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IDENTIFICATION OF THE RISK OF FALLS IN ELDERLY PEOPLE LIVING IN LONG-STAY INSTITUTIONS

IDENTIFICAÇÃO DO RISCO DE QUEDAS EM PESSOAS IDOSAS RESIDENTES EM INSTITUIÇÕES DE LONGA PERMANÊNCIA

IDENTIFICACIÓN DEL RIESGO DE CAÍDAS EN ANCIANOS QUE VIVEN EN INSTITUCIONES DE LARGA ESTANCIA

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ABSTRACT

Introduction: Global aging brings about situations that affect the well-being of the elderly population and threaten their quality of life, with an emphasis on falls. In the context of Long-Stay Institutions for the Elderly, the risk of falls is evident due to the different situations in which individuals find themselves.

Aim: To identify the risk of falls for elderly people living in long-stay institutions.

Methodology: A quantitative, exploratory and descriptive approach was used, analyzing a population of elderly people in seven in long- stay institutions. The Morse Fall Scale and a health questionnaire were used as data collection instruments, with analysis carried out using the Statistical Package for the Social Sciences.

Results: A risk of falls was observed in 40.1% of the participants with low risk, 37.9% with medium risk and 22.0% with high risk. Most participants walked without assistance (77.6%) and 58.6% presented secondary diagnoses. Significant differences were identified among institutions.

Conclusion: In addition to age, the risk of falls in institutionalized elderly people is influenced by a variety of factors. Variations among institutions emphasize the importance of environment and personalized service. Individualized prevention strategies play an essential role in terms of guiding future care, ensuring safe and quality environments for elderly people living in long-stay institutions.

Keywords: Accidental Falls; Aged; Homes for the Aged; Risk Factors.

RESUMO

Introdução: O envelhecimento global traz consigo situações que afetam o bem-estar da população idosa e ameaçam sua qualidade de vida, destacando-se as quedas. No contexto das Instituições de Longa Permanência para pessoas idosas, o risco do acometimento das quedas é evidenciado em virtude de diferentes situações em que os indivíduos se encontram.

Objetivo: Identificar o risco de quedas em pessoas idosas residentes em Instituições de Longa Permanência.

Metodologia: Utilizou-se uma abordagem quantitativa, exploratória e descritiva, analisando uma população de pessoas idosas em sete Instituições de Longa Permanência. Foram utilizados a Escala de Morse e um questionário de saúde como instrumentos de coleta de dados, com análise realizada no *Statistical Package for the Social Sciences*.

Resultados: Observou-se um risco de quedas em 40,1% dos participantes com baixo risco,

37,9% com risco médio e 22,0% com risco alto. A maioria dos participantes caminhava sem auxílio (77,6%) e 58,6% apresentavam diagnósticos secundários. Foram identificadas diferenças significativas entre as instituições.

Conclusão: O risco de quedas em pessoas idosas institucionalizadas é influenciado por uma variedade de fatores além da idade. As variações entre instituições enfatizam a importância do ambiente e atendimento personalizado. Estratégias de prevenção individualizadas desempenham um papel essencial para orientar os cuidados futuros, garantindo ambientes seguros e de qualidade para as pessoas idosas residentes em Instituições de Longa Permanência.

Palavras-chave: Acidentes por Quedas; Fatores de Risco; Idoso; Instituição de Longa Permanência para Idosos.

RESUMEN

Introducción: El envejecimiento global trae consigo situaciones que afectan el bienestar de la población anciana y amenazan su calidad de vida, cuando se destacan las caídas. En el contexto de las Instituciones de Larga Estancia para Ancianos, el riesgo de caídas es evidente debido a las diferentes situaciones en las que se encuentran los individuos.

Objetivo: Identificar el riesgo de caídas en ancianos que viven en instituciones de larga estancia.

Metodología: Se utilizó un enfoque cuantitativo, exploratorio y descriptivo, analizando una población de ancianos en siete instituciones de larga estancia. Se utilizaron como instrumentos de recolección de datos la Escala Morse y un cuestionario de salud, realizándose el análisis mediante el *Statistical Package for the Social Sciences*.

