

# Short Educational Intervention on Fall Prevention for Hospitalized Adults and Elderly

ORIGINAL

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## Abstract

**Objective:** To analyze the effect of an individualized education using a short leaflet on the prevention of falls in adults and elderly hospitalized.

**Method:** Prospective study consists of three steps: application checklist on knowledge of falls, presentation of a leaflet on falls and repetition of questions about knowledge of falls after the intervention.

**Results:** The study included 49 patients with a mean age 47.06; 34 the majority (69.4%) were women, 31 (63.3%) was married, they had an average of 9.06 studies. most prevalent medical diagnostics, and the gastro-intestinal endocrine system, both with 8 (16.3%), followed by cardiovascular 7 (14.3%). It was observed that the arrangements of responses prior to the application of the intervention were lower than the arrangements of the responses after the intervention. The same happened to the errors and the responses considered in part.

**Conclusion:** Educational intervention on prevention of falls had a positive effect on learning of hospitalized patients.

## Introduction

Incidents of patient's safety in hospitalization can occur and cause harm and often hamper or decrease the quality of life of patients. Hospitalization characterizes by a process that requires patient's adaptations to the physical structure, routines, norms, and relationships

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### Keywords

Nursing Care; Accidental Falls; Health Education.

with other people. As a result of accidents at a hospital environment, the patient may suffer physical, psychological and/or financial impact, besides increasing the hospitalization time, hospital costs or even cause irreversible damage [1].

In this sense, the World Health Organization (WHO), when listing patient's safety quality indicators, included falls as an avoidable important marker through preventive actions. Falls are responsible for two out of five events related to patient care, considered the second cause of death by accident worldwide, thus, being a concern as an indicator of health quality [2, 3].

The falls event was defined as an unintentional displacement of the body to a level lower than the initial position, caused by multifactorial circumstances, resulting in damage or not. The multifactorial etiology results from the interaction of intrinsic factors (individual problems), extrinsic (environmental problems) and behavioral (degree of risk exposure). The knowledge of those risk factors is fundamental to execute prevention actions effectively [3].

In a study carried out in São Paulo/SP, 67 events related to the fall at hospitalization units were registered, an average of 11.1 per month. Considering 32,833 patients per day, the incidence of this event was 2.04/1,000 patients [4]. Another study carried out in the center-west of Brazil revealed the prevalence of falls in 70% of the occurrences at the hospital environment. In a study carried out in Italy, the incidence was 7.5/1,000 patients [5].

The hospital environment is hostile, impersonal and not free from iatrogenies, so professionals must be vigilant regarding situations that may cause such event. A multicenter study in Australia found that the nurse was not present in two-thirds of the falls and that they used to occur when the patient tried to perform activity without supervision [6].

In a study conducted in the United States of America, falls were significantly reduced when using a combination of strategy that included education and training of all hospital staff, communication with patients and family/caregiver, identification of

risk of falls by means of a valid instrument, use of hourly supervision with checklist and hiring of caregivers [7].

The effective patient's education is a continuing goal in health care and the focus of interventions performed by professionals at any level of health care. The educational technologies for Nursing care are an excellent pedagogical means, since educational materials and dynamic activity can be applied in several scenarios. The main types of educational technologies are interview, videos and booklets [7].

In a study conducted in Alberta, Canada, which used an educational pamphlet, all participants found the material acceptable and improved their understanding of the subject. That research concluded that reading in health is fundamental for the patient's engagement and the potential for better health outcomes [8].

Given the exposed, one believes it is essential to develop education strategies for hospitalized patients on falls prevention so that they can actively participate in the recognition of existing risks and prevention of that event.

Thus, the present study aims to analyze the effect of a short-term individualized education using an information leaflet on fall prevention in hospitalized adults and elderly people.

## Method

This is a prospective study carried out in the units of medical, surgical and infectious and parasitic disease clinics of a University Hospital, located in João Pessoa (PB). The population consisted of all adults and elderly people hospitalized in the units of the mentioned hospital. The sample was defined by accessibility using the following inclusion criteria: hospitalized patients aged 18 years or more, able to read, without visual and/or hearing difficulties and with at least 24 hours of hospitalization. The exclusion criteria were individuals with impaired cognition and with semi-intensive and intensive care.

