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RESEARCH

FALLS, FEAR OF FALLING AND FUNCTIONAL CAPACITY: OVERVIEW OF ELDERLY PEOPLE ENROLLED IN A FAMILY HEALTH UNIT

QUEDAS, MEDO DE CAIR E CAPACIDADE FUNCIONAL: PANORAMA DE IDOSOS ADSCRITOS EM UMA UNIDADE DE SAÚDE DA FAMÍLIA

CAÍDAS, MIEDO A CAÍDAS Y CAPACIDAD FUNCIONAL: RESUMEN DE ANCIANOS REGISTRADOS EN UNA UNIDAD DE SALUD FAMILIAR

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ABSTRACT

Objective: to evaluate the functional capacity and fear of falling in elderly people enrolled in a family health unit. **Method:** descriptive and cross-sectional study, with a quantitative approach, carried out in January 2019, at the homes of 157 elderly people registered in a family health unit in the city of João Pessoa, Paraíba, Brazil. For data collection, a semi-structured instrument was used, composed of sociodemographic questions, history of falls, the Barthel index and the Falls Efficacy Scale-International. The analysis was carried out by descriptive and inferential statistics, using the Spearman correlation test. **Results:** there was a correlation between activities that make up the analysis of functional capacity and the fear of falling, in which there was statistical significance between them, verifying that the lower the functional capacity, the greater the fear of falling. **Final Considerations:** it was concluded that, in view of the physiological, social, and psychological decline resulting from human aging, it is important to plan interventions that address the fear of falling in the elderly, in order to preserve their functional capacity.

Keywords: Health of the Elderly; Activities of Daily Living; Accidental Falls.

RESUMO

Objetivo: *avaliar a capacidade funcional e o medo de cair em idosos cadastrados em uma unidade de saúde da família.* ***Método:*** *estudo descritivo e transversal, com abordagem quantitativa, realizado em janeiro de 2019, no domicílio de 157 idosos cadastrados em uma unidade de saúde da família do município de João Pessoa, Paraíba, Brasil. Para a coleta foi utilizado um instrumento semiestruturado, composto de questões sociodemográficas, histórico de quedas, o índice de Barthel e a Escala Internacional de Eficácia em Quedas. A análise foi efetivada pela estatística descritiva e inferencial, utilizando-se o teste de correlação de Spearman.* ***Resultados:*** *houve correlação entre atividades que compõem a análise da capacidade funcional e o medo de cair, em que se observou significância estatística entre elas, verificando-se que quanto menor a capacidade funcional, maior será o medo de cair.* ***Considerações Finais:*** *concluiu-se que, frente ao declínio fisiológico, social e psicológico oriundos do envelhecimento humano, é importante o planejamento de intervenções que abordem o medo de cair em idosos, com vistas a preservar sua capacidade funcional.*

Palavras-chave: *Saúde do Idoso; Atividades Cotidianas; Acidentes por Quedas.*

RESUMEN

Objetivo: *evaluar la capacidad funcional y el miedo a las caídas en personas mayores inscritas en una unidad de salud familiar.* ***Método:*** *estudio descriptivo y transversal, con enfoque cuantitativo, realizado en enero de 2019, en los hogares de 157 ancianos inscritos en una unidad de salud familiar en la ciudad de João Pessoa, Paraíba, Brasil. Para la recolección de datos se utilizó un instrumento semiestructurado, compuesto por preguntas sociodemográficas, historial de caídas, índice de Barthel y la Escala Internacional de Eficacia de Caídas. El análisis se realizó mediante estadística descriptiva e inferencial, utilizando la prueba de correlación de Spearman.* ***Resultados:*** *hubo correlación entre las actividades que componen el análisis de capacidad funcional y el miedo a caer, en la que se observó significación estadística entre ellas, comprobándose que, a menor capacidad funcional, mayor miedo a caer.* ***Consideraciones finales:*** *se concluyó que, dado el deterioro fisiológico, social y psicológico derivado del envejecimiento humano, es importante planificar intervenciones que aborden el miedo a las caídas en los ancianos, con el objetivo de preservar su capacidad funcional.*

Palabras clave: *Salud del Anciano; Actividades Cotidianas; Accidentes por Caídas.*

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INTRODUCTION

Demographic aging is a reality experienced worldwide, influenced by the decline observed in mortality and fertility rates, through improved quality of life and modern health technologies, which increases life expectancy and the proportion of elderly people in the population. In Brazil, the increase in the number of elderly people has been evident since the beginning of the 20th century, causing significant changes in the age horizon of the population.[1]

