabilities, it is necessary to know how these disabilities and/or stigma associated with leprosy affect the performance of daily living activities and the social participation of patients.

Disability assessment is widely and systematically performed in leprosy patients; however, this study aims to alert to the condition of the elderly with leprosy, which even without physical disability related to the disease, may show a decline in their functional performance related to the aging process, which will require specific care needs.

Given the above, it is emphasized the need to use a valid instrument that can synthesize the general assessment of the elderly with leprosy, focusing on their functionality, social participation, which can directly affect their quality of life.

These characteristics are present in an aggregate form in the Screening of Activity Limitation and Safety Awareness (SALSA), a scale used and recommended in Brazil by the Ministry of Health to measure activity limitation and risk awareness due to deformities of people affected by leprosy, but not evaluated for its applicability in the elderly population yet.⁶

Thus, the following research question was outlined: Can the Screening of Activity Limitation and Safety Awareness (SALSA) assess the functional capacity of the elderly with leprosy, even in the absence of disabilities generated by the disease? To answer this question, this study aims to analyze the applicability of SALSA for the evaluation of the functional capacity of elderly people with leprosy.

METHOD

Quantitative, descriptive, cross-sectional study, conducted with all 77 elderly patients with leprosy attending at the Reference Center in Dermatology, in Fortaleza, Ceará, from June to August 2015. The research site is a state reference in the monitoring of people with leprosy with a multidisciplinary approach to medicine, nursing, physiotherapy, occupational therapy and social work. To participate in the study, the following inclusion criteria were established: being 60 years of age or older, being diagnosed with leprosy regardless of the time of treatment, and having performed SNA at the unit at the time of the interview (regardless of the GD result). Elderly patients who were discharged from Multidrug Therapy (MDT) for leprosy but who were undergoing treatment and follow-up at the unit were also included. The elderly who presented alterations that compromised verbal communication and understanding of SNA were excluded.

The sociodemographic variables investigated were: age, gender, city of residence, number of people in the household, education, and monthly household income. The clinical characteristics were: presence of comorbidities, use of adaptations, bacilloscopic index, clinical form, regimen of treatment, and presence of leprosy reaction.

Data were collected through an interview form that addressed demographic and socioeconomic data of each elderly. Meanwhile, the clinical aspects were extracted from the participant's medical record and complemented with it, at the time of the interview which took place immediately after the consultation for disability prevention, aiming to promote greater fidelity between GD and its influence on functional capacity.

The evaluation of the GD was performed through the SNA result, which involves the examination of seven peripheral nerves distributed across face, upper limbs and lower limbs.⁶

To verify the applicability of the SALSA scale in the dimensioning of functional capacity of elderly people with leprosy, two translated and validated scales were used in Brazil; the Katz index and the Lawton and Brody scale, as standard scales for this modality of assessment.⁴

During the application of the SALSA scale, which lasted approximately 15 minutes, 20 questions were asked covering the domains mobility (feet), self-care, work (hands) and dexterity (hands). For each question, the participant answered “yes” or “no”. If the answer was positive, the interviewer should investigate the level of ease in which could be performed the activity addressed in the question, whether “easy”, “a little difficult” or “very difficult”. For negative answers, the interviewer should also investigate why the patient could not perform the assessed activity, where the patient could classify the motivation into “I don’t need to do this”, “I physically can’t”. The final score ranges from zero to 80, and higher scores are indicative of increasing limitation in performing activities. The degrees of limitation are classified as: no limitation (up to 24), mild limitation (25 to 39), moderate limitation (40 to 49), severe limitation (50 to 59) and extreme limitation (60 to 80). In the risk awareness score, the calculation is performed by summing the responses signaled by the drawing of a circle, ranging from zero to 11, where the highest values indicate increasing awareness of the risks involved in certain activities, but also indicate that there is an activity limitation due to this.⁷

The Katz index consists of six items, which are analyzed and scored according to whether they are dependent or independent, namely: bathing, dressing, going to the bathroom, mobilizing, control over continence and eating. The scale proposes a classification of the elderly as independent (six points), moderately dependent (four to five points), and very dependent (less than 3 points).⁴

