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Risk of fall in users of emergency care units

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Riesgo de caídas en usuarios de unidades de atención de emergencia

Risco de queda em usuários de unidades de pronto atendimento

ABSTRACT
Objective: Investigating the association of the risk of fall with the care sector and age group of users of Emergency Care Units. Method: A cross-sectional and analytical study conducted from September to April/2016 in eight units in southern Brazil. A total of 377 users were sampled, to whom the Morse Scale was prospectively applied. Data analysis was based on descriptive statistics and Chi-square test for categorical variables. Results: There was a higher prevalence of users at high risk of fall in the emergency sector (67.3%), and low risk in the observation sector (56.8%). Homogeneous distribution of medium risk was observed in the emergency, observation and hospitalization sectors. Among the elderly, 68.4% were at high risk. Difference (value-p<0.0001) was observed in the variables care sector and age group. Conclusion: There is an association of the risk of falls, care sector and age of the health service user.
DESCRIPTORS: Patient safety; Accidental falls; Emergency nursing; Emergency medical services; Quality of health care.

RESUMEN
Objetivo: Investigar la asociación del riesgo de caídas con el sector asistencial y el grupo de edad de los usuarios de las Unidades de Atención de Emergencias. Método: Estudio transversal y analítico realizado de septiembre a abril/2016 en ocho unidades en el sur de Brasil. Se muestrearon un total de 377 usuarios, a los que se aplicó prospectivamente la Escala Morse. El análisis de datos se basó en estadísticas descriptivas y pruebas Chi-cuadradas para variables categóricas. Resultados: Hubo una mayor prevalencia de usuarios con alto riesgo de caída en el sector de emergencias (67,3%) y bajo riesgo en el sector de observación (56,8%). Se observó una distribución homogénea del riesgo medio en los sectores de urgencias, observación y hospitalización. Entre los ancianos, el 68,4% estaban en alto riesgo. La diferencia (valor-p<0.0001) se observó en el sector de la atención de variables y el grupo de edad. Conclusión: Existe una asociación del riesgo de caídas, sector asistencial y edad del usuario de los servicios de salud.
DESCRIPTORES: Seguridad del paciente; Accidentes por caídas; Enfermería de urgencia; Servicios médicos de urgencia; Calidad de la atención de salud.

RESUMO
Objetivo: Investigar a associação do risco de queda com o setor de atendimento e faixa etária de usuários de Unidades de Pronto Atendimento. Método: Estudo transversal e analítico realizado de setembro a abril/2016 em oito unidades do sul do Brasil. Foram amostrados 377 usuários, aos quais foi aplicada, prospectivamente, a Escala de Morse. A análise dos dados se deu por estatística descritiva e teste qui-quadrado para as variáveis categóricas. Resultados: Houve maior prevalência de usuários com alto risco de queda no setor emergência (67,3%), e de baixo risco no setor observação (56,8%). Distribuição homogênea de risco médio foi observada nos setores emergência, observação e internamento. Entre os idosos, 68,4% apresentaram alto risco. Diferença (valor-p<0,0001) foi observada nas variáveis setor de atendimento e faixa etária. Conclusão: Há associação do risco de quedas, setor de atendimento e idade do usuário do serviço de saúde.
DESCRITORES: Segurança do paciente; Acidentes por quedas; Enfermagem de emergência; Serviços médicos de emergência; Qualidade da assistência à saúde.

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INTRODUCTION

Emergency Care Units (UPA - Unidade de Pronto-Atendimento) are non-hospital health services, characterized by providing uninterrupted care to the population affected by clinical changes, trauma and violence; and whose objective is to refer assistance to other units of emergency care networks. [1] Due to the complexity of the patients' health conditions, the technological apparatus and the work process in the corresponding services, the investigation and monitoring of risks and the occurrence of avoidable adverse events underpin the decision-making process related to promoting patient safety. [2]

The World Health Organization (WHO) defines an adverse event (AE) as that incident that has caused harm to the patient. [3] In view of the systemic problems involving the causality and high occurrence of these events in health services, the World Alliance for Patient Safety was created in 2004, with the objective of adopting actions aimed at improving health care. Among the Member States that are part of the alliance, Brazil stands out, which is politically committed to the guidelines to promote quality of care, especially with the enactment of the National Patient