The collection took place in three stages: 1. Application of an instrument with objective questions that contemplated sociodemographic and clinical data and a checklist to evaluate the patient's knowledge about falls, addressing the definition of falls, risk factors for falls, prevention and attitudes in case the event occurs; 2. Presentation of an informative and illustrative leaflet, previously submitted for validation of the appearance, which contained information about falls; 3. Reapplication of the initial instrument 24 hours after the educational intervention with the selected sample.

The collected data were typed and stored in a database in an electronic spreadsheet, structured in Microsoft Office Excel – 2010 for Windows, and later transferred to the statistical program Statistical Package for Social Sciences (SPSS), version 20.0, for the data processing.

For the analysis of the results, descriptive statistics with the respective absolute and relative frequencies was used by means of tables and figures, discussed according to the pertinent literature.

The research followed the recommendations of Resolution 466/20129 concerning the standardization of researches on human beings, as well as respecting the responsibilities and duties contained in Chapter III of the Resolution of the Federal Nursing Council (COFEN) [10] 311/2007 contemplated in Article 89 To 102. The Research Ethics Committee/Federal University of Paraíba authorized the research under opinion No. 1,441,527.

## Results

The study included 49 patients hospitalized in the medical, surgical, infectious, and parasitic clinic units of a university hospital in the city of João Pessoa, Paraíba.

**Table 1** shows the sociodemographic and economic data of the participants.

In relation to age, 12 (24.5%) individuals were from 40 to 49 years, followed by ten (20.4%) between 60 and 69 years, with a mean of 47.06 years

**Table 1.** Sociodemographic and economic distribution of the research participants (n=49). João Pessoa, 2016.

Variables	N	%
<b>Gender</b>		
Female	34	69.4
Male	15	30.6
<b>Marital Status</b>		
Single	11	22.47
Married	31	63.3
Separated/Divorced	2	4.1
Widow(er)	4	8.2
Did not answer	1	2.0
<b>Family Arrangement</b>		
Alone	1	2.0
Only with spouse	5	10.2
Spouse and children/grandchildren	23	46.9
Spouse, children, son-in-law/daughter-in-law and/or grandchildren	3	6.1
Only with children/grandchildren	9	18.4
Others	6	12.2
Did not answer	2	4.1
<b>Age Group</b>		
18 - 19 years	2	4.1
20 - 29 years	8	16.3
30 - 39 years	7	14.3
40 - 49 years	12	24.5
50 - 59 years	6	12.2
60 - 69 years	10	20.4
70 or more	4	8.2
<b>Monthly Personal Income</b>		
No income	1	2.0
Less than 1 minimum wage	3	6.1
1 to 2 minimum wage	36	73.5
2 to 3 minimum wage	3	6.1
3 or more	3	6.1
Did not answer	3	6.1
<b>Income Source</b>		
Retirement	14	28.6
Pension	3	6.1
Own work	19	38.8
Others	10	20.4
Did not answer	3	6.1
<b>Total per variable</b>	<b>49</b>	<b>100</b>

for the selected sample, with a minimum of 18 and a maximum of 80 years.

The majority were women 34 (69.4%), married 31 (63.3%), lived with spouse and children/grandchildren 23 (46.9%), with monthly personal income that comprised from one to two minimum wages 36 (73.5%) and the main sources of income were self-employment 19 (38.8%), and retirement 14 (28.6%).

Regarding education, the participants reported having one to 17 years of education, averaging 9.06 years; only one participant did not answer the question, and the majority 48 (98.0%) said they attended school.

Regarding religion, the majority reported being Catholic, with 29 (59.2%) individuals, followed by 11 (22.4%) evangelicals.

Regarding the profession, 13 (26.5%) participants did not answer the question, 12 (24.5%) were retired, and ten (20.4%) were autonomous. Regarding the occupation, 34 (69.4%) did not respond it, and nine (18.4%) performed domestic activities.

The patients' medical diagnoses were classified according to the body's systems, the gastrointestinal and endocrine systems were the most affected, both with eight (16.3%) participants, followed by the cardiovascular system with seven (14.3%) related diagnoses.