The Lawton and Brody scale is made up of nine items, and allows to assess whether a person can prepare their own meals, do household chores, do laundry, take medicine, reach places where long walking distances are required, go to the bakery, handle money and use the phone. Each question admits three answers, namely: “Without help” (3 points), “With partial help” (2 points), “Cannot” (1 point). The first answer means independence, the second partial dependence or capacity with help, and the third, dependence. On the Lawton and Brody scale, the maximum score is 27 points, where the higher the score the higher the functional capacity. In the end, participants can be classified as dependent (9 to 13 points), semi-dependent (14 to 22 points) and independent (above 22 points).⁴

Considering that the SALSA scale can also be influenced by diseases associated with peripheral neuropathy such as Diabetes Mellitus (DM), and that it has a high prevalence in the elderly population, the pre-existence of a diagnosis of DM was verified according to the diagnosis or result of examinations in the participant’s medical record. This test is mandatory before

the beginning of the MDT, as it is already part of the routine of the research site.

Anthropometric measures of the participants were also verified to determine the Body Mass Index (BMI). Body weight was determined by an anthropometric scale, accurate to 0.05 kg, from zero to 150 kg, by FILIZOLA brand. Height (cm) was obtained from the patient’s medical record. BMI was calculated using the formula weight (kg) divided by the squared height (cm) of the participant. The specific parameters for the elderly were used, classifying them as low weight ($\leq 22 \text{ kg/m}^2$); eutrophic (> 22 and $< 27 \text{ kg/m}^2$) and overweight ($\geq 27 \text{ kg/m}^2$).⁸

Data were stored in an Excel database and analyzed in the Statistical Package for the Social Sciences (SPSS), version 17.0. Sociodemographic and clinical variables were analyzed using descriptive statistics using absolute and relative frequencies, mean, and Standard Deviation (SD). Inferential analyzes were performed by observing the occurrence or not of associations between functional activities assessed through the SALSA scale and sociodemographic and clinical variables, as well as to the concordance between the scales through the Likelihood Ratio test, where a significance level of 5% was set.

The study was approved by the Research Ethics Committee of the study site under protocol No. 01/2013, and the Informed Consent Form (ICF) was signed by all participants.

RESULTS

Seventy seven elderly people with leprosy participated, with a mean age of 68.23 ± 6.11 years, with concentration in the age group of 65 to 70 years ($N=28/36.4\%$). There was a predominance of males ($N=49/63.6\%$), coming from Fortaleza ($N=46/59.7\%$), living with three to four people ($N=35/45.5\%$). Participants had an average of 4.14 ± 4.01 years of study. It is noteworthy that 22 (28.6%) elderly had no education. The average monthly household income was 2.04 ± 1.71 minimum wages, with a predominance of two minimum wages ($N=37/48.0\%$) (Table 1).

In the analysis of the clinical characteristics not associated with leprosy in the elderly, it was found the presence of comorbidities in 55 (71.4%) participants, where the most reported were Systemic Arterial Hypertension (SAH) ($N=31/56.3\%$), DM ($N=23/41.8\%$), and cataract ($N=21/38.1\%$). Regarding BMI, 37 (48.1%) elderly were considered eutrophic.

The use of corticosteroids was reported by 14 (18.2%) participants, and the use of adaptation and/or orthosis by 47 (61.0%) elderly, where the most cited adaptation was the use of corrective lenses ($N=37/48.1\%$).

The clinical profile of leprosy revealed a predominance of zero GD ($N=46/59.7\%$), and positivity in the bacilloscopic index ($N=40/51.9\%$), which is related to the concentration of cases in the borderline clinical form ($N=40/51.9\%$), and the multibacillary treatment regimen ($N=53/68.8\%$). The leprosy reaction was present in 15 (19.5%) cases, where the reverse reaction ($N=13/86.6\%$) was highlighted (Table 2).

