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RESEARCH

PREVALENCE OF FALLS IN ELDERLY PEOPLE TREATED IN A COMPREHENSIVE CARE CENTER

PREVALÊNCIA DE QUEDAS EM IDOSOS ATENDIDOS EM UM CENTRO DE ATENÇÃO INTEGRAL

PREVALENCIA DE CAÍDAS EN ADULTOS MAYORES TRATADOS EN UN CENTRO DE ATENCIÓN INTEGRAL

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ABSTRACT

Objective: to identify the prevalence of falls in elderly people treated in a Comprehensive Care Center. **Method:** this is an exploratory and descriptive study, with a quantitative approach, performed with 121 elderly patients from a Comprehensive Care Center for Elderly Care in the city of João Pessoa, Paraíba, Brazil. Data collection was conducted by means of a structured questionnaire and by using the Functional Independence Measure. **Results:** it was noted that 71.9% of the elderly reported having suffered previous falls. Most were female (78.2%), aged between 60 and 69 years (52.9%), married (48.3%), with low schooling (75.8%) and monthly income from three to five minimum wages (87.4%). It was shown that there was a statistically significant association between the variables related to schooling (p=0.012), use of walking aid (p=0.033), type of residence (p=0.015) and stairs (p=0.009). **Conclusion:** given the limiting consequences that the fall can provoke, it is necessary for the nursing professional to investigate its occurrence or the existence of risk factors that can favor or provoke this event, by developing strategic actions aimed at preventing falls and thus allow the elderly person to experience with greater safety and lower risk of falls.

Keywords: Aging; Aged; Accidental Falls.

RESUMO

Objetivo: *identificar a prevalência de quedas em idosos atendidos em um centro de atenção integral.* ***Método:*** *trata-se de estudo exploratório e descritivo, com abordagem quantitativa, realizado com 121 idosos de um centro de atenção integral à saúde do idoso no município de João Pessoa, Paraíba, Brasil. A coleta de dados foi realizada utilizando um questionário estruturado e a medida de independência funcional.* ***Resultados:*** *foi observado que 71,9% dos idosos referiram apresentar quedas anteriores. A maioria era do sexo feminino (78,2%), com idade entre 60 e 69 anos (52,9%), casada (48,3%), com baixa escolaridade (75,8%) e renda mensal de três a cinco salários mínimos (87,4%). Evidenciou-se associação estatisticamente significante entre as variáveis escolaridade (p=0,012), utilização de dispositivo para auxílio da marcha (p=0,033), tipo de residência (p=0,015) e degraus (p=0,009).* ***Conclusão:*** *diante das consequências limitantes que a queda pode provocar, faz-se necessário que o enfermeiro investigue a sua ocorrência ou a existência de fatores de risco que possam favorecer ou provocar esse evento, desenvolva ações estratégicas que visem à prevenção das quedas e que permitam ao idoso experienciar os prazeres da velhice com mais segurança e menor risco de cair.*

Palavras-chave: *Envelhecimento; Idoso; Acidentes por Quedas.*

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RESUMEN

Objetivo: *identificar la prevalencia de caídas en adultos mayores tratados en un centro de atención integral.* ***Método:*** *estudio exploratorio descriptivo con planteamiento cuantitativo efectuado con 121 adultos mayores de un centro de atención integral de la salud del adulto mayor de la ciudad de João Pessoa, Paraíba, Brasil. La recogida de datos se efectuó utilizando un cuestionario estructurado y la medida de independencia funcional.* ***Resultados:*** *el 71,9% de las personas informaron haber sufrido caídas previamente. La mayoría era del sexo femenino (78,2%), con edad entre 60 y 69 años (52,9%), casadas (48,3%), con bajo nivel de escolaridad (75,8%) e ingreso mensual de tres a cinco salarios mínimos (87,4%). Se evidenció una asociación estadísticamente significativa entre las variables relacionadas con la escolaridad (p=0,012), el uso de dispositivo de ayuda para caminar (p=0,033), tipo de vivienda (p=0,015) y escalones (p=0,009).* ***Conclusión:*** *ante las consecuencias limitantes que la caída puede provocar es necesario que el enfermero investigue su incidencia o la existencia de factores de riesgo que pueden favorecer o provocar este tipo de accidentes, desarrolle acciones estratégicas dirigidas a la prevención de caídas y que permitan que el adulto mayor disfrute de los placeres de la vejez con más seguridad y menos riesgo de caerse.*

Palabras clave*: Envejecimiento; Anciano; Accidentes por Caídas.*

INTRODUCTION

Population aging has been highly recognized worldwide[1] and it has repercussions for the health system, especially in developing countries.[2] At this juncture, the occurrence of falls is an event that negatively influences the life of the elderly, resulting in serious complications.[3]