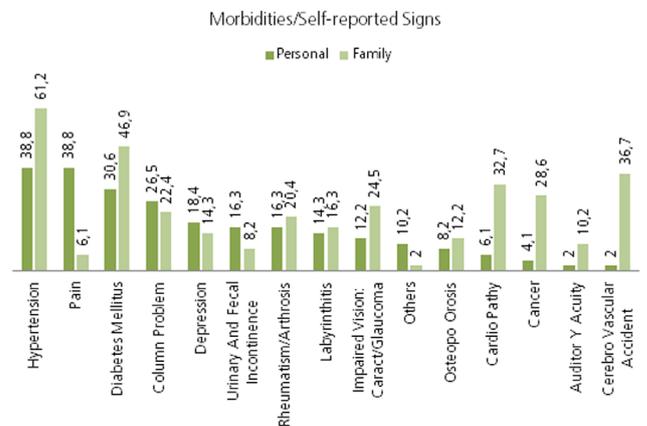
**Figure 1** shows self-reported personal and family morbidities. Regarding personal morbidities, the main ones were systemic arterial hyperten-

sion (SAH), with 19 (38.8%) references, as well as pain 19 (38.8%), followed by diabetes mellitus (DM) with 15 (30.6%) individuals; among family morbidities, the main ones were systemic arterial hypertension (SAH), reported by 30 (61.2%) individuals, diabetes mellitus (DM), by 23 (46.9%) and cerebrovascular accident (CVA), with 18 (36.7%) references.

Regarding the use of medications, 22 (44.9%) participants reported using antihypertensive; nine (18.4%) used tranquilizers and sedatives; eight (16.3%), diuretics, followed by four (8.2%), with antidepressants.

Regarding the number of medications per individual, 17 people did not use any medication and, among those who used it, 16 (32.7%) people took two medications, 12 (24.5%), only one medication

**Figure 1:** Demonstration of personal and family morbidities of the study sample. João Pessoa, 2016.



**Table 2.** Distribution of the answers before and after the educational intervention regarding falls and how to prevent them at the hospital environment (n=49). João Pessoa, 2016.

Items	Right Answers		Wrong Answers		Partial	
	Before	After*	Before	After*	Before	After*
How do you define falls?	2	24	10	3	37	15
Can you mention at least one risk factor for falls?	29	42	8	0	12	0
How can you participate in the prevention of falls in this hospital environment?	28	37	7	2	14	3
Do you know what to do in case of falls?	14	33	7	2	28	7
Did not answer	3	3	3	3	3	3

\* Seven patients were discharged after the educational intervention without responding to the post-intervention test, but this data did not invalidate the obtained results.

and four (8.2%) participants used three medications, setting an average of 1.14 medications per person.

**Table 2** shows the responses of the participants before and after the educational intervention.

One observed that the correct responses before the application of the leaflet were smaller. Likewise, errors and partial responses diminished after the educational intervention.

## Discussion

In the hospital context, falls are very common; therefore, there is need for an educational intervention with visual and oral resources to reduce their incidence at that environment [7].

Concerning the sociodemographic data, most participants were women 34 (69.4%). In a study conducted by Laus et al. [11], there was a greater number of reports regarding falls in women (55.6%) during hospitalization in medical, surgical and infectious-parasitic clinics of a hospital located in the state of São Paulo.

Regarding the age group, 12 (24.5%) patients were between 40 and 49 years old with a mean of 47.06 years. In a study on the risk of falls in hospitalized patients with ischemic heart disease in the northeast of the country, the results diverged, since the mean age was 63.9 ( $\pm$  12.5) years [12].

The average educational level of the participants was 9.06 years with a variation from one to 17 years of study. One noticed that the lower the education, the smaller the amount of information about the falls. A study carried out in São Paulo with 38 elderly people concluded that the educational level influences the spatial perception, considering that, when performing visual search tasks, individuals with low educational level need a longer time, make more mistakes and reach fewer targets in comparison to individuals with higher education [13]. Another study carried out in 59 cities in Rio Grande do Sul involving 6,751 elderly people identified that se-

niors with higher education presented a protection of 50% for the outcome when compared to those who were only literate [14].

