



Prevalence and characteristics of lesions in elderly people living in the community

Prevalência e características das feridas em pessoas idosas residentes na comunidade
Prevalencia y características de las lesiones en personas mayores que viven en la comunidad

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ABSTRACT

Objective: To describe the profile and the characteristics of elderly people with mobility restrictions who are residents in the community and have skin lesions. **Method:** This was an exploratory and descriptive study that was part of the Health, Welfare and Ageing (SABE) study which assessed the presence of skin lesions in a probabilistic sample of elderly people living in the city of São Paulo in relation to factors such as socio-demographic issues, blood biomarkers, health conditions and the use of services. The analysis used the chi-square test with the Rao-Scott correction for complex samples, with a level of significance of 5%. **Results:** In 2010, 20.7% of elderly people with restricted mobility had skin lesions due to this problem. The most common sites of these lesions were the sacral region for both sexes, the scapular region for women and the trochanteric region for men. Older age, multimorbidity and functional impairment were more prevalent among the elderly people with lesions, as well as greater levels of care that were required. Family dysfunction was associated with higher burdens on caregivers, which may affect the quality of care provided. It was observed that elderly people who are priorities for home care do not receive such care adequately. **Conclusion:** The prevalence of skin lesions in the elderly with mobility restrictions living in the community was low; however, these elderly people require special attention, which is not currently being adequately provided. The reorganization of policies and care services appears to be essential.

DESCRIPTORS

Aged; Wounds and Injuries; Skin; Health Services for the Aged; Health Care.

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INTRODUCTION

Aging in the population (demographic transition) is accompanied by an increase in the prevalence of diseases and non-communicable chronic conditions (epidemiological transition), which include diseases and lesions of the skin⁽¹⁾. There are two main components of skin aging: intrinsic, which is related to age and genetic factors; and extrinsic, which is related to the action of external factors (exposure to the sun, chemicals and smoking) on the skin⁽²⁾.

The skin is the outermost organ of the human body and it represents 10 to 15% of body weight. It is the primary defense system of the body, performing multiple functions to protect against physical and thermal trauma, ultraviolet radiation, oxidizing agents, microbial invasion, water loss and immune protection. It also acts as a sensory organ and as a regulator of body temperature. With aging, the epithelial tissue structures undergo changes which, together with physiological changes, chronic diseases, nutritional factors and the use of medication, make the skin more susceptible to the occurrence of wounds or lesions⁽³⁾.

Various skin-related histological changes occur as a result of aging. Variations in the size, shape and staining of the cells in the epidermis, and a reduction in the density of melanocytes (10 to 20% per decade), result in reduced protection against ultraviolet rays and a reduction in the density and response of Langerhans cells, which are effector cells of the skin's immune system. A diminution of the density of the dermis is caused by cellular atrophy (20% reduction in thickness), a decrease in collagen (1% per year), and changes in the structure of fibers of the dermis, which become progressively disorganized, compact and granular, all of which modify the ability of the skin of elderly people to heal. The progressive loss of elastic fibers (in number and diameter), associated with progressive fragmentation and calcification from around the seventh decade of life, changes the fundamental substance through a decrease in mucopolysaccharides, which adversely alters skin turgor. Consequently, there is a progressive loss of skin elasticity and the need for greater time for the skin to return to its previous thickness after a trauma. Other relevant features are reduced fibroblasts, mast cells (lower production of histamine with a consequent reduction in the local inflammatory response), blood vessels (progressively smaller diameter and thickness resulting in pallor and temperature reduction), as well as abnormalities in the nerve endings. A decrease of about 15% in the sweat glands may also occur, thereby reducing the capacity for spontaneous perspiration, as well as a decrease of approximately 23% in sebum per decade as a result of gonadal and adrenal androgens⁽¹⁻²⁾.

Photoaging is associated with the extrinsic aging of the skin by exposure to ultraviolet (UV) rays. Its main agent is UVA rays, which have a deeper penetration and interaction with the epidermal keratinocytes and dermal fibroblasts. UVB rays are absorbed in the epidermis and are associated with tanning, sunburn and photocarcinogenesis. Photoaged skin has increased thickness, deeper wrinkles, uneven

pigmentation, spider veins and the presence of lesions with different degrees of malignancy⁽¹⁻²⁾.