The process of falling is a result of a combination of intrinsic and extrinsic factors to the individual, being in the first case related to the characteristics of the subject and their interaction with the changes coming from age, such as physiological changes in the musculoskeletal and nervous system, pathological conditions, drug use, impaired mobility, and history of previous falls. Extrinsic factors are often associated with environments and provide dangerous situations for the elderly, such as stairs, slippery floors, loose rugs, poorly lit places, shelves out of reach, inadequate footwear, excessively long clothing, among other.[4,5]

The fall can have negative impacts on the lives of the elderly person, family, and society, as well as causing serious and complex consequences, such as fractures, loss of self-confidence, fear of falling syndrome, restriction of activities and depression, and in many cases resulting in a high demand for long-term care.[6,7] Also, after a fall, many older people limit their activities because of concern about the possibility of falling, and together with the protective attitudes of the family and of caregivers, it can result in the social isolation of this individual and negatively interfere with his health and quality of life.[1]

Between January 2012 and November 2016, 476,664 hospitalizations of elderly people were registered due to falls in Brazil, with an average stay of 6.7 days in the hospital unit, generating a cost of more than R$ 690 million to the public coffers, of which R$ 1,447.63 is spent on each individual. Also, among these hospitalized patients, about 24,000 did not resist the severity of the condition and died, corresponding to the mortality rate of 5.08/1,000 inhabitants.[8]

Such an event is quite frequent in the elderly population and its prevention becomes a significant challenge for public health due to the high rates of morbidity and mortality and socioeconomic costs involved.[2]

Therefore, this study aims to identify the prevalence of falls in the elderly attended at a comprehensive care center.

METHOD

This is an exploratory, cross-sectional and quantitative study carried out in a comprehensive care center for the elderly in the city of João Pessoa, Brazil, which is characterized as a medium complexity unit for people aged 60 years old or older, with individual and collective care through a multi-professional team focused on geriatric-gerontological care.

The population investigated was composed of the people assisted by spontaneous demand in the service. The inclusion criteria were age 60 years old and over and both genders. The exclusion criteria were elderly individuals who did not present the psychological or physical capacity to answer the questionnaires properly at the time of data collection. The sample was identified by statistical calculation, considering the number of visits performed in October, November and December 2014, totaling 16,495 individuals. A pilot study was initially carried out with 25 elderly people to estimate the prevalence of risk of falls in the population, of whom 23 (p=92%, 0.92) presented a high risk of falls when assessed using the Fall scale Risk Score of Downton.

The sample size was calculated using the finite populations with a known proportion, based on a margin of error of 5% (error=0.05) with a degree of reliability of 95% (α=0.05, which provides $Z_{0.05/2}$=1.96) and considering the proportion of the event in the investigated population (p=92%), totaling 114 participants. Assuming the losses in the capture and other events, the correction for a potential loss of 8% was used, which resulted in the sample of 121 participants.

The data collection was performed through individual interviews with the help of instruments that contained questions

on the proposed objectives. A structured itinerary was used with aspects related to the characterization of the socio-demographic profile (gender, age, marital status, education and monthly income), clinical profile (presence/absence of illnesses, use of walking device, consumption of alcoholic beverages and (type of residence, presence/absence of asphalted street, stairs, slippery surfaces, good lighting and high or low shelves), confronted with the presence or absence of falls.

The functional capacity assessment was performed through the application of functional independence measure (FIM) aimed to measure the degree of dependence of the elderly person with other people in performing daily activities. This instrument consists of 18 items that evaluate the performance of the individual, distributed in subscales of motor domain and cognitive-social domain. The subscales that compete for the motor domain have 13 activities: self-care (feeding, personal hygiene, bathing, dressing above the waist, dressing below the waist and use of toilet), sphincter control (urine and stool control); mobility (transfer of bed, chair, wheelchair, toilet, shower/bath) and locomotion (locomotion and stairs). The cognitive/social domain contains five activities: two related to communication (comprehension and expression) and three related to social cognition (social interaction, problem-solving and memory).[9]

The collected data was compiled and stored in the Microsoft Office Excel program and then imported into the Statistical Package for Social Sciences (SPSS) application 22.0 to perform the descriptive statistical analyses. Pearson's chi-square test, Fisher's exact test, and Mann-Whitney test were used to identify associations between the data, considering a statistically significant association when $p \leq 0.05$.