The SALSA scale obtained an average of 31.56 ± 11.67 points, with concentration in the *mild limitation* ($N=38/49.4\%$) and *no*

Table 1. Sociodemographic and clinical characteristics of elderly people with leprosy. Fortaleza, Ceará, 2015.

| Variables | N | % |
|---------------------------------------|----|------|
| Age | | |
| 60 - 64 | 25 | 32.5 |
| 65 - 70 | 28 | 36.4 |
| 71 - 83 | 24 | 31.2 |
| Gender | | |
| Male | 49 | 63.6 |
| Female | 28 | 36.4 |
| City of residence | | |
| Fortaleza | 46 | 59.7 |
| Other cities | 31 | 40.3 |
| No. of people in the household | | |
| One or two people | 19 | 24.7 |
| Three or four people | 35 | 45.5 |
| Five or more people | 23 | 29.9 |
| Education | | |
| No schooling | 22 | 28.6 |
| One to three years of study | 18 | 23.4 |
| Four to eight years of study | 23 | 29.9 |
| Nine to 15 years of study | 14 | 18.2 |
| Monthly household income | | |
| Up to a Minimum Wage (MW) | 27 | 35.1 |
| Two MW | 37 | 48.0 |
| Three to Four MW | 10 | 13.0 |
| Five or more MW | 03 | 3.9 |

limitation (N=22/28.6%) categories. The risk awareness score ranged from zero to 10, but with an average of 2 ± 2.30 , which reveals low protective behavior, probably related to the low functional limitation found in the group.

In the distribution of responses to the activities evaluated on the SALSA scale, 19 activities showed a predominance of positive responses; only item three of the domain *mobility (feet)*, related to the ability to walk barefoot, obtained a higher number of negative responses, especially the answers *I don't need to do this* (N=21/27.3%) and *I avoid it because of the risk* (N=18/23.4%). The *self-care*, *work (hands)* and *dexterity (hands)* domains showed a predominance of *easy* execution in all evaluated activities (Chart 1).

The most easily performed activities were: ability to wash the whole body (self-care domain) (N=69/89.6%), ability to use buttons on clothes and bags (dexterity - hands domain) (N=65/84.4%), and ability to manipulate small objects (dexterity - hands domain) (N=64/83.2%). The activity performed with a

Table 2. Clinical characteristics of elderly people with leprosy. Fortaleza, Ceará, 2015.

| Variables | N | % |
|---|----|------|
| Grade Disability (GD) at diagnosis | | |
| Zero | 46 | 59.7 |
| 1 | 15 | 19.5 |
| 2 | 16 | 20.8 |
| Bacilloscopic index | | |
| Positive | 40 | 51.9 |
| Negative | 37 | 48.1 |
| Clinical form of leprosy | | |
| Undetermined | 03 | 3.9 |
| Tuberculoid | 15 | 19.5 |
| Borderline | 40 | 51.9 |
| Lepromatous | 19 | 24.7 |
| Regimen of treatment | | |
| Paucibacillary | 18 | 23.4 |
| Multibacillary | 53 | 68.8 |
| Alternative | 06 | 7.8 |
| Has/d leprosy reaction | | |
| Yes | 15 | 19.5 |
| No | 62 | 80.5 |
| Type of leprosy reaction (n=15) | | |
| Reverse Reaction (Type I) | 13 | 86.6 |
| Erythema Nodosum Leprosum (Type II) | 02 | 13.4 |

little difficulty by most was the ability to sit or squat on the floor (mobility domain - feet) (N=23/29.8%).

For the analysis of the association of the SALSA Scale classification and associated categorical variables, the topics *severe limitation* and *extreme limitation* were grouped into *severe* due to the low frequencies found in both categories.

The SALSA scale was associated with both the Lawton and Brody scale (p=0.000) and the Katz Index (p=0.000) (Table 3).

In the analysis of the influence of socioeconomic and clinical characteristics on the reported ability to perform activities assessed on the SALSA scale, the first item evaluated was the ability to see enough in order to perform daily activities, where this was associated with blood glucose classification (p=0.000) and the use of adaptation and/or orthosis (p=0.037). Elderly without DM (N=24/48.0%) were able to perform the activity without any difficulty, while the elderly with DM were the majority (N=06/50.0%) in the answer *very difficult*. Elderly people with leprosy using an adaptation and/or orthotics (N=23/48.9%) were more likely to perform the activity.