The most prevalent causes of skin lesions are related to pressure ulcers, vascular insufficiency (venous or arterial), trauma, restrictions in mobility (temporary or permanent) and diabetic neuropathies⁽⁴⁾. Their emergence is related to extrinsic factors such as chemicals, thermal exposure, external pressure (weather dependent), friction and rubbing of the skin, as well as intrinsic factors such as a reduction in the glands responsible for hydration, structural changes (such as thinning of the epidermis and dermis and a reduction in collagen and elastin fibers) and changes in immune and neurological responses such as slower nerve conduction, which has implications for sensitivity and motor response⁽⁵⁾.

Studies have indicated the high prevalence⁽⁶⁻⁸⁾ and incidence⁽⁹⁻¹¹⁾ of lesions in elderly people living in institutions and during hospitalization. The prevalence of this problem in elderly people living in the community remains largely unexplored. Considering the skin changes that are associated with advancing age, as well as the higher incidence of chronic illnesses which may potentially generate lesions and which are also associated with restricted mobility, the study of this issue is important, given the high potential risk to those affected⁽⁹⁾. This risk is especially associated with an aging population and the significant increase in those aged over 80 years, who are most susceptible group to the occurrence of lesions. The objective of this study was to describe the profile and characteristics of elderly people with mobility restrictions residing in the community and with the presence of skin lesions.

METHOD

This was a descriptive and exploratory study that formed part of the SABE Study (Health, Welfare and Aging), which was a longitudinal study with multiple cohorts that was developed to trace the lives and health conditions of elderly residents in the city of São Paulo. The SABE study started in 2000 as a probability sample of 2,143 people (cohort A), of both sexes, aged over 60 and living in the community, with follow-ups in 2006 and 2010. At the time of each new data collection a new probability cohort was introduced of older people aged 60 - 64 (cohorts B and C). Data were obtained in all the waves through standardized instruments with interviews conducted by trained interviewers. All the presented results were weighted to represent the elderly in São Paulo in the year of interest. Methodological details of the survey can be found at the website: www.fsp.usp.br/sabe.

The sample of the study referred to in this paper involved elderly respondents who were interviewed in 2010 (n=1344) belonging to cohorts A, B and C with mobility restrictions (bedridden or wheelchair) who mentioned the presence of skin lesions associated with this condition. The following variables were considered: sociodemographic (gender, age and education); health conditions (chronic diseases that were mentioned, e.g. hypertension,

diabetes mellitus, COPD, cardiovascular and cerebrovascular diseases, cancer and diseases of the joints); cognitive impairment (adapted mini examination of mental state⁽¹²⁻¹³⁾); functional impairment (number of daily, instrumental and basic living activities that were compromised); the presence of a caregiver and the frequency that help was required.

Use of health services in the twelve months preceding the interview included the following: medical appointments, the use of urgent/emergency services, hospitalization, home visits, and difficulty in accessing health services as a primary motive.

The location of skin lesions were as follows: scapular, sacral, patellar, foot, trochanteric, calcaneal and others, bearing in mind that the same individual might have more than one skin lesion.

The analyzed blood biomarkers were: albumin, hemoglobin, leukocytes and glycated hemoglobin. The reference values adopted were those proposed by the *International Society for Laboratory Hematology*, which were provided by the company responsible for carrying out the laboratory tests.

To assess the association between the variables of interest and the binomial outcome, (the presence or absence of skin lesions) univariate analysis using the chi-square test was used with the Rao Scott correction specifically for the complex samples. The presentation of the data according to percentage distribution and the total values relates to the estimated representativeness of the studied population. The data analysis was performed using Stata version 11.0 software using the "survey" command. The SABE study was approved by the Ethics Committee of the FSP/USP (official letter COEP/23/10).

