

## Evaluation of the safety of hospitalized older adults as for the risk of falls

*Avaliação da segurança do idoso hospitalizado quanto ao risco de quedas*  
*Evaluación de la seguridad del anciano hospitalizado en cuanto al riesgo de caídas*

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### ABSTRACT

**Objective:** To evaluate the safety of hospitalized older adults as for the risk of falls according to the parameters of the Morse Fall Scale. **Method:** Epidemiological, cross-sectional, prospective and descriptive study with  $n=75$ . **Results:** Average age of 71.3 years ( $SD \pm 8.2$ ); 58.7% male; 44% with low educational level; 38.7% hospitalized for cardiovascular diseases; average hospitalization of 10 days ( $SD \pm 9.38$ ); 78.7% with comorbidities; 61.3% with the calf circumference  $\geq 31$  cm; 62.7% were former smokers for more than 10 years; 65% did not drink alcohol; 100% did not have identification bracelet; 22.7% had similar names in the infirmary; 48% took up to five medicines; and 93.3% received some invasive procedure, especially the vessel puncture (65.3%). There was a high risk of falls in 52% of older adults. **Conclusion:** The results pointed to imminent risk of breach of patient safety, emphasizing the need for implementation of protocols and predictive scales such as the Morse scale. **Descriptors:** Older Adults; Patient Safety; Accidents by Falls; Nursing Care; Geriatric Nursing.

### RESUMO

**Objetivo:** Avaliar a segurança do idoso hospitalizado quanto ao risco para quedas segundo os parâmetros da *Morse Fall Scale*. **Método:** Estudo epidemiológico, transversal, prospectivo, descritivo com  $n = 75$ . **Resultados:** Média de idade de 71,3 anos ( $DP \pm 8,2$ ); 58,7% do sexo masculino; 44% com baixa escolaridade; 38,7% internados por doenças cardiovasculares; média de internação de 10 dias ( $DP \pm 9,38$ ); 78,7% com comorbidades; 61,3% com a circunferência da panturrilha  $\geq 31$ cm; 62,7% eram ex-fumantes havia mais de 10 anos; 65% não ingeriam bebida alcoólica; 100% não possuíam pulseira de identificação; 22,7% possuíam nomes similares na enfermaria; 48% ingeriam até cinco medicamentos; 93,3% receberam algum procedimento invasivo, principalmente a punção de vaso (65,3%). Houve risco elevado para quedas em 52% dos idosos. **Conclusão:** Os resultados apontaram risco iminente da quebra de segurança do paciente, ressaltando a necessidade de implementação de protocolos e escalas preditivas, como a escala de *Morse*. **Descritores:** Idoso; Segurança do Paciente; Acidentes por Quedas; Cuidados de Enfermagem; Enfermagem Geriátrica.

### RESUMEN

**Objetivo:** Evaluar la seguridad del anciano hospitalizado en cuanto al riesgo de caídas según los parámetros de la escala de Morse. **Método:** Estudio epidemiológico, transversal, prospectivo, descriptivo con  $n = 75$ . **Resultados:** Promedio de edad de 71,3 años ( $DP \pm 8,2$ ); 58,7% del sexo masculino; 44% con baja escolaridad; 38,7% internados por enfermedades cardiovasculares; promedio de internación de diez días ( $DP \pm 9,38$ ); 78,7% con comorbilidades; 61,3% con la circunferencia de la pantorrilla  $\geq 31$ cm; el 62,7% eran ex fumadores durante más de 10 años; el 65% no ingería bebida alcohólica; el 100% no tenía pulsera de identificación; el 22,7% tenía nombres similares en la enfermería; el 48% ingería hasta cinco medicamentos; el 93,3% recibieron algún procedimiento invasivo, principalmente la punción de vaso (65,3%). Hubo un riesgo elevado de caídas

en el 52% de los ancianos. **Conclusión:** Los resultados apuntaron un riesgo inminente de la quiebra de seguridad del paciente, resaltando la necesidad de implementación de protocolos y escalas predictivas, como la escala de Morse.