The ability to sit/squat on the floor was related to the GD (p=0.020), with predominance of the very difficult response

Chart 1. Distribution of responses of elderly people with leprosy to the SALSA Scale. Fortaleza, Ceará, 2015.

| Domains | SALSA Scale Activities | If so, how easy is that for you? | | | If not, why not? | | |
|-------------------|-------------------------------------|----------------------------------|--------------------|----------------|-------------------------|--------------------|--------------------------------|
| | | Easy | A little difficult | Very difficult | I don't need to do this | I physically can't | I avoid it because of the risk |
| | Visual acuity | 30(38.9%) | 25(32.5%) | 14(18.2%) | | 08(10.4%) | |
| Mobility (feet) | Sit / squat on the floor | 21(27.3%) | 23(29.8%) | 17(22.1%) | 01(1.3%) | 13(16.8%) | 02(2.6%) |
| | Walk barefoot | 17(22.1%) | 05(6.5%) | 03(3.9%) | 21(27.3%) | 13(16.8%) | 18(23.4%) |
| | Walking on uneven ground | 30(38.9%) | 19(24.7%) | 11(14.3%) | 09(11.6%) | 06(7.8%) | 02(2.6%) |
| | Walking longer distances | 35(45.5%) | 15(19.5%) | 15(19.5%) | 03(3.9%) | 07(9.1%) | 02(2.6%) |
| Self-care | Wash the whole body | 69(89.6%) | 03(3.9%) | 04(5.2%) | - | 01(1.3%) | - |
| | Cut one's nails | 26(33.7%) | 21(27.3%) | 06(7.8%) | 05(6.5%) | 18(23.4%) | 01(1.3%) |
| | Hold hot cup / bowl | 60(77.9%) | 09(11.6%) | 02(2.6%) | 02(2.6%) | 03(3.9%) | 01(1.3%) |
| Work (hands) | Work with tools | 46(59.7%) | 07(9.1%) | 02(2.6%) | 15(19.5%) | 06(7.8%) | 01(1.3%) |
| | Carry heavy objects | 33(42.8%) | 15(19.5%) | 13(16.8%) | 04(5.2%) | 12(15.6%) | - |
| | Lifting objects above head | 57(74.0%) | 07(9.1%) | 04(5.2%) | 05(6.5%) | 04(5.2%) | - |
| | To cook | 42(54.5%) | 09(11.6%) | 07(9.1%) | 16(20.8%) | 03(3.9%) | - |
| | Serve hot liquids | 52(67.5%) | 06(7.8%) | 04(5.2%) | 11(14.3%) | 04(5.2%) | - |
| | Open / close bottles with screw cap | 58(75.3%) | 08(10.4%) | 06(7.8%) | - | 05(6.5%) | - |
| | Opening glass with screw cap | 56(72.7%) | 08(10.4%) | 06(7.8%) | 01(1.3%) | 06(7.8%) | - |
| Dexterity (hands) | Handle small objects | 64(83.2%) | 04(5.2%) | 05(6.5%) | 03(3.9%) | 01(1.3%) | - |
| | Use buttons | 65(84.4%) | 04(5.2%) | 05(6.5%) | 02(2.6%) | 01(1.3%) | - |
| | Thread a needle | 25(32.5%) | 16(20.8%) | 15(19.5%) | 07(9.1%) | 14(18.2%) | - |
| | Handle pieces of paper | 58(75.3%) | 06(7.8%) | 03(3.9%) | 05(6.5%) | 05(6.5%) | - |
| | Picking up objects on the floor | 40(51.9%) | 12(15.6%) | 14(18.2%) | 01(1.3%) | 09(11.6%) | 01(1.3%) |

among the elderly with G2D (N=07/43.7%). However, among the elderly with zero GD there was a high prevalence of the *little difficult* response (N=17/37.0%), and these were the majority in the answer *I physically can't* (N=09/19.5%).