RESULTS

In 2010, 1,344 elderly people were interviewed, representing a population of 1,338,138 people aged over 60 years living in the city of São Paulo. Of this total, 2.8% (24,394 elderly people) had reduced mobility, 63.6% were bedridden and 36.4% used a wheelchair. This sample was predominantly composed of women (56.6%), aged between 60 and 104 with a median age of 85. Within this group there was a prevalence of 20.7% of skin lesions, corresponding to approximately 3,480 of the bedridden elderly and 1,579 of those who used a wheelchair (Table 1).

The observed lesions were more prevalent in women (23.0%); among elderly people aged 60-69 (30.6%) and 80 and over (27.2%); and among the illiterate (35.6%). The lack of statistical significance may be related to the small number of elderly people with lesions living in the community, but the result is representative of the population and reinforces the results of studies that have shown a higher prevalence of lesions in institutionalized elderly people (Table 1).

The lesions were located predominantly in the sacral region (59.3%), for both sexes, which are characteristic

Table 1 - Distribution (%) of elderly people according to socio-demographic variables and the presence of skin lesions in the city of São Paulo, 2010.

Variables	Skin lesions			P
	Yes (%)	No (%)	Total (%)	
Sex				0.767
Female	23.0	77.0	100.0	
Male	17.8	82.2	100.0	
Age				0.286
60-69	30.6	69.4	100.0	
70-79	0.0	100	100.0	
80 and above	27.2	72.8	100.0	
Education				0.371
Illiterate	35.6	64.4	100.0	
1 - 3 years	31.0	69.0	100.0	
4 - 7 years	9.5	90.5	100.0	
8 or more years	14.2	85.8	100.0	
Total	20.7	79.3		

Source: SABE study, 2010

of pressure ulcers, followed by the trochanteric region for men (45.6%) and scapular region for women (45.9%).

It was noted that the presence of lesions was more prevalent among the elderly with at least one mentioned chronic disease (54.7%) and among those with the presence of cognitive decline (68.8%). In addition, lesions are associated with higher levels of limited functionality, being progressively more present as functionality is compromised. Most of the elderly people with lesions mentioned the presence of a caregiver and they required assistance most of the time (83.0%), which indirectly shows a high degree of dependence (Table 2).

Table 2 - Distribution (%) of elderly people according to mentioned health conditions and the presence of skin lesions in the city of São Paulo, 2010.

Variables	Presence of skin lesions		
	Yes (%)	No (%)	p
Presence of NCCD*			
Yes	54.7	93.6	0.011
No	45.3	6.5	
Cognitive decline			
Yes	68.8	24.4	0.778
No	31.2	75.6	
Difficulty mentioned in relation to performing DAs**			
Basic			
3	-	14.9	
4	-	23.4	0.251
5	48.1	17.1	
6	52	45.4	
Instrumental			
1 - 2	7.8	13.4	0.583
3 or more	92.2	86.6	
Presence of caregiver			
Family	83.5	72.7	0.598
Contracted	16.5	27.3	
Frequency of help required			
All the time	83.0	76.0	
Once a day	17.0	6.5	0.637
Whenever possible	-	13.9	
Other	-	3.6	

Source: SABE study, 2010

* Non-communicable chronic diseases

** Daily activities

The elderly people with restricted mobility also had greater functional impairment in terms of instrumental activities and also those related to self-care (basic). It was observed that elderly people with lesions were more functionally compromised (difficulty with 5 or 6 basic activities and at least 2 instrumental activities). The elderly people without skin lesions had lower levels of functional impairment (Table 2).

Having noted the need for care required by the elderly, we sought to investigate the relationship between family functionality and overload levels on caregivers. It was observed that family functionality was directly related to the level of overload (Table 3).

Table 3 - Distribution (%) of caregivers to elderly people with mobility restriction in relation to family functionality and level of overload in the city of São Paulo in 2010.