Safety Program (PNSP - Programa Nacional de Segurança do Paciente). [4]

This program has specific protocols aimed at reducing avoidable AEs. Among them, the targeted protocol for the prevention of damage from falls stands out, [5] which represent the third most notified AE by Brazilian health services 2 and correspond to events in which the person inadvertently falls towards the ground, culminating in the ground or another level below the starting position. [6]

"Fall" events can cause injuries, sequelae, longer hospital stays and increased costs, with consequent legal liability of the health team and the institution. [7] When considering them as a prevalent and persistent problem in the context of patient safety, and what preventive measures are included in the basic protocol of the Ministry of Health, [8] as well as included in the International Patient Safety Targets proposed by the WHO and the Joint Commission, [9] stratifying the user's risk to this event is a growing demand for organizations, since it becomes one of the first actions of the health and nursing team to identify the problem and strategically plan measures to solve them. [5-6]

In hospital emergency services, it is recognized that users are especially at risk, [10] in the context of the UPA, there is a gap in the implementation of the

safety protocols recommended by the PNSP, including the one for falls, which is shown in a timely manner, [11] fragmented and even non-existent in this health care setting. [12]

In hospital emergency services, it is recognized that users are especially at risk, [13] mainly because it is considered that the physical environment in which the user receives assistance can be a factor associated with the increased risk of falling. [9] A circumstance that encourages the need to investigate the risk of this event in non-hospital emergency environments, due to the particularities of the sector, in which users can be assisted in the following areas: red, yellow and green. [14]

The fact that users are accommodated on stretchers, chairs or armchairs, without protective supports, [12] enhances the risk of a fall occurring. In this way, its identification by sector helps the different actors involved in the care (users, health team, managers and family members) to know the problem and help the health team to elaborate the care plan centered on the user. This stratification also provides subsidies to list strategies in the different spheres of government, with reallocation of human and financial resources and necessary changes in the health system, with adequacy of the physical structu-

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re, according to the demand and needs of the assisted population.

These actions aim to fully implement public patient safety policies, with potential impact on the quality of health and nursing care. It is noteworthy that the occurrence of the fall event in the emergency care network brings impacts to the individual and family, and to the Unified Health System, in view of the necessary clinical and surgical interventions resulting from this preventable injury. In this context, the routine investigation of risk is a recommended practice and is primarily attributable to the nursing team, and contributes to the quality of care. Therefore, the aim of this study was to investigate the association of the risk of falling with the service sector and age group of users of Emergency Care Units.

METHOD

This is a cross-sectional and evaluative research, carried out from April to September 2016, in eight UPA in southern Brazil. These units make up the emergency care network, are administered by the municipality, one of them size II and seven size III, serving, on average, a population of about 200 to 300 thousand inhabitants, 1 each.

The population of this research corresponded to the average number of visits in the emergency (n=8.441), inpatient (n=3.476) and observation (n=9.645) sectors of the eight UPA between April 2015 and March 2016, totaling 21,562 users. For the sample calculation, with no previous results related to the application of inspection scripts, p=0,5, a confidence level of 95%, and a margin of error of 0.05 were established, whose calculation resulted in a sample of 377 users stratified by UPA and service sector.

Thus, the calculation resulted in a sample of 147 users assisted in the emergency sector, 169 in the observation sector and 61 in the inpatient sector. Users aged ≥18 years old, attending the emergency, observation and hospitalization sectors, in the morning, afternoon and night shifts, were included in the research. Exclusion criteria were not adopted.

Data collection occurred for convenience, by a single nurse, through observation and questioning, to users, of items related to the Morse Scale translated and adapted for Brazil [15] and subscription and Informed Consent Form (ICF). In cases where the user was unable to answer the questions arising from the clinical condition, which made it impossible to understand and sign this term, authorization and inquiry were requested from the companion.