During the research stages, all ethical and legal aspects of studies involving human beings were respected as recommended by Resolution Number 466/2012 of the National Health Council. The project was approved by the Research Ethics Committee of the Health Sciences Center of the Federal University of Paraíba, under opinion nº 995.113. Anonymity, privacy and the right of quitting at any stage of the research were guaranteed and those involved signed the Informed Consent Term.

RESULTS

It is observed that 71.9% of the 121 elderly people interviewed reported falls, most of them were female (78.2%), aged between 60 and 69 years old (52.9%), married (48.3%), with less than nine years of education (75.8%) and monthly income of three to five minimum wages (87.4%). There was a statistically significant association between falls and the level of education of the elderly population (p=0.012), as shown in Table 1.

Regarding the clinical aspects of the elderly people, it was identified that the fall was more present in individuals who had diseases (97.7%), did not use a walking device (87.4%), did not consume alcoholic beverages (96, 6%) and who underwent a recent ophthalmologic evaluation (72.4%). A statistically significant association was found between the use of walking aid and falls (p=0.033), as evidenced in Table 2.

Table 1 - Distribution of data on the association between falls and sociodemographic data of the elderly

Variables	Fall						p-value
	Yes		No		Total		
	n	%	n	%	n	%	
Gender							
Male	19	21.8	8	23.5	27	22.3	0.841*
Female	68	78.2	26	76.5	94	77.7	
Age group							
60 - 69 years old	46	52.9	14	41.2	60	49.6	0.866**
70 - 79 years old	37	42.5	19	55.9	56	46.3	
80 years old or more	4	4.6	1	2.9	5	4.1	
Marital status							
Single	13	14.9	7	20.6	20	16.5	0.652*
Married	42	48.3	14	41.2	56	46.3	
Widow	20	23.0	10	29.4	30	24.8	
Divorced	12	13.8	3	8.8	15	12.4	
Education							
Illiterate	14	16.1	2	5.9	16	13.2	0.012**
Less than 9 years of study	66	75.8	18	53.0	84	69.4	
9 years of study	4	4.6	6	17.6	10	8.3	
More than 9 years of study	3	3.5	8	23.5	11	9.1	
Monthly income							
Less than one minimum wage	6	6.9	2	5.9	8	6.6	0.352**
From 1 to 2 minimum wages	2	2.3	2	5.9	4	3.3	
From 3 to 5 minimum wages	76	87.4	27	79.4	103	85.1	
More than 5 minimum wages	3	3.4	3	8.8	6	5.0	
Total	**87**	**71,9**	**34**	**28,1**	**121**	**100**	

* Pearson's chi-square; ** Mann Whitney Test
Source: research data, 2015.

Table 3 shows that the highest prevalence of falls was associated with the elderly living at home (96.6%), paved street (64.4%) and good lighting at home (96.6%) the absence of stairs (74.7%), slippery surfaces (69.0%) and high or low shelves (73.6%). A statistically significant association between fall and residence type variables (p=0.015) and stairs (p=0.009) was identified.

Table 2 - Distribution of data on the association between falls and clinical aspects related to the elderly

Variables	Fall						p-value
	Yes		No		Total		
	n	%	n	%	n	%	
Diseases							
Yes	85	97.7	33	97.1	118	97.5	1.000**
No	2	2.3	1	2.9	3	2.5	
Walking assist device							
Yes	11	12.6	0	0.0	11	9.1	**0.033****
No	76	87.4	34	100.0	110	90.9	
Alcoholic beverages							
Yes	3	3.4	0	0.0	3	2.5	0.558**
No	84	96.6	34	100.0	118	97.5	
Recent ophthalmologic evaluation							
Yes	63	72.4	26	76.5	89	73.6	0.649*
No	24	27.6	8	23.5	32	26.4	
Total	**87**	**71.9**	**34**	**28.1**	**121**	**100**	

* Pearson's chi-square; ** Mann Whitney Test.
Source: research data, 2015.

Table 3 - Distribution of data on the association between falls and aspects related to the dwelling of the elderly

Variables	Fall						p-value
	Yes		No		Total		
	n	%	n	%	n	%	
Type of Residence							
House	84	96.6	28	82.4	112	92.6	**0.015****
Apartment	3	3.4	6	17.6	9	7.4	
Paved street							
Yes	56	64.4	17	50.0	73	60.3	0.146*
No	31	35.6	17	50.0	48	39.7	
Stairs							
Yes	22	25.3	17	50.0	39	32.2	**0.009***
No	65	74.7	17	50.0	82	67.8	
Slippery surfaces							
Yes	27	31.0	12	35.3	39	32.2	0.652*
No	60	69.0	22	64.7	82	67.8	
Good lighting							
Yes	84	96.6	30	88.2	114	94.2	0.096**
No	3	3.4	4	11.8	7	5.8	
High or low shelves							
Yes	23	26.4	10	29.4	33	27.3	0.741*
No	64	73.6	24	70.6	88	72.7	
Total	**87**	**71.9**	**34**	**28.1**	**121**	**100**	

* Pearson's chi-square; ** Mann Whitney Test.
Source: research data, 2015.