The aging process encompasses two aspects: senescence and senility. Senescence is the term given to aging in which there is a gradual reduction in the functional reserve, being an organic process, without causing pathological problems, while senility, in turn, is characterized by the existence of diseases related to aging, in which there is a need for specific assistance. Considering this, the emergence of chronic diseases can lead to disabilities understood as the individual's difficulty in performing activities of daily living, which can reduce the quality of life of the elderly and favor physical and social vulnerability.[2]

In general, human aging is a gradual and physiological process that occurs concomitantly with anatomical, physiological, and psychosocial dysfunctions that may predispose the elderly to illness and, consequently, cause damage to their functional capacity. In addition, some demographic and socioeconomic aspects are also responsible for the functional decline, among which are: age, color, race, gender and marital status, income, health conditions and education.[3]

Among the consequences of this process, fall accidents stand out, which can lead to serious complications such as hospitalization, institutionalization, immobility, and the high risk of death. After this event, feelings of anguish and depression are common, resulting from low confidence in their own balance, changing their gait due to fear of falling. Such fear tends to cause insecurity, which causes the elderly to reduce their activities and reduce their mobility, which can result in further impairment of functional capacity and increased risk for future falls.[4,5]

In response to these factors arising from the elderly phase, functional disability appears as an obstacle to the adaptation of the elderly to the social environment, characterized by the partial or total reduction of independence, and in this aspect, the planning of interventions, with the objective of to assist in the promotion of health and quality of life of the individual in the development of strategies for the elderly inserted in the community.[2]

In this context, the importance of studies focusing on the assessment of functional capacity and accidents due to falls is evident, since falls are an important determinant of functional disability among the elderly, especially in view of the unfavorable repercussions that such an event causes on quality of life, in the family environment and in the healthcare provided to this population. Thus, the objective of this study was to evaluate the functional capacity and fear of falling in elderly people registered in a family health unit.

METHOD

This is a descriptive and cross-sectional study, with a quantitative approach, developed among the elderly assisted by a family health unit located in the city of *João Pessoa*, *Paraíba*, Brazil. To guide the methodology of this research, the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) instrument was used.

The study population comprised all individuals over 60 years old registered in the referred unit, corresponding to 261 elderly people. The sample design was defined using the calculation for finite populations with a confidence interval of 95% ($\alpha=0.05$, which provides $Z0.05/2=1.96$), estimated prevalence of 50% ($p=0.50$) and a margin of error of 5% (error=0.05), which corresponded to 157 participants.

The inclusion criteria were elderly people of both sexes, who lived in the ascribed area of the family health unit (FHU) investigated, as well as those who had preserved cognitive conditions. Exclusion criteria were defined as those who had hearing deficits and speech problems that made communication difficult and made it impossible to carry out the interview. During the data collection period, 165 elderly people were approached in their homes, with the help of community health agents, eight of whom refused to participate.

Data collection took place in January 2019 in a single moment at the residence of the selected elderly, without the help of family members or formal caregivers. Initially, the reading and signature of the Free and Informed Consent Term was read and, later, the interview was supported by a semi-structured instrument, which contained questions relevant to the proposed objectives.

The evaluation of the sociodemographic profile was carried out through questions such as: gender, age, occupation, religion, marital status, education, income, and life habits, which involves the use of alcoholic beverages, cigarettes, and the practice of physical activity.

In addition, questions were asked about the self-reported health status and whether there were morbidities, so that the elderly person reported all the diseases that had been diagnosed by doctors.

To assess functional capacity, the Barthel index was used, being chosen because it is comprehensive, easy to apply, already validated in Brazil and the most used worldwide to assess functional capacity through activities of daily living (ADLs). This index contains 10 variables that score from zero to 100, with higher scores classifying more independence.[6]

In order to understand the event of falls, we investigated how many episodes there were in the year prior to data collection, as well as the physical or psychological consequences, and whether any device that aids ambulation is used. Regarding the fear of falling, the Fall Efficacy Scale-International (FES-I-BRASIL) was used, translated, and culturally adapted for the Brazilian population. Through this it is possible to investigate the fear arising from the possibility of falling into 16 daily activities, scored on a scale of one to four, such as cleaning the house, going shopping, going up/down stairs and walking in crowded places. The total score ranges from 16 (no fear) to 64 (extreme fear).[7]

The data were stored in an electronic spreadsheet structured in the Microsoft Excel program with double typing, in order to ensure reliability in its compilation. Subsequently, they were organized, coded, imported, and processed by the Statistical Package for the Social Science (SPSS) for Windows, version 22.0 application. Data analysis was performed using a quantitative approach based on descriptive statistics of a univariate nature for all variables, encompassing measures of position, frequency, and dispersion. In order to analyze the associations between the categorical variables, Pearson's chi-square test was established, in which $p<0.05$ was considered. To verify the normality of the data, the Kolmogorov Smirnov test was used, which showed that the dependent variable, the fear of falling score obtained through the FES-I-BRASIL, did not present a normal distribution.