**Descriptor:** Anciano; Seguridad del Paciente; Accidentes por Caídas; Cuidados de Enfermería; Enfermería Geriátrica.

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## INTRODUCTION

Brazil is one of the countries that compose the World Alliance for Patient Safety. In 2013, the Brazilian Ministry of Health prepared and issued the Ministerial Order 529, which established the *Programa Nacional de Segurança do Paciente* (National Patient Safety Program – PNSP), which defines the relevant concepts in the area and key strategies for the implementation of PNSP<sup>(1)</sup>.

It is known that, in Brazil, there are over 200,000 assistance health establishments, in which patients are routinely exposed to technologies in health and professional assistance interventions, being subjected, therefore, to adverse events (AEs). The adverse event is an incident that results in unintentional damage resulting from assistance and not related to the natural evolution of the base disease of the patient<sup>(2)</sup>.

Among the strategies for reduction of security incidents, the prevention of falls during hospitalization is one of the goals established by PNSP<sup>(1)</sup>. Falls during hospitalization are one of the most important occurrences in breach of patient safety and are often responsible for the increase in the number of days of hospitalization and worse recovery conditions. In addition, falls are not evenly distributed in hospitals, being more frequent in units with many older patients, in neurology and rehabilitation. Hence, this has been a topic of research, study and intervention in healthcare facilities<sup>(3)</sup>.

There are several scales designed for evaluation of risk of falls, such as the Berg Balance Scale (EEFB), which assesses the development of functional tasks; the Timed Up and Go (TUG) scale, which evaluates basic mobility of the person; and the Morse Fall Scale, which stands out because of the apparent simplicity of their assessment items, being recommended by PNSP<sup>(1,4)</sup>.

The Morse Falls Scale is a scale originally in English, created by Janice Morse, in 1989, which authorized, in 2013, the translation, adaptation and validation in Brazil. This scale assesses the risks of falls as potential danger in the security of hospitalized older adults and has six domains (history of falls, secondary diagnosis, assistance in ambulation, use of intravenous devices, gait and mental state)<sup>(4)</sup>.

Older adults consume more healthcare services, hospital admissions are more frequent, and the bed occupancy time is greater than that of patients of other age groups, and that does not mean more benefits. In general, diseases of older adults are chronic and multiple, lasting for several years and requiring medical follow-up and permanent multidisciplinary teams and frequent hospitalizations<sup>(5)</sup>.

In this context, the main focus of this study was the evaluation of the safety of hospitalized older adults as for the risk of falls, in view of the great demand of older adults seeking assistance with medium and high complexity institution and the implications that prolonged hospitalizations can bring to their health. The study

aimed to assess the safety of hospitalized older adults as for the risk for falls according to the parameters of the Morse Fall Scale.

## METHOD

### Ethical aspects

The survey was submitted and approved by two committees of ethics in research with human beings, of the Universidade do Estado do Pará (UEPA) and the hospital where the study was conducted. Older adults and their companions have signed the informed consent form, as recommended in the Ministerial Order 466/2012.

### Study design, local and period

Cross-sectional, epidemiological, prospective and descriptive type of study, held in a public hospital in Belém, Pará. The eligible nurseries for assessment of older adults were the medical clinic and cardiology because they receive the highest number of patients aged 60 years old or over. Data collection took place from June 2015 to July 2016.

### Population and sampling, inclusion criteria and variables

It were selected for the study, seniors who were hospitalized for more than 72 hours. The delimitation of the sample was based on the number of hospitalizations in 2014,  $N = 216$  older adults; after sample calculation ( $n = N \cdot n_0 / N + n_0$ , where  $n_0 = 1/E^2$ )<sup>(5)</sup>; considering 10% alpha value, the estimated sample was  $n = 68$  older adults, and the final sample was  $n = 71$  older adults. The independent variables of the study were divided into sociodemographic: age, sex, origin, income and level of education; epidemiological, health variables: reason for admission, readmission number, time of hospitalization, comorbidities, complications, invasive procedure, smoking, alcoholism, calf circumference, number of medicines in use, ID bracelet, similar names in the infirmary; and the outcome variable was the “risk of falls” according to the Morse Fall Scale.