Resultados: Se observó riesgo de caídas en el 40,1% de los participantes con riesgo bajo, el 37,9% con riesgo medio y el 22,0% con riesgo alto. La mayoría de los participantes caminaba sin ayuda (77,6%) y el 58,6% tenía diagnósticos secundarios. Se identificaron diferencias significativas entre instituciones.

Conclusión: Además de la edad, el riesgo de caídas en ancianos institucionalizados está influenciado por una variedad de factores. Las variaciones entre instituciones enfatizan la importancia del ambiente y el servicio personalizado. Las estrategias de prevención individualizadas desempeñan un papel esencial en la orientación de la atención futura, garantizando entornos seguros y de calidad para los ancianos que viven en instituciones de larga estancia.

Descriptores: Accidentes por Caídas; Anciano; Factores de Riesgo; Hogares para Ancianos.

INTRODUCTION

The phenomenon of population aging manifests itself in an impactful way in the global overview, triggering unique challenges among nations, especially with regard to quality of life. This theme emerges as a relevant agenda, especially when directed to the protection of this portion of the population, considering the fragility resulting from physical and mental decline, which requires specialized attention[1].

Long-Stay Institutions for the Elderly (LSIEs) are an alternative way of meeting the needs of fragile and dependent elderly people who are unable to receive adequate care in their families. Defined by Collegiate Board Resolution (CBR) no. 502, dated May 27, 2021, as entities, governmental or not, of a residential nature, intended to collectively welcome individuals aged 60 or over, regardless of family support, in conditions of freedom, dignity and citizenship[2].

Among the pressing challenges faced in these residential institutions, the risks arising from falls stand out, which are one of the main causes of injuries and functional decline in this group[3]. Based on ANVISA/RDC Collegiate Board Resolution no. 502, dated May 27, 2021, the adaptation of the environment may include the installation of handrails, removal of slippery carpets, dimensions of bedrooms suitable for locomotion, appropriate coatings, as well as the guarantee of adequate lighting, in order to minimize the risk of falls and provide a safer and more welcoming environment[2].

Understanding the risk of falls in this scenario is essential for the protection of elderly people living in these facilities, considering that the change from the family environment to the LSIE can potentiate such risks, leading to psychological, cognitive and functional changes associated with isolation and the absence of physical activities. In addition, the fear of falls in residents is recurrent, being considered a risk factor for the independence of the individual[3].

The World Health Organization (WHO) defines a fall as the involuntary displacement of the body to a level lower than the initial position, associated with the impossibility of correction in a timely manner[4]. In addition to representing the second cause of death by accident, globally, falls are considered indicators of health quality. From this perspective, it is imperative to develop strategies to reduce the number of falls, promoting the quality of care provided and properly identifying people at imminent risk of falling, since anticipating the event is crucial in terms of prevention[5].

Falls are determined by multifactorial circumstances that compromise stability and can lead to morbidity and mortality in the elderly population[6]. In addition, episodes of falls are one of the main reasons for hospitalization due to external causes in the Brazilian Unified Health System (SUS, as per its Portuguese acronym), especially in individuals aged 60 years or older[7].

The occurrence of falls in institutionalized elderly people raises concerns regarding recovery, given the possibility of resulting in functional limitation, compromising quality of life and increasing the risk of death[8]. Understanding these specific circumstances within LSIEs is crucial for implementing prophylactic measures and improving the safety of institutionalized elderly people[7].

The need to carry out this research arises due to the scarcity of specific studies on the risk of falls in elderly people living in Long-Stay Institutions for the Elderly. Identifying the rate of falls is part of the so-called patient safety indicators, representative of care structures and processes, and its monitoring is essential to identify relevant aspects of the causes of falls in institutions[9].