Therefore, to identify the correlation between the variables, the Spearman correlation coefficient was used. In order to measure the degree of correlation between two variables, it was considered that "r" varied from +1/-1 for positive or negative correlations, respectively, when the value of $r=0$ the correlation was considered null. To verify the correlation strength, we considered: 0 - absence of correlation; 0 to 0.30 - weak correlation; 0.30 to 0.70 - moderate correlation; >0.70 - strong correlation. In all tests, a significance level of 5%.[8] was considered. Therefore, considering the gerontological literature, the scores obtained through the ability to perform the following activities were chosen as independent variables: feeding, bathing, personal hygiene, ability to get dressed, fecal and urinary continence, use of the bathroom, mobility, and possibility to climb stairs.

The ethical aspects that regulate research involving human beings regulated by Resolution 466/12 of the National Health Council were observed. Thus, the study was previously approved by the Research Ethics Committee of the Centro Universitário de João Pessoa, under CAAE nº 01629218.8. 0000.5176 and Opinion Report No. 3,042,118.

RESULTS

The sociodemographic profile of the participants in this research was 157 elderlies, most of them female (58.0%). The subjects were, on average, 70.4 ±7.76 years old, with a minimum age of 60 years and a maximum of 96 years, with the prevailing age group being 60 to 69 years (50.3%). There was also a predominance of those who were married or in a stable union (51.6%); with incomplete elementary education (49.7%); who were retired and had no occupation (83.4%); with individual income of one minimum wage (86.0%) and family income of two minimum wages (57.3%); and who reported following some religion (84.7%) (Table 1).

Elderly people who fall were characterized as male (67%), married (51%), with incomplete primary education (49%), with a monthly family income of up to two minimum wages (57%), sedentary (64%), who practiced leisure activities (54%) and self-reported good health status (61.5%), according to data presented in Table 2.

The health conditions of the elderly showed that 67.5% of the participants reported good self-perception of health; 63.7% did not practice physical activity regularly; 94.3% were not smokers; 96.8% did not use alcoholic beverages and 55.4% practiced some leisure activity. As existing comorbidities, elderly people with arterial hypertension (59.9%) and diabetes *Mellitus* (27.4%) prevailed, followed by heart disease (7.6%) (Table 3).

Most respondents reported having already fallen in the last year (58.0%), and among these 42% suffered from 1 to 2 falls, 82.4% did not show any changes after the event. It is noteworthy that the only post-fall change mentioned was fracture (10.2%). Regarding the fear of falling, 85.4% found themselves with little fear (Table 4).

Table 1 - Sociodemographic characteristics of the elderly enrolled in a family health unit participating in the research, *João Pessoa*, *Paraíba*, Brazil, 2019 (n=157)

Variables	n	%
Gender		
Female	91	58.0
Male	66	42.0
Age range		
60 to 69 year	79	50.3
70 to 79 years	56	35.7
80 or more	22	14.0
Marital status		
Married or with a partner	81	51.6
Widower	31	19.7
Single	24	15.3
Separated or divorced	21	13.4
Education		
Illiterate	29	18.5
Incomplete elementary school	78	49.7
Complete elementary school	20	12.7
High School	24	15.3
Higher Education	6	3.8
Religion		
Yes	133	84.7
No	24	15.3
Work		
No	131	83.4
Yes	26	16.6
Individual income		
None	6	3.8
1 minimum wage	135	86.0
2 minimum wages	15	9.6
3 minimum wages	1	0.6
Family income		
1 minimum wage	43	27.4
2 minimum wages	90	57.3
3 minimum wages	24	15.3
Social security situation		
Retired	131	83.4
Pensioner	11	7.0
Self-employed	8	5.1
Has no income	7	4.5
Total	**157**	**100.0**

Source: research data.