### Study protocol

For data collection, we used two protocols. The first was created by the researchers of this study and contemplated sociodemographic, epidemiological and health variables. The second protocol was the scale of assessment of the risk of falls, i.e., the Morse Fall Scale.

Sociodemographic, epidemiological and health variables were obtained from the individual medical record of the older adults. From the medical record, we also obtained the information to fill items 1 and 2 of the Morse Fall Scale; the other items of the scale were observed in the infirmary and registered in the research protocol (Figure 1). Evaluation of scale parameters meet the following domains (history of falls, secondary diagnosis, assistance in ambulation, use of intravenous devices, gait and mental state), each rated domain receives a score ranging from 0 to 30 points, totaling a risk score, whose classification is as follows: low risk 0-24; medium risk, 25-44; and high risk  $\geq 45$ <sup>(4)</sup>.

Morse Fall Scale - Língua Portuguesa		
Itens	Definição Operacional	Pontos
<b>1. Histórico de quedas</b>		
Não	Se o paciente não tem história de quedas nos últimos três meses.	0
Sim	Se o paciente caiu durante o período da internação hospitalar ou se tem um histórico recente (até três meses) de quedas por causas fisiológicas, tais como convulsões ou marcha comprometida antes da admissão hospitalar.	25
<b>2. Diagnóstico secundário</b>		
Não	Se no prontuário do paciente apresentar apenas um diagnóstico médico.	0
Sim	Se no prontuário do paciente apresentar mais de um diagnóstico médico.	15
Morse Fall Scale - Língua Portuguesa		
Itens	Definição Operacional	Pontos
<b>3. Auxílio na deambulação</b>		
Nenhum/ Acamada/ Auxiliado por Profissional da Saúde	Se o paciente deambula sem equipamento auxiliar (muleta, bengala ou andador), se deambula com a ajuda de um membro da equipe de saúde, ou ainda se usa cadeira de rodas ou se está acamado e não sai da cama sozinho.	0
Muletas/ Bengala/ Andador	Se o paciente utiliza muletas, bengala ou andador.	15
Mobiliário/ Parede	Se o paciente se movimenta apoiando-se no mobiliário/paredes.	30
<b>4. Terapia endovenosa/dispositivo endovenoso salinizado ou heparinizado</b>		
Não	Se o paciente não usa dispositivo endovenoso. Nota: quando o paciente usa dispositivo totalmente implantado, considera-se pontuação zero, quando não estiver em uso.	0
Sim	Se o paciente usa dispositivo endovenoso com infusão contínua ou não (salinizado ou heparinizado)	20

Morse Fall Scale - Língua Portuguesa		
Itens	Definição Operacional	Pontos
<b>5. Marcha</b>		
Normal/ Sem deambulação, Acamado, Cadeira de Rodas	Uma marcha normal é caracterizada pelo andar de cabeça ereta, braços balançando livremente ao lado do corpo e passos largos, sem hesitação. Também recebe a mesma pontuação se o paciente está acamado e/ou usa cadeira de rodas (sem deambulação).	0
Fraca	Os passos são curtos e podem ser vacilantes. Quando a marcha é fraca, embora o paciente incline-se para frente, enquanto caminha, é capaz de levantar a cabeça sem perder o equilíbrio. Além disso, caso ele faça uso de algum mobiliário, como apoio, este apoio se dá de maneira leve somente para se sentir seguro, não para se manter ereto.	10
Comprometida/ Cambaleante	O paciente dá passos curtos e vacilantes e pode ter dificuldade de levantar da cadeira, necessidade de apoiar-se nos braços da cadeira para levantar e/ou impulsionar o corpo (faz várias tentativas para se levantar impulsionando o corpo). Com esse tipo de marcha, a cabeça do paciente fica abaixada e ele olha para o chão. Devido à falta de equilíbrio, o paciente agarra-se no mobiliário, em uma pessoa ou utiliza algum equipamento de auxílio à marcha (muletas, bengala, andadores) para segurar-se e não consegue caminhar sem essa ajuda. Quando ajuda estes pacientes a caminhar, o membro da equipe de saúde nota que o paciente realmente se apoia nele e que, quando o paciente se apoia em um corrimão ou móvel, ele o faz com força até que as juntas de seus dedos das mãos fiquem brancas.	20