Understanding the profile of the risk of falling in this context is essential to guide appropriate prevention and intervention strategies, aimed at reducing falls and their adverse impacts on the health and well-being of elderly people. Moreover, the results of this research can provide subsidies for the promotion of health and improvement of the quality of life of this group, in addition to supporting the formulation of public policies aimed at the care and safety of residents in long-stay institutions.

Accordingly, this study aims to identify the risk of falls in elderly people living in long-stay institutions.

MATERIAL AND METHOD

This is a descriptive study with a quantitative approach carried out in seven LSIEs located in the city of Natal and the metropolitan region, state of Rio Grande do Norte. The choice of this approach allowed us to obtain objective and measurable information on the risk of falls in the elderly resident population.

Data collection was carried out between March and May 2023, using an online form structured on the Google Forms platform with items that included data about demographic information, presence of health conditions, use of drugs that could contribute to the risk of falls

and history of previous falls. The use of this instrument was due to its ability to identify critical variables associated with the occurrence of falls, allowing a detailed analysis of the risk profiles among the participants.

The questionnaire was prepared in the light of the Morse Fall Scale, developed by Janice Morse in 1985, in order to track the risk of falls. The assessment of this instrument comprises scored answers distributed in six main axes: history of falls, secondary diagnosis, walking, use of intravenous device, gait and mental status. Thus, the higher the score, the greater the risk of falling[10].

The research participants were all elderly people living in seven philanthropic LSIEs, registered in the city of Natal and in the metropolitan region, with voluntary participation in the study. The collected data was treated anonymously and confidentially, ensuring the privacy and confidentiality of the information provided by the residents. Data analysis was performed using descriptive statistics, such as frequency calculation and descriptive analysis, aiming to obtain a comprehensive view of the risk of falls in elderly people institutionalized in LSIEs in the city of Natal and the metropolitan region.

All elderly people who lived permanently in LSIEs, aged 60 years or older and who agreed to undergo the Morse Fall Scale assessment were considered eligible for inclusion in the study. Those who were bedridden and unable to answer the questions were excluded.

All ethical and legal precepts were met during the development of the study. The ethical recommendations of research involving human beings were respected according to Resolution no. 466/2012 of the National Health Council, with approval of the project by the Research Ethics Committee (REC) of the Federal University of Rio Grande do Norte, through Opinion no. 4.267.762 and CAAE no. 36278120.0.1001.5292, dated 10 September 2020. Data collection in the online form was carried out under the signature of the Free and Informed Consent Form (FICF) by the participants who agreed to participate in the study[11].

The current study is part of the research of the International Research Network on Vulnerability, Health, Safety and Quality of Life of Elderly People: Brazil, Portugal and Spain, with funding from Public Notice no. 01/2020 Research network/UFRN, CNPq/Brazil, Public Notice Productivity of Research Grants-RG no. 09/2020 and Public Notice 18/2021 – Universal and CAPES PRINT/UFRN Public Notice 03/2022 – Scholarship for Senior Visiting Professor Abroad.

RESULTS

A total of 232 (100.0%) elderly people participated in the study, six of whom did not present data regarding age. The mean age of the participants was 81.1 (± 9.3), with a predominant age group ≥ 80 years (56.2%, n = 127). This fact highlights the importance of directing attention to the safety of elderly people, especially those with advanced age and greater vulnerability, in relation to the risk of falls.

Of the seven included LSIEs, the one with the highest participation was I, with 61 elderly people (26.3%) (Table 1↗).

The analysis of the results showed that 33 (14.2%) elderly people suffered falls in the analyzed period. Regarding the secondary diagnosis, 136 (58.6%) had more than one medical diagnosis. Regarding assistance in terms of walking, 180 (77.6%) patients walk without auxiliary equipment, while 30 (12.9%) use crutches, canes or walkers. In addition, only one (0.4%) individual was using an intravenous device with continuous infusion (Table 2↗).