Table 4 showed that there was no statistically significant association between falls and FIM classification. However, the highest prevalence of falls was in the elderly in self-care activities (98.9%), control of sphincters (100.0%), mobility (95.4%) and cognition (77.0%) and also in the dependence of the elderly people to carry out locomotion activities (54.0%) and social communication (74.7%).

Table 4 - Distribution of data on association between falls and FIM classification

FIM	Fall						p-value
	Yes		No		Total		
	n	%	n	%	n	%	
Self-care							
Dependence	1	1.1	0	0.0	1	0.8	1.000**
Independence	86	98.9	34	100.0	120	99.2	
Control of sphincters							
Dependence	0	0.0	0	0.0	0	0.0	–
Independence	87	100.0	34	100.0	121	100.0	
Mobility							
Dependence	4	4.6	0	0.0	4	3.3	0.576**
Independence	83	95.4	34	100.0	117	96.7	
Locomotion							
Dependence	47	54.0	23	67.6	70	57.9	0.173*
Independence	40	46.0	11	32.4	51	42.1	
Cognition							
Dependence	20	23.0	13	38.2	33	27.3	0.091*
Independence	67	77.0	21	61.8	88	72.7	
Social communication							
Dependence	65	74.7	25	73.5	90	74.4	0.893*
Independence	22	25.3	9	26.5	31	25.6	
Total	**87**	**71.9**	**34**	**28.1**	**121**	**100**	

* Pearson's chi-square; ** Mann Whitney Test.
Source: research data, 2015.

DISCUSSION

In this study, a high prevalence of falls (71.9%) was observed, which corroborates with the study carried out in the city of João Pessoa-PB, showing a percentage of falls of 73.8%,[1] and a research with elderly people attended by domestic accidents in a reference hospital in Teresina-PI, of which 84.4% were hospitalized due to falls.[10]

The high number of falls in the elderly is not only a reality in Brazil. Data from the Disease Control and Prevention Centers report that every year in the United States, about 2.8 million elderly people are treated in emergency units because of falls and

more than 800,000 need hospitalization over the severity of the disease, usually due to head injuries and bone fractures.[11]

Regarding the sociodemographic characteristics, the fall was more prevalent in women, which is frequent in the national literature, although there is still no conclusive explanation regarding this phenomenon.[12] However, it is known that some factors may be related to the higher prevalence of falls in the elderly such as the reduction of lean mass and muscle strength after 60 years old, the increased likelihood of developing osteoporosis due to the loss of bone mass resulting from the reduction of estrogen, the higher prevalence of chronic diseases compared to men, and women are more active, both in the performance of domestic activities and in their greater social interaction and availability for leisure.[4,13-14]

Changes in the aging process may predispose to falls, particularly as the age increases, since there is a compromised performance of motor skills due to the decline in muscle tone and elasticity, hindering the individual to adapt to the environment.[13] On the other hand, this study showed a greater frequency of falls in the elderly between 60 and 69 years old, which may be related to the fact that they are younger and possibly more active elderly, favoring their exposure to situations that may provide high risk of falls.[12]

The higher prevalence of falls in married elderly people could be justified by the actual distribution of nuptiality in this age group since individuals above 60 years old have a high rate of marital union.[15] Regarding the level of education, it was evidenced that most of the elderly participants and also those who suffered falls had only incomplete elementary education, corresponding to less than nine years of study. The country has been showing a significant reduction in illiteracy levels.[16] However, there is still a low level of education among individuals, especially in the population over 60 years old, as a result of education policies and the marked social inequality experienced in the beginning of the 20th century,[17] making access to the education of people living in poorer regions such as the Northeast region.