Table 2 - Sociodemographic characteristics of the elderly enrolled in a family health unit, fallers and non-fallers, *João Pessoa*, *Paraíba*, Brazil, 2019 (n=157)

Variable	Falls				p
	Yes		No		
	n	%	n	%	
Gender					0.007
Female	61	67.0	30	45.5	
Male	30	33.0	36	54.5	
Marital status					0.812
Married	47	51.6	34	51.6	
Widower	20	22.0	11	16.7	
Single	13	14.3	11	16.7	
Divorced	11	12.1	10	15.2	
Education					0.071
Illiterate	20	22.0	09	13.6	
Incomplete Elementary	45	49.5	33	50.0	
Complete Elementary	04	4.4	09	13.9	
Incomplete High School	07	7.7	-	-	
Complete High School	10	11.0	11	16.7	
Incomplete higher	02	2.2	01	1.5	
Complete higher	03	3.3	03	4.5	
Family income					0.680
Up to one minimum wage	26	28.6	17	25.8	
Two minimum wages	52	57.1	38	57.6	
Three minimum wages	13	14.3	10	15.2	
Four minimum wages or more	-	-	01	1.5	
Physical activity					0.727
Yes	32	35.2	25	37.9	
No	59	64.8	41	62.1	
Leisure activity					0.890
Yes	50	54.9	37	56.1	
No	41	45.1	29	43.9	
Self-reported health status					0.071
Very good	01	1.1	-	-	
Good	56	61.5	49	74.2	
Regular	34	37.4	15	22.7	
Bad	-	-	02	3.0	
Total	**91**	**100**	**66**	**100**	

Source: research data.

Table 3 - Self-reported comorbidities by the elderly participants of the research registered in a family health unit, *João Pessoa*, *Paraíba*, Brazil, 2019 (n=157)

Comorbidities	n	%
Hypertension	94	59.9
Diabetes *Mellitus*	43	27.4
Heart disease	12	7.6
High blood pressure + diabetes *Mellitus*	21	13.4
Arterial hypertension + heart disease	6	3.8
Arterial hypertension + diabetes *Mellitus* + other morbidity	14	8.9
None	45	28.7
Others	2	1.3

Source: research data.

Table 4 - Episodes of falls and classification of fear of falling among elderly people enrolled in a Family Health Unit, *João Pessoa*, *Paraíba*, Brazil, 2019 (n=157)

Variables	n	%
Episodes of falls		
None	66	42.0
1 - 2 falls	40	42.0
3 - 4 falls	26	25.0
5 - 6 falls	21	27.0
7 falls or more	4	6.0
Changes after the fall*		
No	75	82.4
Yes	16	17.6
Fear of falling		
Absence of fear	17	10.8
Little fear	134	85.4
Moderate fear	3	1.9
Extreme fear	3	1.9

Source: research data.

As for functional capacity, independent elderly people prevailed (89.8%), followed by light dependents (3.8%), moderately dependents (2.5%), severe dependents (3.2%) and total dependence (0.6 %).

The correlation between the fear of falling and the variables of functional capacity, according to the Barthel index, found that there was statistical significance (p<0.001) between the fear of falling and all the variables of functional capacity. Concomitantly, an inversely proportional relationship was observed (r=-0.761), so that the lower the capacity, the greater the fear of falling (Table 5).

Table 5 - Correlation between the fear of falling and the functional capacity of elderly people enrolled in a family health unit, *João Pessoa*, *Paraíba*, Brazil, 2019 (n=157)

Functional Capacity	Fear of Falling	
	r	p*
Food	-0.491	p<0.001
Shower	-0.642	p<0.001
Personal hygiene	-0.611	p<0.001
Ability to dress	-0.639	p<0.001
Fecal incontinence	-0.634	p<0.001
Urinary continence	-0.584	p<0.001
Use of the bathroom	-0.673	p<0.001
Transfer	-0.683	p<0.001
Mobility	-0.621	p<0.001
Climb stairs	-0.668	p<0.001
Total	**-0.761**	**p<0.001**

*Spearman's Correlation Test.

DISCUSSION

Most elderly people self-reported their health status as good, which is similar to findings in another study in which more than half of the subjects expressed their self-perception of health as good or excellent, realizing that, despite the exhausting conditions of old age, these elderly people were still able to face the health situation positively.[9] The self-perception of health is an important marker of physical and psychological well-being and satisfaction with life, commonly observed positively among the elderly who live in the community.[9]

A population-based study carried out in southern Brazil also found a predominance of positive self-perception of health.[10] Another investigation brings in its results an important preponderance of negative self-perception of health among the elderly in a municipality in the north of Minas Gerais, under the conditions of a history of falls in the last year, difficult access to health services and geriatric frailty.[11] This health indicator involves the situation of morbidity and mortality of a population and demonstrates the influence of behaviors, life habits and coping in the face of adversity, being an important predictor of adverse health events . Thus, the elderly who self-report good health, in general, predominantly adopt practices of health promotion and disease prevention.[10,11]