The Morse Scale contains six assessment items (history of falls, secondary diagnosis, aid in walking, intravenous therapy, gait, mental status), to which points (0 to 30) are assigned. After summing the points and nominating the scores for each item on the scale, the risk was stratified; scores ≤24 represented low risk, between 25 and 44 indicated medium risk and ≥45 indicated high risk of falling. [15]

Data were transcribed into a Microsoft Office Excel® software spreadsheet, by double typing and correction of inconsistencies, and analyzed using the R software and statistical assistance. Descriptive statistics were used to analyze qualitative and quantitative variables; using the chi-square test, it was evaluated whether or not there was an association between the service sector and the risk of falling, as well as between age and the risk of falling; values with p<0,05 indicated significance.

This research followed the precepts of ethics in research with human beings, according to Resolutions nº466/12 and nº510/16, of the National Health Council. It was approved by the Research Ethics Committee of the Health Sciences Sector of the Federal University of Paraná and by the Research Ethics Committee of the Municipality of Curitiba, under opinions CEP/SD number 1.376.139 of December 18th, 2015 and CEP/SES number 1.478.366 of April 5th, 2016, respectively.

RESULTS

Of the 377 survey participants, 206 (54,6%) were aged over 60 years. Table 1 shows the demographic profile of users according to the service sector.

Table 2 shows the risk of falling according to age group and user assistance sector in the UPA. There was a prevalence of users with medium and high risk of falling (70,6%;n=266). Of these, 44,8% (n=169) were classified as high risk.

The high risk of falls occurred among

Table 1 - Distribution of users assisted in Emergency Care Units stratified by sector, according to sex and age (n=377). Curitiba, PR, Brazil, 2016.									
SEX	**AGE GROUP (IN YEARS)**	**SECTOR**						**TOTAL**	
		EMERGENCY		**INTERNEMENT**		**OBSERVATION**			
		N	%	N	%	N	%	N	%
Female	18-59	19	21,4	4	12,5	70	68,6	93	24,7
	≥ 60	70	78,6	28	87,5	32	31,4	130	34,5
Total		89	60,5	32	52,5	102	60,4	223	59,2
Male	18-59	23	39,7	9	31,0	46	68,7	78	20,7
	≥ 60	35	60,3	20	69,0	21	31,3	76	20,1
Total		58	39,5	29	47,5	67	39,6	154	40,8
Total		147	39,0	61	16,2	169	44,8	377	100

Source: the Author (2016)

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users hospitalized in the emergency department. Among users classified as low risk, 56,8% (n=96) were in attendance at the observation sector. The p-value was <0,0001 demonstrating that there was a significant difference.

Table 3 shows the distribution of users according to Morse Scale items, by service sector.

DISCUSSION

The results show that approximately 71% of users had medium or high risk of falling, especially those classified as high risk (44,8%; n=169). This data is inferior if compared to a study carried out in an emergency service in southern Brazil, which showed that 53,33% of patients asses-

Table 2 – Risk of falling users assisted in Emergency Care Units according to age group and sector (n=377). Curitiba, PR, Brazil, 2016.

		LOW RISK		MEDIUM RISK		HIGH RISK		TOTAL		P-VALUE*
		N	%	N	%	N	%	N	%	
Age group (in years)	18-59	102	59,6	41	24	28	16,4	171	100	<0,0001
	≥ 60	9	4,4	56	27,2	141	68,4	206	100	
	Emergency	12	8,2	36	24,5	99	67,3	147	39	
Sector	Internement	3	4,9	19	31,2	39	63,9	61	16,2	<0,0001
	Observation	96	56,8	42	24,9	31	18,3	169	44,8	
Total		111	29,5	97	25,7	169	44,8	377	100	

Note: p-value was obtained using the chi-square test. Source: the Author (2016)

Table 3 - Distribution of users assisted in Emergency Care Units according to Morse Scale items and service sector (n=377). Curitiba, PR, Brazil, 2016.