Gait analysis indicated that 147 (63.4%) elderly people did not present gait alterations, while 53 (22.8%) presented poor gait and 32 (13.8%) presented impaired/stumbled gait. Regarding mental status, 123 (53.0%) of the elderly people overestimated their abilities or ignored their limitations. In addition, according to the analysis, most elderly people presented a low risk of falling, representing 40.1% of the total (Table 2↗).

When assessing the risk of falls between the age group and the LSIE of residence of the elderly people, a low risk was observed in people aged 60 to 79 years and ≥ 80 years and medium risk in people aged 70 to 79 years, without statistical significance. However, when assessing the risk of falls in each LSIE, there was a predominance of low and medium risk in all analyzed LSIEs, and an association ($p < 0.001$) was found between medium risk and living in LSIE I (Table 3↗).

When assessing the mean age and score obtained by each LSIE on the Morse Fall Scale, it was identified that LSIE VII presented a higher mean age (82.9 ± 10.5) and a higher score on the Morse Fall Scale (41.1 ± 28.4), which indicates a medium risk of falls. LSIE V, on the other hand, although it presented a mean age of 80.4 (± 10.1), was the LSIE with the lowest score on the Morse Fall Scale (13.8 ± 16.5), which indicates a low risk of falls among its residents (Table 4↗).

DISCUSSION

The occurrence of falls is one of the main public health concerns, especially in the context of population aging, impacting not only individual health, but also overloading health systems and demanding greater financial burden from government spheres. Based on secondary data from the Hospital Information System (HIS) in 2022, in Brazil, the authors evidenced the exponential increase in hospitalizations due to falls in elderly people in the SUS, except in 2020 in a possible association with the social isolation caused by COVID-19[12].

Studies on hospital admissions due to falls among elderly people indicate that, between 2000 and 2020, the most affected age group was 60 to 69 years old. Conversely, deaths associated with these hospitalizations occurred more frequently in individuals aged 70 years or older, especially in males[12,13].

A cross-sectional study conducted in 2018, in Belo Horizonte, revealed a high incidence of falls (75.0%) among institutionalized elderly people. The study points out that the transition from the usual environments to the context of LSIEs and surrounding areas represent a significant risk factor for falls, highlighting the importance of adapting these spaces for the safety of residents[14,15].

Within the context of LSIEs, several environmental conditions can increase the risk of falls, including inadequate lighting, slippery floors, improper furniture, absence of handrails or support devices, as well as the presence of loose carpets or obstacles in corridors. In addition, physical fragility, the presence of chronic diseases, the use of sedative drugs and the lack of adequate supervision are relevant risk factors[16].

In addition to the immediate physical consequences, such as fractures and injuries, falls can trigger a significant decline in the quality of life and autonomy of elderly people in their activities of daily living. Sometimes, the fear of falling again is associated with the fact that the individual resides at the site of the fall, without any changes in the environment, which consequently limits the independence and reduces the functional ability of these individuals[17-19].

Caregivers play a crucial role in the care of elderly people in LSIEs and are often the first to realize the risk factors and possible consequences of falls in this population, since these professionals face significant challenges in their work routine after the occurrence of falls. Based on this assumption, the need for a reorganization of daily activities becomes evident to deal with additional demands, such as intensive care, constant monitoring and emotional support for the elderly patients[20]. One should emphasize the continuous importance of

assessing and modifying the physical environment in these institutions, in order to promote the safety and well-being of residents[20].

Surveys carried out with elderly people in the hospital context show the occurrence of falls frequently associated with the use of intravenous therapy[13]. On the other hand, a study indicates that the assessment of institutionalized elderly people using the Morse Fall Scale scores zero in the item related to the use of intravenous therapy, which is a limitation of the study, since the elderly people assessed in the LSIE in question did not use intravascular therapy. Nonetheless, despite the limitation, the assessment through the instrument shows that elderly people at moderate risk (44.0%) and high risk (37.8%) predominated, according to the Morse Fall Scale for the assessment of the risk of falls[21].