Family Functionality	Level of overload			P value
	Absent	Moderate	Severe	
Good functionality	61.0	13.8	25.2	
Moderate disfunction	-	92.5	7.5	0.003
High disfunction	4.9	-	95.1	

Source: SABE study, 2010

Considering that the elderly people included in this study had restricted mobility, we also studied the use of health services. It was found that all the elderly people with lesions had received medical consultations during the twelve months preceding the interview and a majority had been hospitalized (71.2%) or had sought help from the urgent or emergency services (46.1%). Less than half (47.3%) received home care and the doctor was the most requested health professional in this respect. Among the elderly people with lesions, most reported having had no difficulty in gaining access to services (91.4%); however, among those who did report such difficulty, all were associated with mobility restrictions (Table 4).

Table 4 - Distribution (%) of elderly people with skin lesions in relation to the use of health services and difficulties mentioned regarding access in the city of São Paulo in 2010.

Services used in the 12 months prior to interview	Presence of skin lesions		
	Yes (%)	No (%)	P
Hospital internment			
Yes	71.2	50.7	0.405
Urgent/ Emergency			
Yes	46.1	14.9	0.119
Medical consultation			
Yes	100.0	77.3	0.175
Home visit			
Yes	47.3	57.7	0.649
Professional attending during home visit			
Doctor	87.7	76.0	
Nurse	-	24.0	0.189
Physiotherapist	12.3	-	
Access difficulties			
Yes	8.6	46.6	0.005
No	91.4	53.4	
Reason for access difficulties			
Lack of money	-	17.5	
Locomotive difficulties	100.0	43.0	0.825
Bad services	-	20.6	
Other	-	18.9	

Source: SABE study, 2010

In the analysis of biomarkers, the elderly people without lesions showed better results. Among those with lesions there was high rate of concentration of leukocytes (74.4%), which is a biomarker associated with the presence of infection. Hypoalbuminemia, which can indicate malnutrition or even the loss of protein in the exudate, was prevalent in 57.0% of the elderly people with lesions and 83.0% of the latter had anemia. A similar distribution of parameters associated with diabetes was observed among the two groups (Table 5).

Table 5 - Distribution (%) of elderly people in relation to blood biomarkers and the presence of skin lesions in the city of São Paulo in 2010.

Biomarkers	Reference values*	Presence of skin lesions		
		Yes (%)	No (%)	P
Albumin				
Normal	3.5-5.5 g/dL	43.0	69.1	0.308
Altered	<3.5 g/dL	57.0	30.9	
Hemoglobin				
Normal	12 - 16.5 g/100mL 13.5 - 18 g/100mL	83.0	76.5	0.762
Anemia	<12 g/100mL <13.5 g/100mL	17.0	23.5	
Leukocytes				
Normal	3,550-11,000/uL	25.6	74.6	0.023
Altered	>11,000/uL	74.4	25.4	
Glycated hemoglobin				
Normal	<5.7%	23.5	44.4	
Pre-diabetic	5.7-6.4%	33.5	13.6	0.498
Diabetic	>6.4%	43.0	42.0	

Source: SABE study, 2010

*According to the International Society for Laboratory Hematology

DISCUSSION

The feminization of old age has been referred to in several studies⁽¹⁴⁻¹⁶⁾ for different reasons. However, it has been observed that despite the fact that women live longer than men, their quality of life is not better. The present study found that within the proportion of elderly people with mobility restrictions women were more prevalent than men, maintaining a relationship with the presence of skin lesions and corroborating with another study, which described older women as more dependent and with a greater potential for fragility due to biological or cultural factors⁽¹⁷⁾.

Emphasis should be given to the higher proportion of extremely elderly people with lesions, which shows their greater susceptibility to this type of occurrence and which should draw the attention of health service managers, given that this is the group that has most significantly grown within the elderly population. The oldest elderly people, with mobility restrictions within the home environment, were more compromised functionally (at least four compromised BADLs) and had greater levels of cognitive decline compared to older people of other age groups (PR=1.59), which is associated with the need for full-time

care and which was proportionately greater for the group of oldest elderly people (PR=1.15).