Morse Fall Scale - Língua Portuguesa		
Itens	Definição Operacional	Pontos
<b>6. Estado mental</b>		
Orientado/ Capaz	Ao perguntar ao paciente "Você é capaz de ir ao banheiro sozinho ou precisa de ajuda?" verifique se a resposta é consistente com as informações constantes no prontuário e/ou com sua avaliação. Em caso positivo, o paciente é classificado como capaz.	0
Superestima capacidade/ Esquece limitações	Ao perguntar ao paciente "Você é capaz de ir ao banheiro sozinho ou precisa de ajuda?" verifique se a resposta não é consistente com as informações do prontuário e/ou com sua avaliação ou se a avaliação do paciente é irreal. Se isto acontecer, este paciente está superestimando suas habilidades e esquecendo suas limitações.	15

Source: Scale adapted and translated to Portuguese language by Urbanetto, 2013<sup>(4)</sup>

**Figure 1** – Morse Fall Scale validated in Brazil, 2013

### Data analysis and statistics

For analysis of the obtained data, we built an electronic database in the statistical program SPSS, version 24.0. Then, these data were statistically processed by parametric and non-parametric tests, as simple frequency distribution, measures of dispersion (average and standard deviation), considering the  $p$  value  $\leq 0.10$ .

### RESULTS

Most seniors were aged between 60 and 70 years old, male, born in Belém, Pará, Brazil; There was a predominance of those who received up to a minimum wage and with low level of education (Table 1).

According to Table 2, it is highlighted that, in most seniors of the sample, the main cause of hospitalization were diseases of the cardiovascular system. Between the comorbidities, hypertension was the most prevalent. There was change in calf circumference in about 40% of the older adults; 57.3% of the older adults were long-time smokers.

**Table 1** – Sociodemographic data of older adults who participated in the study, Belém, Pará, Brazil, 2016 (N = 75)

Variables	f	%
Sex		
Male	44	58.7
Female	31	41.3
Age group		
60-70	39	52.0
71-80	28	37.3
81-90	08	10.7
Average (71.3)		
Standard deviation ( $\pm 8.2$ )		
Origin		
Belém	43	57.3
Other municipalities	32	42.7
Has income		
Yes	57	85.1
No	10	14.9

To be continued

Table 1 (concluded)

Variables	f	%
Income		
Up to one minimum wage	45	60.0
1-3 minimum wages	17	22.7
4 or + minimum wages	4	5.3
Education level		
Never studied	12	16.0
1 to 3 years of study	33	44.0
4 to 8 years of study	24	32.0
9 years of study or more	06	8.0

Source: Individual medical record.

**Table 2** – Epidemiological and health data of the older adults who participated in the study, Belém, Pará, Brazil, 2016 (N = 75)

Variables	f	%
Reason for admission		
Cardiovascular system diseases	29	38.7
Gastrointestinal system diseases	25	33.3
Respiratory system diseases	06	08.0
Diseases of other systems*	15	20.0
Comorbidities		
Yes	59	78.7
No	16	21.3
Type of comorbidities		
SAH**	22	29.3
DM**	07	09.3
SAH + DM	26	34.7
Others	04	05.3
Complications during hospitalization		
Yes	16	21.3
No	59	78.7
Type of complication		
Infection	6,0	8.0
Pressure injury	3,0	4.0
Others***	7,0	9.3
Type of surgical procedure		
Amputation	01	1.3
Colostomy	01	1.3
Appendectomy	01	1.3
Tracheostomy	01	1.3
Calf circumference****		
< 31 cm	29	38.7
≥ 31 cm	46	61.3
Number of admissions		
1-3	62	82.7
4-6	11	14.7
> 6	02	2.7

Source: Individual medical record.