MORSE SCALE ITEMS	EMERGENCY		INTERNEMENT		OBSERVATION		TOTAL	
	N	%	N	%	N	%	N	%
Fall history								
Yes	24	51,1	13	27,6	10	21,3	47	12,5
No	123	37,3	48	14,5	159	48,2	330	87,5
Secondary diagnosis								
Yes	117	51,5	48	21,2	62	27,3	227	60,2
No	30	20,0	13	8,7	107	71,3	150	39,8
Assistance in walking								
None/Bedridden/Assisted by a health professional	141	39,3	54	15,0	164	45,7	359	95,2
Crutches/Cane/Walker	1	12,5	5	62,5	2	25,0	8	2,1
Furniture/Wall	5	50,0	2	20,0	3	30,0	10	2,7
Intravenous therapy								
Yes	142	38,4	61	16,5	167	45,1	370	98,1
No	5	71,4	0	0	2	28,6	7	1,9
Walking								
Normal/Without walking, Bedridden, Wheelchair	123	41,4	37	12,5	137	46,1	297	78,8
Weak	22	31,0	20	28,2	29	40,8	71	18,8
Committed/Staggering	2	22,2	4	44,5	3	33,3	9	2,4
Mental state								
Oriented towards to capacity/limitation	58	23,3	31	12,4	160	64,3	249	66,0
Overestimates ability/Forgets limitations	89	69,5	30	23,5	9	7,0	128	34,0
Total	147	100	61	100	169	100	377	100

Source: the Author (2016)

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sed by the Morse scale had a high risk of falling.[10]

When considering the criticality and specificity of the care provided to users in the UPA, stratifying the risk of falling at the time of clinical screening, or at another opportune time, becomes important to direct and systematize multifactorial actions that impact on the prevention of falls and injuries resulting from these to service users, reducing unnecessary costs [16] and contributing to the safety and quality of care provided in this important modality of non-hospital care.

In relation to age, it was possible to identify that about 55% of users cared for in the UPA investigated were elderly and at high risk for the occurrence of falls, pointing to the potential for harm to health in this care environment. These results are similar to the study conducted with adult patients hospitalized in a private hospital in southern Brazil, which found an association between age (elderly and non-elderly) and risk of falling (p<0,001), [17] as well as an investigation carried out in Canada which indicated a risk of falling in 5,371 (56,5%) geriatric patients. [16]

However, the inverse was found in an observational study, which found that patients at risk of falling in the emergency department were young adults, using alcohol or other illicit substances. [18] These divergences are related to multiple intrinsic (patient-related) and extrinsic (environmental and organizational conditions) risk factors for falls, [19] added to the distinct demographic, technological and epidemiological profile among the most varied geographic regions, as well as the social determinants of health of each population worldwide and nationally.

The increased risk of falls in older users is explained by the anatomical and physiological changes associated with aging, as well as their involvement in chronic diseases and continuous use of medications, which may incur in greater susceptibility to trauma and consequent complications, longer length of stay in health services [5] and possible impact on financial and social costs. [18] It should be noted that falls,

especially in the elderly, is a potentially serious event, considering that, among them, the response is lower in the face of injuries. When compared to young adults, most outcomes are fatal, even when the severity of the injury is low. This fact encourages the need to measure the risk in the assisted population, with a view to making assertive decisions to prevent this AE and promote improvements in the care provided, especially in view of the demographic transition and the expressive growth of the elderly population. [16]

Elderly people, in general, are affected by lower muscle strength, changes in gait and compromised posture maintenance. [20] In the inpatient sector, in particular, users aged over sixty years had the highest mean score for the risk of falling, which can be explained by the prevalence of users with impaired gait, requiring the use of a device or support to assist on the march, when compared to the emergency and observation sectors. The use of aids to walking is relevant considering that the extrinsic risk factors (environment and infrastructure) existing in most units are not always adequate, predisposing to the occurrence of severe AE during the performance of daily activities and/or locomotion.

Studies carried out in hospitals in the United States pointed to transference and movement to the bathroom as factors related to falls in elderly patients. [18,21] This circumstance can be aggravated by the absence of a companion/caregiver, as it is considered a significant risk factor for the occurrence in hospitalized adult patients. [19] This possibly occurs because in the absence of these, or of a health professional, the user becomes more susceptible to moving without assistance, contributing to the fall event. Advising users to perceive their own limitations in terms of impaired mobility becomes a preventive strategy to be used by professional nurses, which contributes to offering safe care in view of their active participation in care. [22]

Furthermore, in the inpatient sector, most users have other risk factors such as comorbidities, advanced age, cognitive and functionality changes, sensory impair-

ment, chronic diseases, use of medication, history of falls and obesity. [5] Result that encourages adapting the environment to the population served, and systematically measuring the risk to direct immediate corrective actions in the work process, in the environment and in the infrastructure for care.