When asked about the ability to walk barefoot, most elderly residents in Fortaleza (N=16/34.8%) reported doing it easily, while residents in other cities (N=11/35.5%) presented greater risk awareness, claiming not to perform the activity due to the risk involved, causing the provenance to be statistically associated with the activity ($p=0.011$). Another associated feature was the GD ($p=0.034$), in which patients with G1D and G2D presented more negative responses to the performance of the action, with 33.2% (N=05) of the elderly with G1D aiming to avoid performing it for account of the risk involved, and 26.7% (N=04) for failing physically, behavior similar to the elderly with G2D, with 37.4%

(N=06) of the responses being *I avoid it because of risk*, and 31.3% (N=05) *I physically can't*.

Walking on uneven ground was an action related to the presence of comorbidities ($p=0.039$). Walking longer distances was related to age ($p=0.020$), leprosy reaction ($p=0.016$) and GD ($p=0.016$), in which the elderly aged 60 to 64 years (N=16/64.0%), zero GD (N=26/56.6%) and no leprosy reaction (N=53.3%) showed greater ease in performing it.

In the *work (hands)* domain, most of the activities investigated include actions related to domestic activities, except *working with tools* and *lifting objects above the head*, actions that were not associated with any sociodemographic or clinical variable related to leprosy. The first item evaluated in this domain was the ability to carry heavy objects, which was associated with BMI ($p=0.050$), where most responses related to the physical

Table 3. Distribution of the elderly with leprosy according to the SALSA Scale, and its association with the Lawton and Brody Scale and the Katz Index. Fortaleza, Ceará, 2015.

| Variables | Limitation Classification (SALSA) | | | | Value p* |
|-----------------------------|-----------------------------------|-----------|-----------|------------|----------|
| | None | Mild | Moderate | Severe | |
| Lawton Scale | N(%) | N(%) | N(%) | N(%) | |
| Independent (n=45) | 20(44.4%) | 25(55.5%) | - | - | 0.000 |
| Semi-dependent (n=27) | 02(7.4%) | 12(44.4%) | 10(37.0%) | 03(11.2%) | |
| Dependent (n=05) | - | 01(20.0%) | 02(40.0%) | 02(40.0%) | |
| Katz Scale | | | | | |
| Total independence (n=67) | 22(32.8%) | 35(52.2%) | 10(15.0%) | - | 0.000 |
| Partial dependency (n=07) | - | 03(42.8%) | 02(28.6%) | 02(28.6%) | |
| Important dependency (n=03) | - | - | - | 03(100.0%) | |

Note: * Likelihood-Ratio Test.

impediment to do so were present in the underweight elderly (N=08/47.0%). Women easily performed the domestic activities *cooking* (N=20/71.4%) and *servicing hot liquids* (N = 24 / 85.7%).

The *open/close screw cap bottles* activity was related to age (p=0.017) and gender (p=0.018), in which elderly aged 65 to 70 years (N=24/85.7%) and male gender (N=38/77.6%) had no difficulty in performing it. This situation was repeated in the item *opening/closing glass with screw cap*.

In the *dexterity (hands)* domain, age was associated with activities such as *manipulating small objects* (p=0.006), *threading a needle* (p=0.050), *handling paper* (p=0.006) and *picking up objects from the floor* (p=0.037), whose age range of 65 to 70 years was predominant in performing all the above mentioned activities with ease.

Still in the action *threading a needle* presented relationship GD (p=0.028) and age (p=0.050), in which the G2D predominated (N=05/31.3%) and the age group 65 to 70 (N=08/28.6%) with the highest difficulty. While in the activity *handling paper*, the association was present in gender (p =0.038), with an unimpeded execution predominant in women (N=24/85.7%).

In the activity of *picking up objects on the floor*, age was related (p=0.037), in which the elderly between 60 and 64 years old said they could do it easily (N=14/56.0%), and those over 71 years old reported having a physical impairment (N=07/29.2%).

For activities such as *washing the whole body*, *holding a hot cup/bowl*, *working with tools*, *lifting objects above the head*, *using buttons* and *cutting one's nails*, no associations were evidenced.