The exponential increase in the risk of falls in elderly people is inherent to the aging process and is directly related to quality of life and increased dependence[22]. The occurrence of damage associated with falls is frequent and directly affects psychological and social well-being, such as fear of falling again, shame and withdrawal from activities. In addition, there is physical damage, especially the occurrence of skin lesions and skin bruises in the affected elderly people[21].

Among the associated risk factors, the presence of secondary diseases and the use of polypharmacy contribute to the occurrence of this Adverse Event (AE)[21]. Studies indicate that a previous history of falls is frequent in elderly people who use polypharmacy and, among the most frequent drug classes associated with this finding, the following stand out: antihypertensives, antidepressants, hypotensives, tranquilizers or sedatives[18].

The collected data highlight the importance of developing effective measures to prevent falls for institutionalized elderly people, especially those over 80 years of age. This group was considered the most affected by falls, among the seven analyzed LSIEs, a fact that can be explained by the senescence process itself or by the increase in the rates of risk factors among this specific sample.

In a study conducted to assess the applicability of the Morse Fall Scale in hospitalized patients, the mean age of patients who suffered falls was 78.57 years, among the 63 elderly people participating in the analysis[23]. The study of intrinsic risk factors for falls, that is, inherent to human aging and inherent to elderly patients, highlights the impact of advanced age on this event and the changes resulting from aging in the senses essential for balance[24].

With regard to the most prevalent conditions, sensory, vestibular, visual and musculoskeletal disorders stand out in the prevalence of falls among institutionalized elderly people, especially among older populations, which makes evident the need for stricter measures to prevent this event in patients in this group[25].

In an observational study carried out with 60 elderly people, a positive association was found between reduced visual acuity and the presence of hearing deficit with the occurrence of falls. It is also noteworthy that 93.75% of the long-lived interviewees (considering a mean age of 84 years) reported having these diagnoses, reiterating the relationship involving age group, prevalence of comorbidities and higher risk for falls, in such a way as to require greater attention to the tracking and prevention of this disease among this specific group[26].

The impact of the diagnosis of multiple comorbidities among the elderly for the higher prevalence of falls should also be highlighted. A study carried out in a long-stay institution highlighted an important relationship between the event of falls and other medical diagnoses or pathological personal histories: among the interviewees, 62% suffered from severe pain in the lower limbs or spine; 62% reported dizziness; 19% had suffered a previous stroke; 19% reported syncope; and 12% reported postural hypotension[27]. These data highlight the importance of an effective diagnosis of other geriatric syndromes and their appropriate management for the prevention of falls, given the important prevalence of multiple comorbidities among the elderly population.

Linked to the increase in diagnoses among the elderly population, there is a high prevalence of polypharmacy among this group. In a cross-sectional study conducted with 496 elderly people from a Geriatrics Polyclinic, it was found that about 14% of those treated underwent polypharmacy. Of this sample, 57.97% used potentially inappropriate drugs, which have a high chance of causing adverse effects[28]. This sample reiterates the vitality of conducting a thorough investigation of the drugs used by these patients, in addition to an assessment of possible drug interactions, considering the pharmacological specificities of the elderly patients, such as changes in drug metabolism[29].

Therefore, it is crucial to increase investments in fall prevention and health promotion programs aimed specifically at the elderly population. Such initiatives will not only ensure safer aging and improved quality of life, but will also lead to a significant reduction in hospitalizations and the strengthening of community health services. In view of the considerable economic costs associated with the treatment of falls in elderly people, it is imperative that public health strategies be prioritized, including inclusive practices, interdisciplinary actions and the implementation of safe equipment and furniture, aiming to improve the daily lives of elderly people[12].

CONCLUSION

The analysis of the risk of falls among elderly people in LSIEs reveals intriguing nuances, challenging traditional preconceptions about this complex phenomenon in the context of population aging. The results presented here underline the need for a more detailed approach, considering a range of individual and environmental determinants. The finding that age itself is not the only predictor of falls suggests a more holistic perspective, highlighting the importance of specific individual factors in accurately understanding the risk of falls in institutional environments.