More than half of those surveyed suffered falls in old age, most with one or two falls. Falls can be considered a public health problem, since their outcomes have a strong impact on the elderly population, knowing that there is a high prevalence of hospitalizations due to these events that sometimes lead to situations of disability and death.[12]

The elderly were predominantly a little concerned about falls, although most of them have already been victims of the event. In another study, carried out in the same municipality as the research in question, the most punctuated category was extreme fear. This divergence may be linked to the fact that in the study cited above, the elderly were recruited on an outpatient basis, a greater number of previous falls that resulted in important physical and psychological changes.[13] In this context, the fear of falling is closely related to the history of falls. and its repercussions on the quality of life of these elderly people. Such an event has positive consequences for the health of the elderly, since, by being afraid of falling, the individual will naturally adopt more preventive care.[14]

Furthermore, research carried out in Portugal verified the existence of a discriminative validity within the classification of fear. of falls, determining that the highest values are related to the history of falls, decreased health status, impaired vision, older age, and daily medication use.[15]

The research subjects were characterized as a population with independent functional capacity in their ADLs. This result coincides with the same evidence found by Pinto Júnior *et al*.[16], who reported a high number of independent elderly people in their studies. Studies carried out in Bahia revealed opposite results, in which the prevalence of elderly people was light dependence on basic and instrumental activities of daily living, justifying these findings by the health problems found in the population.[17,18]

It is possible to understand the predominance of independent elderly people in the present study from the age group found, in which more than half were young elderly people (<80 years). In addition, the place of recruitment also influences this variable, since the elderly who live in the community have less functional dependence when compared to those in outpatient or hospitalized care. In this context, advancing age is a factor that increases the risk of functional disability due to the progressiveness of physiological changes.[3,19] Another aspect mentioned in the literature concerns marital status, so that elderly people who have partners are less prone to disability. functional than single, divorced or widowed elderly people.[20]

The importance of the independence of the elderly is configured as an important health marker, being directly linked to the quality of life, considering its role in the construction of personal and environmental relationships, psychological health and healthy aging.[21] As interventions and health behaviors preventive measures, it is essential to recommend physical activity practices and tasks that stimulate cognition, considering that the mechanisms that involve them attenuate the declines that contribute to functional limitations.[22]

In view of the association between fear of falling and functional capacity, statistical significance could be noted, so that the lower the functional capacity, the greater the fear of falling. Fear is a disturbance resulting from the perception of real, apparent or illusory danger, which modifies self-esteem and the ability to face limitations, causing significant data such as increased dependence and the need for care. Upon reaching pathological psychological levels, the elderly with fear of falling restricts activities of daily living, in order to protect themselves from falls. However, it is precisely this protective posture that feeds back insecurity, musculoskeletal decline, and loss of balance, which cause falls.[14]

Such fear tends to increase with increasing age and the number of preexisting diseases, because the older the individual and the greater the number of comorbidities, the lower their functional capacity tends to be, due to the increase in their fragility.[23,24] Fear of falling is also associated with the number of falls, considering that the greater the number of falls, the greater the fear of falling again.[25] A study showed an association of functional capacity with sex, age group, income and education, in which women, older age, low schooling and low income had more functional impairment.[19]

Since falls represent a serious problem in the lives of the elderly, this research identified the need to maintain the functional status and guarantee strategies aimed at detecting the risk of falls, since the elderly in this population proved to be secure in terms of independence. in your activities of daily living. It is important to encourage the elderly to an active life, in order to strengthen their functional capacity, as well as reduce the risk of eventual falls, through preventive practices that reinforce the safety of the elderly population.

CONCLUSION

The results classified the elderly in question as an independent population since most of them were not dependent on performing their activities of daily living. Most, however, have already suffered some decline in old age, which exposes them to a certain degree of risk in terms of functional capacity. In addition, the data showed a negative correlation between functional capacity and fear of falling, suggesting that the greater the fear of falling, the lower the level of functional independence.

As limitations of the present study, the fact that the population was captured in only one FHU stands out, which may confer selection bias, and the cross-sectional design of the research, which does not allow the establishment of causal relationships. Thus, it is suggested to carry out further studies addressing the issue in question with larger populations, especially those with a prospective methodology that allows the determination of correlations of cause and effect.

We emphasize the importance of health professionals acting effectively in reducing the risks related to falls in the elderly, as well as in maintaining functional capacity, through health education, stimulation of the practice of physical activities and tasks that stimulate the cognition. Finally, it can be inferred that this research contributed to the sense of bringing data that can be considered as evidence of the characterization of the studied population and used to improve the quality of life in the scenario of the work of health professionals.

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