The following table brings together the variables associated with the activities analyzed using the SALSA scale (Table 4).

DISCUSSION

Leprosy has an increasing prevalence in the elderly population, with a detection rate of new cases higher than that of the general population, positioning itself in a hyperendemic level in states like Bahia and Alagoas.^{9,10}

In an analysis of 5,973 cases of elderly people with leprosy in the state of Bahia, between 2001 and 2012, it was observed a highlight of the male gender, age group 60 to 69 years, low education, dimorphic clinical form and multibacillary operational classification. As for GD, 36.25% of the cases presented physical disability at the time of diagnosis, especially among men.⁹ These findings corroborate the sociodemographic and clinical profile evidenced in this study, and alert to the adoption of early diagnostic measures, especially in males.

In the context of leprosy, the results of the scale assessments may vary according to the place of residence of the elderly, as institutionalized elderly have less independence for IADL and ADL, as is the case for elderly still living in former colony hospitals.¹¹

However, considering the functional capacity of elderly people with leprosy, a study conducted with 30 elderly residents in a former colony hospital in Brazil, identified an average age of 78.22 years, with a predominance of females, mental status without alterations, and as the main comorbidities, hypertension and DM. In the analysis of functional capacity, 66.7% of the elderly were independent for IADL, where the ability to wear clothes was the least reported (73.3%), and using medication correctly was the most easily performed (60.0%).¹² In a survey with 186 elderly leprosy patients living in a former colony hospital in Minas Gerais, it was found that 79.8% of participants had G2D, 83.3% were independent for ADL, and 10.2% for IADL, where GD was associated with IADL (p=0.038).¹³

The research described above reveals that the findings of this study are consistent with other realities in which the elderly are inserted, where functional capacity seems to decline at older ages, and that it is necessary to be aware of actions performed with difficulty, or not performed by these elderly, for a better elaboration of the care plan. In this study, even in the absence of disabilities generated by leprosy, some elderly would report not being able to perform daily activities, which reinforces the hypothesis that age influences the functionality of the elderly with leprosy more than the disease itself.

Table 4. Summary of characteristics statistically associated with SALSA Scale items. Fortaleza, Ceará, 2015.

| SALSA scale | Value p* |
|---|----------|
| Visual acuity | |
| Blood glucose | 0.000 |
| Use of adaptation and/or orthotics | 0.037 |
| Domain Mobility (Feet) | |
| To sit / squat on the floor | |
| Grade of disability | 0.020 |
| Walk barefoot | |
| City of residence | 0.011 |
| Grade of disability | 0.034 |
| Walking on uneven ground | |
| Other comorbidities | 0.039 |
| Walking longer distances | |
| Age | 0.020 |
| Grade of disability | 0.016 |
| Leprosy reaction | 0.016 |
| Domain Work (hands) | |
| To carry heavy objects | |
| Body mass index | 0.050 |
| To cook | |
| Gender | 0.014 |
| Serve hot liquids | |
| Gender | 0.000 |
| To open / close bottles with screw cap | |
| Age | 0.017 |
| Gender | 0.018 |
| Opening glass with screw cap | |
| Age | 0.023 |
| Gender | 0.015 |
| Domain Dexterity (hands) | |
| Handle small objects | |
| Age | 0.006 |
| Thread a needle | |
| Age | 0.050 |
| Grade of disability | 0.028 |
| Handle pieces of paper | |
| Age | 0.006 |
| Gender | 0.038 |
| Picking up objects on the floor | |
| Age | 0.037 |

Note: * Likelihood-Ratio Test.

The reduced confrontation of the findings related to the SALSA scale was due to the lack of studies analyzing the functional capacity of elderly people with leprosy through this, but in a study in the municipality of Araguaína, Tocantins, with 282 people with leprosy with an average age of 45.8 years showed that SALSA presented a statistically significant correlation with older age ($r=0.40$; $p<0.0001$) and the degree of disability ($r=0.54$; $p<0.0001$).¹⁴

DM has as one of its most frequent impairments decreased visual acuity, a fact that may have influenced the difficulty to see reported by the elderly with leprosy and DM. On the other hand, the predominance of elderly people with normal glycemia in the physically unable response may be related to the presence of other common eye and visual changes common to the aging process, such as presbyopia, cataract, and corneal opacity.¹⁵

Physical disability related to leprosy prevents the patient from performing motor activities. However, in the association between GD and the ability to sit on the floor it was seen that even in the absence of disabilities related to leprosy, the elderly had difficulty performing the action, or were physically hindered, which leads to the relationship between aging and other comorbidities in this case, aspects already discussed previously.