Notes: \*Diseases of other systems: Decompensated diabetes mellitus, Pain to be specified, Erysipelas Bullosum, Infection to be specified, Septicemia, Aplastic Anemia, Hemorrhagic Syndrome, Osteomyelitis, Pemphigus. \*\*SAH = Systemic Arterial Hypertension, DM = Diabetes Mellitus; \*\*\*Other types of complications: Delirium, Liver Cirrhosis, Dyspnea, Seizure, Bleeding, Immobility Syndrome; \*\*\*\*Evaluated in the older adult.

As observed in Table 3, the patient identification bracelets were absent in 100% of the older adults as well as the similarity of names was present in the same nursery at about 22.7% of the cases. About 52% of them made use of polypharmacy. Of the older adults, 93.3% have undergone some kind of invasive procedure, including puncture of any vessel (65.3%).

In Table 4, it is observed that, according to the parameters of the Morse scale, there was a high risk for falls in most older adults of the sample.

**Table 3** – Distribution of the variables related to the safety of older adults during hospitalization, Belém, Pará, Brazil, 2016 (N = 75)

Variables	f	%
ID bracelet		
Yes	0	0.00
No	75	100
Similar names in the same nursery		
Yes	17	22.7
No	58	77.3
Number of medicines		
1-5	36	48.0
6-10	26	34.7
> 10	13	17.3
Undergone invasive procedure		
Yes	70	93.3
No	05	06.7
Invasive procedure type		
Vessel puncture	49	65.3
Bladder catheter	14	18.7
Gastric catheter	03	4.0
Others	04	5.3

Source: Individual medical record.

**Table 4** – Classification of older adults regarding the risk of falls by the Morse scale during hospitalization, Belém, Pará, Brazil, 2016 (N = 75)

Variable	f	%
<b>Morse Score*</b>		
Low risk	14	18.7
Moderate risk	22	29.3
High risk	39	52.0
Total	75	100

Notes: \*Scores of the scale: 0-24, low risk; 25-44, moderate risk; > 45 high risk

## DISCUSSION

Results of this study showed that the sample of older adults presented the average age of 71.3 years, a result similar to other studies on older adults hospitalized in Pará and in the Northeast region of Brazil<sup>(6-7)</sup>. On the other hand, in research

done with older adults hospitalized in Rio Grande do Sul, south region of Brazil, the average age was 81 years<sup>(8)</sup>. This difference between regions is because in the North and Northeast regions, despite the continuous aging observed in the last two decades, there is still a fairly young population, due to high levels of fertility in the past. On the other hand, the South region is the area with the lowest concentration of young people. Rio Grande do Sul is the leader among the states with the largest number of older adults: almost 20% of its inhabitants have more than 60 years old, besides having greater life expectancy<sup>(9)</sup>.

On the relationship between age and risk of falls, the age above 60 years is considered as the largest risk factor important for fall and for the injuries arising from the event. This may be explained by changes in the physiological process of aging that are predictors of falls such as: problems on physical mobility, including postural instability and gait changes, decreased functional, cognitive and visual capacity. In addition, chronic-degenerative diseases and the concomitant use of several medicines are common conditions in older adults and it can also increase the risk of falling<sup>(10)</sup>. Strengthening the association between age and risk of falls, the NANDA International Nursing Diagnosis – NANDA I considers the age above 65 years to the nursing diagnosis “risk of falls”<sup>(11)</sup>.

Most of the older adults of the sample were male (58.7%), a result similar to that found in other studies on hospitalized older adults<sup>(8,12)</sup>. The predominance of hospitalized men can be explained by several factors, including the fact that there is a significantly higher search of women for primary health care, which can be justified by the values of culturally constructed masculinity, for aspects related to work and mode of operation of health services and their teams. In addition, the increased frequency of hospitalization of older males may be related to the practice of negative attitudes by men such as drinking and smoking habits, lack of physical exercise and the late search for medical assistance<sup>(9,13)</sup>.

In studies carried out in the community, female is the sex that appears most often as a predictor of falls, whereas in hospitals, the results varied in relation to the greater prevalence of falls between sexes<sup>(14)</sup>.