Low level of education is a factor that generates influence on several aspects of the elderly's life, such as the reduction of the socioeconomic level, the reduction in access to health services and the difficulty to seek and/or assimilate information related to preventive care health,[18] such as exposure to risk factors for falls, which could justify the statistically significant association ($p \leq 0.05$) evidenced in this study.[10,19]

Although it was observed that most interviewees had low levels of education, the monthly income of most who fell and the total number of interviewees varied between three and five minimum wages, something that differs from the findings of other studies, in which the fall is more present in individuals with low socioeconomic power and may be related to poor access to medical resources and reduced knowledge about ways to prevent body changes and risk factors for falls.[20,21]

There was a statistically significant association ($p \leq 0.05$) between non-use of the walking device and falls. Such devices are recommended as an important measure to minimize the risk of falls in the elderly, since they provide improvement in functional independence, mobility, and balance, reducing the effects of several deficiencies of the individual or acquired with advancing age.[22]

When an imbalance occurs in the elderly people, there is difficulty in remaining stable and returning to the initial position, needing a point of support that keeps them fixed and safe.[12] The use of walking devices as a great option for improving mobility. However, it is imperative that health professionals, including nurses, advise the elderly and their families to purchase, exchange, regulate and use the walking devices since its incorrect use can lead to several lesions in the individual, especially falls.[22,23]

The falls had a statistically significant association ($p \leq 0.05$) between the elderly living at home and the absence of stairs at home, which may be related to more freedom and to the size of the house, which tends to be larger than in the apartments. Also, even the absence of stairs at home is not a protection factor for the elderly, since the familiarity of the individual with the environment of the residence allows him to feel more secure, more confident when moving and, consequently, reduction of attention when performing daily activities, increasing the risk of falls.[24]

Most falls in the elderly people occur in the same residence, being caused by obstacles that hinder the locomotion of the individual, among other factors. Thus, the nurse, during consultation with the elderly person, should investigate his living conditions and advise on the need for adaptations in the home, such as the installation of handrails on stairs and bathrooms, the use of non-slip floors, adequate lighting in all the rooms and the location of shelves or switches out of his reach. Also, it is essential to use non-slip footwear that provides stability and removal of carpets or objects scattered on the floor.[1,12]

There was no statistically significant association between FIM classification. On the other hand, the dependence of others to carry out locomotion and social communication activities were predisposing factors for the occurrence of falls episodes in the investigated elderly.

Falling can cause in the elderly the fear of the occurrence of new similar episodes, generating losses in self-confidence, emotional security, and independence, interfering in the daily activities of the individual and favoring the isolation,[5] which can result in depression, sedentarism and muscular atrophy, contributing to further falls.[4]

Given this situation, nurses must incorporate the multidimensional evaluation of the elderly in their daily routine of care to develop actions and strategies directed to the biological, psycho-

logical and social domains. Also, it is essential to identify modifiable risk factors and the adequate follow-up of associated health problems and/or comorbidity that may predispose them to falls.[5]

The prevention of falls should be carried out by all health professionals, not limited only to the nurse, working at all levels of healthcare and in all settings, whether at home, hospital, long-term institution or Family Health Strategy.[1,5] It is worth stressing the need to modify public environments, especially those that provide assistance to the elderly, with preventive adaptations and modification of spaces for better quality care.[12]

The expansion of the elderly population also refers to the increase in the demand for necessary care for these individuals,[25] especially those with functional disabilities, which may predispose or be the result of falls. For Geriatrics and Gerontology, the maintenance of independence and autonomy to perform the basic activities of daily living is the main goal of care for the elderly population, and it is necessary for the nurse to provide assistance that envisages the fall as an important factor of interference negative in these aspects.[6]

CONCLUSION

The results of this study demonstrate a high number of falls in the elderly investigated, and a susceptibility profile could be established for the occurrence of this event, such as women, aged between 60 and 69 years old, married, with low education, high monthly income, not using walking devices and live in homes without stairs.

Falls are routine in the life of the elderly and negatively affect their health, independence, autonomy, and quality of life. Faced with the limiting consequences that the fall can cause in the life of this individual, it is necessary that the health professional, especially the nurse, investigates its occurrence or the existence of risk factors that may favor or provoke this event, developing strategic actions which aim to prevent falls, allowing the elderly to experience the pleasures of old age more safely and less risk of falling.

Care for the elderly victim of falls requires nurses to pay attention to their health, which involves not only the mastery of the technique or the knowledge of the aspects that influence the process of falling but addressing the complexity of this experience for the elderly and their family relatives. Thus, it is the duty of nurses to continually question their practices to establish the investigation of episodes of falls as a habitual and necessary practice to provide integral assistance to the elderly, contemplating the mapping of the most susceptible individuals and the orientation of such individuals and the family on the importance of adopting preventive measures.

The research design is one of the limitations of this study since the fact that it is a cross-sectional study hider to establish the causal relationships between the studied variables. Also, it has been done in only one health service hindering to generalize its results to the entire elderly population of the municipality of João Pessoa. Therefore, it is suggested that further surveys like this should be undertaken using other types of design and data collection palaces.

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