The proximity to the health unit seemed to influence the preventive behavior of not walking barefoot, affirmed by most elderly residents in other municipalities. Access to the various levels of health care is currently a barrier to care management, as accessibility is recognized as the relationship between the location of the service offering and the user, including the involvement of means of transportation available, distance and costs involved in the commute.¹⁶

For the activity *walking barefoot*, the elderly with leprosy who presented G1D and G2D concentrated their responses in *I physically can't*, and *I avoid it because of the risk*, revealing the impact of physical impairment caused by the disabilities already installed and the effectiveness of self-care guidelines, which promoted a preventive behavior.

Qualitative research with 16 people with leprosy accompanied in the city of Natal, Rio Grande do Norte, aimed to evaluate the knowledge acquired about prevention of disabilities in leprosy control, revealing as the main categories identified in the discourses the care in the prevention of ulcers; preventing of falls and socioeconomic rehabilitation.¹⁷

The presence of comorbidities in the elderly with leprosy made it more difficult to report walking on uneven ground. The older age was related to the increase in responses that referred to the difficulty or not performing the activity *walking longer distances*. These findings point to the influence of the aging process on the performance of activities, such as changes in gait and balance. The ability to recognize and process sensory information declines in parallel with the natural aging process, which causes changes in balance and consequent reduction in gait speed.¹⁸

Another factor that contributed to the inability to perform the activity *walking longer distances* was the presence of a leprosy reaction, as it can manifest through neuritis in the lower limbs,

which, besides providing intense discomfort to the patient, make active movement difficult.

The domains related to the hands had a strong influence of the variable age and gender. Hand skill declines with advancing age. In an analysis considering the differences in motor performance between the elderly of both sexes, it was possible to notice a progressive increase in the prevalence of disability and poor performance for each age group in females, a scenario not seen among men.¹⁹

CONCLUSION AND IMPLICATIONS FOR PRACTICE

Most of the elderly with leprosy were independent in the three instruments used, indicating a convergence between the scales, a statistically proven fact. In the SALSA scale, sociodemographic variables such as age and gender showed a greater number of associations with the evaluated activities than clinical variables related to leprosy, such as the GD, suggesting that in the analysis of functional capacity through the SALSA scale, the influence of age was prominent.

As a limitation of this study, it is highlighted the cross-sectional design, in which variables related to environmental and behavioral factors could not be followed, and a place reserved for performing additional physical assessments, such as the identification of sarcopenia. It is also emphasized the need for future studies to monitor and evaluate the influence of extrinsic factors on the decline in functional capacity of elderly people with leprosy.

Therefore, considering the findings pointed out in this study and discussed in the literature, it is stated that the SALSA scale contributed to the effective assessment of the functional capacity of elderly people with leprosy, even if they have functional limitation not associated with the disease, being an instrument for screening the functional capacity of elderly people with leprosy.

The use of this instrument during nursing follow-up of leprosy patients may provide subsidies for the establishment of a care plan that addresses the specificity of this special and vulnerable population, which is the elderly person with leprosy.

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AUTHORS' CONTRIBUTIONS

Paula Sacha Frota Nogueira: Study design. Acquisition, data analysis and interpretation of results. Writing and critical revision of the manuscript. Approval of the final version of the article. Responsibility for all aspects of content and integrity of the published article. Rachel Gabriel Bastos Barbosa: Study design. Writing and critical revision of the manuscript. Approval of the final version of the article. Responsibility for all aspects of content and integrity of the published article. Paulo César de Almeida, Caroline Mary Gurgel Dias Florencio, Marília Braga

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