Regarding the UPA service area, the prevalence of high risk for falls was among users assisted in the emergency sector. This is primarily due to the fact that the majority of those cared for in this sector are seriously ill and dependent on the care of the health team, as well as the possible use of highly vigilance medications, which lead to cognitive limitations. It is recognized in the literature that the administration of medications that have the potential to depress the central nervous system are related to falls. [18-19]

The allocation of the user in the emergency sector indicates an indication of greater severity and urgency/emergency care. Regarding the items on the Morse scale, according to the service sectors, it was observed that 51,1% of users who had a previous history of falls were among those assisted in the emergency sector, a rate above what was pointed out by a study carried out in an emergency service also in southern Brazil which showed 33,33% [10] in this same item. It should be noted that the fact that the person has already fallen once predisposes to the risk of falling. [23,24]

A cohort study carried out in three Brazilian hospitals, affiliated to the Unified Health System, in Cuiabá/MT and elderly care, identified as predictors for falls the fact that the patient has two or more comorbidities, urinary incontinence, gait changes, decline cognitive status, visual impairment and use of prostheses or orthotics. [25] The alterations in the mental state identified in this research (34%) are, by themselves, factors that predispose to risk, resulting from the deficit of awareness about reality. Admittedly, the fact that the user has multiple diagnoses (60,2% in this research had a secondary diagnosis) leads to the use of multiple drugs, which can contribute to

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drug interactions and predispose to falls. However, these variables were not explored in this research and may support future studies on the subject.

Although the data show that in the observation sector there was a predominance of young adult users and a lower risk of falls, 74.1% of these had difficulty walking and were accommodated in armchairs, which may be related to health problems caused by them sought care at the unit. An investigation carried out in the southern region of Brazil, in a hospital environment, recorded 20% (n=14) of falls from chairs/armchairs, [26] also demonstrating the importance of equipping local teams to guide users, supposedly with less risk of falls, as to preventive measures for the disease. It is noteworthy that a study carried out in the UPA in Curitiba showed that 76,3% of users or family members did not receive guidance from health professionals regarding the prevention of this risk in this sector. [12]

Considering the National Emergency Care Policy, which instituted the UPA as an entry point to refer users to the hospital network,Considering the National Emergency Care Policy, which instituted the UPA as an entry point to refer users to the hospital network, [27] and the growing demand for elderly care in emergency services, [28] including non-hospital ones, it is up to the health team to manage care through tools that promote patient safety. Thus, the findings of this research reinforce the need to expand safety guidelines beyond the hospital area, as well as to train the health team, especially nurses, in the stratification of the risk of falling, considering that this enables the early identification of risk situations and favors the planning of preventive actions. [22]

Therefore, it is important to highlight the importance of the role of managers in implementing the fall prevention protocol proposed by the Brazilian Ministry of Health 5 and still incipient in the units studied. The fact that the service does not adopt this protocol, in addition to making nursing care planning difficult, produces a multiplicity of information, which is not necessarily related to the identification of existing risks, 10 which, in turn, impacts the execution of concrete and continuous actions in favor of safe care.

Limitations of this research are the investigated context, which is limited to UPAs in a single Brazilian capital, and whose results may not express the reality of other regions of the country. It is associated with the incipient studies in these services to compare the results, as well as the non-investigation of other variables that may predispose the user to falls, such as the number of comorbidities and medications in use. However, this study points to the importance of systematizing the assessment of the risk of falls in UPA, as well as the planning of preventive actions, by the management and assistance team, based on the profile of the clientele, contributing to a safe and quality service.

CONCLUSION

Most users of the investigated UPA had medium and high risk of falling, especially the elderly population and users assisted in the emergency sector. Users who presented low risk were concentrated in the observation sector and the age group of young adults. There was an association between the risk of falling, the service sector and the age group of users being attended.

It points to the relevance of nursing in the routine assessment of the risk of falls among users of non-hospital emergency services, with a view to recognizing and measuring the problem, planning and implementing preventive actions.

This research helps to show that the identification of users at risk of falling, stratified by sector, guides the planning of assertive actions with a view to minimizing the occurrence of this adverse event, adding evidence to the topic of patient safety. ∎

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