Figure 1 demonstrates self-reported personal and family morbidities, highlighting the most prevalent personal morbidities - SAH, Pain and DM, and family - AH, DM and CVA.

In the study carried out by Albuquerque et al. [19] on the risk of falls, 88.4% of the sample had SAH, 46.5% DM, and 40.7% had both diseases simultaneously. According to the aforementioned author, SAH and DM isolated did not present a significant association with the risk of falls, but their consequences such as CVA and peripheral neuropathy are determinant for the occurrence of the event [11].

Studies have shown that individuals with DM are at risk for falls and their injuries, mainly due to the reduced vision, development of peripheral neuropathy, use of polypharmacy, dizziness, auditory disturbance, hypoglycemia due to misuse of medication, among others [15-16].

Regarding pain, 19 (38.8%) patients reported feeling some degree of pain. Pain is a risk factor for falls as confirmed in a study involving 1,413 elderly people in São Paulo, which showed that pain for more than two years increased the risk of falling by 39% compared to absence of pain. It also emphasized that pain that interfered moderately enough at work increased the chance of falling by 56% [17].

In this study, there was a predominance of 22 (44.9%) individuals who used antihypertensive drugs, which indicates a warning sign for falls. A study conducted with 321 patients at a public hospital in the state of São Paulo also associated the use of antihypertensive to the occurrence of falls, so that 30.7% of individuals who suffered falls were using that medication [11].

As for the number of used medications, there was a positive point among the interviewees, as there were no cases of polypharmacy, in which the individual uses five or more medications daily, increasing the appearance of adverse reactions to

medications [18]. Only four (8.2%) participants reported using three concomitant medications, which is the maximum number of medications used by the sample.

The results presented in Table 2 represent the number of correct answers, errors and partially correct answers, according to the patients' answers. The data are significantly positive when comparing previously and after the application of the leaflet, which proves that there was somehow an apprenticeship. However, one cannot infer how long they will keep the knowledge on falls prevention, since this follow-up was not the objective of this research.

It is noteworthy that, when asked about the knowledge of risk factors for falls, the participants had the knowledge of at least one situation that could precipitate the event. However, after applying the folder, the number of risk factors mentioned increased considerably. The most mentioned risk factor was the wet floor, as there were leaks in the bathrooms of the hospitalization units. Studies have shown that slippery floors are among the most prevalent extrinsic risk factors related to falls [19].

Regarding the question "How can you participate in the prevention of falls in this hospital environment", more than half of the participants are able to recognize preventive actions related to the environment, according to their own knowledge and daily experience. After the application of the information leaflet, there was an increase of 18% in the number of right answers.

A study in the United States of America used a similar method for preventing falls, in which an individual education was used at the time of the preoperative visit to the patient. It verified that, 14 days before the surgery, there was no event of falls in the intervention group, unlike the control group, in which seven patients fell [20].

One highlights the importance of individualized health education, evidencing that clarification on the subject is beneficial for the patient's safety and for the maintenance of the care of health and nursing professionals. Therefore, one confirms the

hypothesis of the present study, in which an educational intervention with a leaflet causes positive effects in the learning of hospitalized adults and elderly people on falls prevention.

## Conclusion

Although falls represent an important public health problem, researches on incident prevention using educational programs are still scarce in Brazil. The data demonstrate that strategies for patients' education, such as the distribution of educational material, should be encouraged at the hospital environment, including guidelines on the risk of falls and injury prevention.

One can infer that the study contributed to the patients' learning, making them aware of the prevention of falls at the hospital environment, which will consequently lead to a reduction in the incidence of falls in hospitalized adults and elderly.

Therefore, the results of this research can help professors, nurses/managers and other health professionals involved with the issue, in the planning and implementation of educational actions aimed at preventing falls of adults and elderly during hospitalization.

A limitation of the study was the exclusion of many individuals from the sample because they were not literate, since knowing how to read was essential for interpreting the information in the folder.

Upcoming studies should be carried out with a methodology that may also involve non-literate individuals and caregivers/relatives, so that more people are sensitized on the issue in question.

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