The differentiation between LSIEs clarifies the notable influence of the physical environment and care practices on the risk of falls. Variations among institutions not only highlight the diversity of approaches, but also emphasize the need to investigate care practices and environmental conditions in each institution.

The identification of the association between medium risk of falls and the residence in a specific LSIE opens the door to further investigations. Rather than being a definitive conclusion, this result encourages a more detailed analysis of the specific determinants that contribute to this pattern of risk.

Accordingly, this study not only fills a gap in the literature on the risk of falls in LSIEs, but also fosters reflections on the complexities of institutionalized aging. The implications transcend the academic sphere, indicating the need for innovative preventive strategies to promote a healthy, safe and dignified existence for the institutionalized elderly population. Therefore, this work represents a valuable contribution to the continuous improvement of geriatric care.

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Table 1 – Characterization and distribution of elderly people according to age group and long-stay institution.[↖]

Characterization		n	%
Age group	60 to 69 years	35	15.5
	70 to 79 years	64	28.3
	≥ 80 years	127	56.2
LSIE	I	61	26.3
	II	39	16.8
	III	38	16.4
	IV	27	11.6
	V	25	10.8
	VI	23	9.9
	VII	19	8.2

Table 2 – Characterization of elderly people living in long-stay institutions according to the Morse Fall Scale.[↖↖]

Morse Fall Scale		n	%
History of falls in the last 3 months	No	199	85.8
	Yes	33	14.2
Secondary diagnosis	No, only one medical diagnosis	96	41.4
	Yes, more than one medical diagnosis	136	58.6
Assistance in walking	Walks without auxiliary equipment/walks with the help of others/Bedridden	180	77.6
	Use of crutches, cane or walker	30	12.9
	Moves by leaning on furniture/Walls	22	9.5
Intravenous therapy/ salinized or heparinized intravenous device	No, if the patient does not use an intravenous device	231	99.6
	Yes, if the patient uses an intravenous device with continuous infusion or not (salinized or heparinized)	1	0.4
Gait	Unaltered gait, bedridden or using wheelchair	147	63.4
	Poor	53	22.8
	Compromised/stumbling	32	13.8
Mental state	Oriented/able in relation to his/her ability/ limitation	109	47.0
	Overestimating ability/forgets limitations	123	53.0
Score	Low risk	93	40.1
	Medium risk	88	37.9
	High risk	51	22.0

Table 3 – Distribution of the association between the risk of falls and the variables related to age group and long-stay institutions.

Variables		Risk of falls			p-value
		Low risk	Medium risk	High risk	
Age group	60 to 69 years	17 (7.5)	11 (4.9)	7 (3.1)	0.721
	70 to 79 years	22 (9.7)	28 (12.4)	14 (6.2)	
	≥ 80 years	51 (22.6)	49 (21.7)	27 (11.9)	
LSIE	I	13 (5.6)	35 (15.1)	13 (5.6)	< 0.001
	II	25 (10.8)	6 (2.6)	8 (3.4)	
	III	13 (5.6)	16 (6.9)	9 (3.9)	
	IV	7 (3.0)	13 (5.6)	7 (3.0)	
	V	21 (9.1)	2 (0.9)	2 (0.9)	
	VI	9 (3.9)	9 (3.9)	5 (2.2)	
	VII	5 (2.2)	7 (3.0)	7 (3.0)	

Table 4 – Distribution of mean and standard deviation between the variables related to age and Morse Fall Scale score by the analyzed long-stay institutions.

LSIE	Age	Score
	Mean (SD)	Mean (SD)
I	78.9 (10.3)	35.4 (21.3)
II	80.7 (9.3)	23.1 (28.6)
III	82.8 (6.8)	29.9 (17.5)
IV	82.8 (8.7)	35.4 (17.4)
V	80.4 (10.1)	13.8 (16.5)
VI	82.2 (8.0)	31.3 (29.7)
VII	82.9 (10.5)	41.1 (28.4)