Although statistical significance was not observed, it was noteworthy that there were a high proportion of younger elderly people with restricted mobility and skin lesions, which may have indirectly been associated with previous inadequate health monitoring, and which may result in longer-lived people with worse health conditions. Bearing in mind that people who reach the age of 60 in Brazil tend, on average, to live another 17 years⁽¹⁸⁾, this age group will need care for a long time, reinforcing the need for a policy for long-term care because families are increasingly nuclear and the proportion of young people in the population has been decreasing progressively. This highlights the issue, which is increasingly pressing, about who will be responsible for the care of dependent elderly people in the near future.

Education is used in many studies as a proxy for socioeconomic status⁽¹⁹⁾. The present study showed that illiterate elderly people had more lesions, which may have been associated with worse health conditions due to previous poor living conditions. Thus, attention should be concentrated on how such elderly manage their health and diseases, either in relation to basic issues of health and care, or in relation to the costs associated with greater functional dependency.

The lesions of the elderly people living in the community interviewed in the present study were sited in bony regions of the body, which are commonly described in the literature as regions associated with pressure ulcers^(8,20-21). This type of lesion is commonly found in hospitals and institutional settings^(7,9-10), where mobility restrictions may be higher than normal. Considering that these elderly people live at home and are very dependent it is important to consider the frequency and quality of care that is offered to them. The high prevalence of elderly people with functional impairments is reflected in the presence of caregivers and also in the amount of care that is required. For economic reasons it is not always possible for families to hire a caregiver and this can be reflected in the quality of care that is available. Elderly people with restricted mobility may require different types of care, which may sometimes be outside the scope of knowledge of their caregiver⁽²²⁻²³⁾. Families tend to help as much as they can but this care does not exceed 50% of the needs of the elderly, which reinforces the urgent need to create alternative services to address care needs that are not currently adequately addressed⁽²⁴⁾.

Family functionality is a crucial factor to ensure that care is provided in a more structured manner and that the burden on caregivers is minimized. The present study found that caregivers working with dysfunctional families were working with elderly people who were in a worse condition, and who had lesions that required more attention, which has a direct effect on overloading the caregiver and potentially influencing the quality of care provided.

The search for more complex services may be a reflection of the lower functional reserve of elderly people

who are more dependent. Continuous monitoring of their health conditions is necessary because it is important to avoid hospitalization or institutionalization as much as possible. The institutional environment is associated with an increased risk of developing infections, especially in the case of lesions⁽⁸⁾ and there are also secondary risks associated with hospitalization such as the deterioration of functional capacity and cognitive impairment, incontinence, malnutrition and even death⁽²⁵⁾.

It was observed that clinical follow-up (through medical consultations) was a major feature for this group, showing their family's concern for their care. On the other hand, the organization of the care network reflected a failure due to the reduced presence of home care for the group most in need of it. It is of great concern that the proportion of elderly people receiving care for lesions was so low, given the existing guidelines related to prioritizing care in the community. Analyzing the types of professionals involved in the care that was provided, the lack of nursing care in the home environment was striking; an absence which can be reflected in the management of chronic conditions of lesions, as has been advocated in various studies⁽²⁶⁻²⁷⁾. Within health teams, nurses are the most qualified professionals to administer clinical treatment for lesions⁽²⁶⁻²⁷⁾, which emphasizes the importance of the need to restructure existing health care services.

With respect to biomarkers, it was verified that albumin not only indicated malnutrition but also protein loss via exudates. A previous study⁽²⁸⁾ demonstrated that hypoalbuminemia is a risk factor for the development of pressure ulcers. Consequently, about 31% of the elderly people in our study who were without lesions were at risk. Leukocytes are important biomarkers for infectious conditions because the elderly do not always present early or typical clinical signs or such conditions. The changed values for leukocytes found in this study may have been associated with the presence of infectious processes, associated or not with lesions, but they need to be properly monitored, investigated and treated, which does not seem to be currently taking place according to the results of this study.