Most of older adults of this study were from Belém, with income of up to one minimum wage. The income level of older adults is a powerful social determinant of health, which, interrelated with precarious housing, food and medicine insecurity, among others, can adversely affect the health of Brazilian older adults and become one of the main factors of premature morbidity and mortality. This probably contributes to increase the statistics of attendance in medium and high complexity level on health care<sup>(15)</sup>.

Regarding education, 41.8% of older adults had from 1 to 3 years of study, a result similar to that found in other studies in Pará and in other states of Brazil<sup>(4,16-18)</sup>. Senior citizens with low levels of education are less concerned about health care, and have less capacity of involvement in the health recovery, which ends up increasing the risk of falls. The education has an indirect connection with the risk of falls in older adults, since it is related to the lifestyle and quality of life of the

individual, and these factors predispose to the risk of falls<sup>(19-20)</sup>.

In this study, 38.7% of the older adults were admitted for cardiovascular system diseases; and for gastrointestinal system diseases, 33.3%. Among the cardiovascular diseases, there was a predominance of congestive heart failure – CHF (34.7%). Results showed that the most prevalent comorbidities were arterial hypertension and diabetes mellitus. Studies on older adults hospitalized in Brazil, in its majority, showed cardiovascular system diseases as the main causes of hospitalization<sup>(4,8,16,18)</sup>. Circulatory diseases are the leading cause of hospitalization of the older adults on the public network and hospitals affiliated to the Brazilian Unified Health System – SUS and are highlighted as the main cause of death in this population<sup>(21)</sup>.

An ecological study identified, in the last 50 years, an increase in the mortality rate for cardiovascular diseases in the North and Northeast regions, concurrently to its decrease in the South, Southeast and Midwest regions; the authors relate this elevation of mortality to the improvement in the quality of the information, consequence of the increased surveillance actions and health care in these regions<sup>(22)</sup>.

A meta-analysis study on the relationship between orthostatic hypotension and CHF, with a total of 51,270 individuals and 3,603 incident cases of CHF, suggested that the association between low blood pressure and incidence of CHF seemed to be significant in middle-aged individuals with hypertension and/or diabetes, but not significant in older individuals without hypertension or diabetes. The results of the authors support our results, according to which the older adults had as main reason of hospitalization the CHF and the main comorbidities being hypertension and diabetes mellitus, which seems to have influenced at high risk for falls<sup>(23)</sup>.

According to the NANDA-I, changes resulting from cardiovascular problems are included in the risk factor for the nursing diagnosis “risk of falls” in the domain named “physiologic changes.” NANDA-I considers the presence of vascular disease, orthostatic hypotension, presence of acute disease and dizziness as risk factors for falling<sup>(11)</sup>.

Among the older adults of the sample, the main complications were infection and pressure injuries, present in 12% of hospitalized seniors, and are considered to be adverse events in health care. The high number of phlebitis and excessive development of pressure injuries, in an inpatient clinic unit can be associated with the inadequate number of nursing professionals to meet the needs of patients' care; in other words, the lack of human resources in the health service is related to the increase of injuries, mainly among the older adults<sup>(24)</sup>.

Among the older adults of the sample, 82.7% had been hospitalized at least three times, with an average of 10 days of hospitalization. The time of hospitalization and readmission are considered major risk factors for the functional loss in the older adults. A study conducted in Chicago, with older adults before and after hospitalization, identified that the level of cognitive decline of many older patients increased significantly after a stay in hospital, affecting their reasoning and memory. It is normal for them to have some loss in this

phase of life, but in hospitalized older adults, the loss more than doubled. According to the authors, from the cognitive point of view, after hospitalization, it was as if people would be 10 years older than they were, especially those who already had some cognitive decline and more severe chronic diseases<sup>(25)</sup>.

As for smoking habits, 62.7% of older adults were former smokers; with time of smoking greater than 10 years, 44%. In a study conducted in the state of São Paulo, the prevalence of smokers was higher among men, who did not practice physical activity and who had a history of stroke, cancer and chronic lung disease<sup>(26)</sup>. About alcoholic beverage consumption, 65.3% did not drink. However, among those who reported consuming alcohol, 20% said to drink often. Older adults who consume alcohol are more willing to have depression and irritability; alcoholism alters liver function of the older adult, leading to cirrhosis and liver failure, as well as increase the risk for falls and death<sup>(27)</sup>.

In this study, it was observed that the hospital did not use ID bracelets in the older adults during the period of hospitalization. In addition, 17% had similar or identical names in the same nursery. According to the National Health Surveillance Agency Brazil – ANVISA, patients with the same or similar names, when admitted in the same room, are likely sources of incidents relating to exchange of medicines, tests, surgical procedures and exchange of information in shift of duty. Patients themselves can also be the cause of the occurrence of errors, by using documents from other people to access the service or even by providing inaccurate information when questioned about their name<sup>(2)</sup>.

Regarding the number of medicines used by older adults, 48% had from one to five medicines prescribed for use. The Iberoamerican Center for the Third Age considers the consumption of five or more medicines as polypharmacy<sup>(28)</sup>. Prospective study conducted with older adults hospitalized in inpatient care units, of three hospitals in Mato Grosso, Brazil, found among the predictors of falls during hospitalization: low level of education, polypharmacy and the use of laxatives and antipsychotics<sup>(20)</sup>.

About 93.3% of older adults held some kind of invasive procedure during hospitalization and, among them, the main cause was the puncture for intravenous or venoclysis device. The use of intravenous devices has the potential to cause harm to the patient and is associated with morbidity and mortality, especially during the hospitalization, because it is conducive to direct or indirect patient contamination by micro-organisms and to infection, which is one of the leading and most serious iatrogenic<sup>(29)</sup>.

The results showed: about 52% of older adults hospitalized who were part of this study had high risk for falls according to the Morse scale score. In South Korea, 50% of patients had high risk of falls<sup>(30)</sup>. In a study conducted with patients from 18 to 88 years old in a hospital in Spain, it was assessed the risk of falls and then the falls that occurred throughout hospitalization. The authors found only 19% of patients with high rate of falls by the Morse scale, however, when assessing the falls that occurred, 52.8% were in the older adults assessed,

indicating the need for monitoring of nursing staff, as well as the implementation of preventive measures<sup>(31)</sup>.

In a study carried out in Porto Alegre, Brazil, the high and moderate risk for falls are associated to the occurrence of falls, demonstrating that the falls, in the hospital environment, are capable of prevention by identifying from the Morse scale<sup>(32)</sup>.

### Limitations of the study

The main limitation found in the development of the study was the small sample, due to the long period of permanence of the older adult in hospital, which limits the generalization of the results. But, despite this, it is believed that the results of this study may encourage further research in the area of gerontological nursing and patient safety.

### Contributions to the field of nursing, health or public policy

The risk of falls assessment protocol used here proved to be practical and fast for the nurse to apply in older adults and low cost to the hospital environment. It should be noted that the assessment and management of risk of falls in hospitalized older adults by nursing can significantly reduce mortality, readmissions, the time of stay as well as individual and institutional costs. The results of this study may encourage further research in the area of patient safety and care quality management.

### CONCLUSION

Older adults that participated in the study showed high risk for falls. It is possible to identify that the risk assessment for falls of hospitalized patients, through the Morse scale, tends to improve the nursing care and assists in the first phase of the nursing process, serving as a subsidy for subsequent stages, in addition to qualify the assistance provided by the team and, consequently, the quality rates of the hospital.

Based on the results, it is recommended that the health teams of the hospitals follow the measures for the prevention of falls in hospitalized patients, and it is important that the implementation of protocols and predictive scales, such as the Morse scale, use a flowchart of risk. It is also relevant the report of falls in such a way that they can be identified, in addition to the intrinsic causes, the specific causes of the hospital, such as the environment and the performance of professionals, and so that the culture of patient safety can be widely disseminated.

It should be noted that prevention and management of the risk of falls in older adults are directly linked to nursing care. Research and continuing education in the area of falls in older adults in the hospital environment can make the nurse *an expert* in this subject, improving the training quality of professionals as well as the level of evidence for the care of older people.

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