CONCLUSION

This study highlights the heterogeneity of aging in the community and also how older people who are more severely compromised require greater levels of care. Being bedridden or confined to a wheelchair within the home environment does not only reflect the health of the elderly person, it also reflects their relations with the dynamics of their home. The prevalence of skin lesions in elderly people living at home is not as high as is commonly found in elderly people who are institutionalized. These lesions are most prevalent in the oldest age groups, and in those with multimorbidity and functional impairment. The fact that younger elderly people already present restricted mobility and lesions is noteworthy because it indicates a worsening condition of the aging population. The positioning of these lesions indicates that they reflect restricted mobility combined with the limited levels of care that are available,

possibly due to limitations within the family of the elderly person. This demonstrates the urgent need for a reorganization of the appropriate assistance, which is reinforced by the inadequacy of the current services provided to this group, who are considered as a high priority in terms of long-term care.

The overall picture of this population specifically indicates the need for active monitoring of elderly people with mobility restrictions who live in the community, both to alert those responsible for the basic care for these people, and also to plan the health care and minimize the risks associated with restricted mobility.

RESUMO

Objetivo: Descrever o perfil e as características de idosos com restrição de mobilidade, residentes na comunidade e com presença de lesões de pele. **Método:** Estudo exploratório e descritivo, parte do Estudo SABE – Saúde Bem-estar e Envelhecimento que avaliou a presença de lesões de pele em uma amostra probabilística de idosos residentes no município de São Paulo segundo aspectos sociodemográficos, biomarcadores sanguíneos, condições de saúde e utilização de serviços. A análise utilizou o teste de qui-quadrado com correção de Rao-Scott para amostras complexas com nível de significância de 5%. **Resultados:** No ano de 2010, 20,7% dos idosos com restrição de mobilidade apresentavam lesões na pele em decorrência desse problema. Os locais mais frequentes foram região sacral para ambos os sexos, escapular para mulheres e trocarteriana para homens. Idade mais avançada, multimorbidade e comprometimento funcional foram mais prevalentes entre os idosos com feridas, assim como a maior frequência de cuidado requerido. A disfuncionalidade familiar mostrou-se associada à maior sobrecarga do cuidador que pode refletir na qualidade do cuidado prestado. Observou-se que esses idosos que são prioritários para a atenção domiciliar não a recebem adequadamente. **Conclusão:** A prevalência de lesões de pele em idosos com restrição de mobilidade na comunidade é baixa, no entanto requerem atenção diferenciada e essa não está sendo adequadamente oferecida. A reorganização das políticas e serviços assistenciais mostra-se essencial.

DESCRITORES

Idoso; Ferimentos e Lesões; Pele; Serviços de Saúde para Idosos; Atenção à Saúde.

RESUMEN

Objetivo: Describir el perfil y las características de las personas mayores con limitaciones de movilidad, residentes en la comunidad y con la presencia de lesiones en la piel. **Método:** Un estudio exploratorio y descriptivo, parte del Estudio SABE – Salud, Bienestar y Envejecimiento para evaluar la presencia de lesiones en la piel en una muestra probabilística de personas mayores que viven en la ciudad de São Paulo por características sociodemográficas, biomarcadores sanguíneos, condiciones de salud y uso de los servicios. El análisis utilizó la prueba de chi cuadrado con corrección de Rao-Scott para muestras complejas con nivel de significación de 5%. **Resultados:** En 2010, el 20,7% de los viejos con limitaciones de movilidad tenía lesiones en la piel debido a esto. Los sitios más comunes fueron la región sacra para ambos sexos, escapular para mujeres y del trocánter para hombres. Edad avanzada, multimorbidades y deterioro funcional fueron más frecuentes entre las personas mayores con heridas, así como una mayor necesidad de atención. La disfunción familiar se asoció con una mayor carga de los cuidadores que pueden afectar a la calidad de la atención prestada. Se observó que estas personas mayores que son prioritarios para la atención domiciliar no la reciben correctamente. **Conclusión:** La prevalencia de lesiones de la piel en personas mayores con limitaciones de movilidad en la comunidad es baja, sin embargo, requieren una atención especial y esa no se está proporcionando adecuadamente. Una reorganización de las políticas y servicios de bienestar es esencial.

DESCRIPTORES

Anciano; Heridas y Traumatismos; Piel; Atención a la Salud; Servicios de Salud para Ancianos.

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