









FALLS OF PATIENTS ADMITTED TO A PUBLIC AND TEACHING HOSPITAL: AN ANALYSIS OF NOTIFICATIONS

QUEDAS DE PACIENTES INTERNADOS EM UM HOSPITAL PÚBLICO E DE ENSINO: UMA ANÁLISE DAS NOTIFICAÇÕES

CAÍDAS EN PACIENTES INGRESADOS EN UN HOSPITAL PÚBLICO Y DOCENTE: ANÁLISIS DE LAS NOTIFICACIONES

-  Ana Paula Hermann¹
-  Adeli Regina Przybycien de Medeiros²
-  Camila ZanESCO²
-  Ingrid Marcela Pinto Gariba de Andrade²
-  Lillian Daisy Gonçalves Wolff³
-  Karla Crozeta Figueiredo³
-  Paula Taciana Soares da Rocha⁴
-  Luciana Schleder Gonçalves³

¹Universidade Federal do Paraná - UFPR, Empresa Brasileira de Serviços Hospitalares, Complexo Hospital de Clínicas - CHC. Curitiba, PR - Brazil.

²Universidade Federal do Paraná - UFPR, Programa de Pós-Graduação em Enfermagem. Curitiba, PR - Brazil.

³Universidade Federal do Paraná - UFPR, Departamento de Enfermagem, Setor de Ciências da Saúde. Curitiba, PR - Brazil.

⁴Universidade Federal do Rio Grande do Norte - UFRN, Empresa Brasileira de Serviços Hospitalares, Maternidade Escola Januário Cicco - MEJC. Natal, RN - Brazil.

Corresponding Author: Adeli Regina Przybycien de Medeiros
E-mail: adeli.medeiros@ufpr.br

Authors' Contributions:

Conceptualization: Ana P. Hermann; Adeli R. P. Medeiros; Camila ZanESCO, Ingrid M. P. G. Andrade, Paula T. S. Rocha; **Data Collection:** Ana P. Hermann, Adeli R. P. Medeiros; Camila ZanESCO, Ingrid M. P. G. Andrade, Paula T. S. Rocha; **Investigation:** Lillian D. G. Wolf, Karla C. Figueiredo Luciana S. Gonçalves; **Methodology:** Ana P. Hermann, Lillian D. G. Wolf, Karla C. Figueiredo, Luciana S. Gonçalves; **Project Management:** Lillian D. G. Wolf, Karla C. Figueiredo, Luciana S. Gonçalves; **Statistical Analysis:** Lillian D. G. Wolf, Luciana S. Gonçalves, Karla C. Figueiredo; **Supervision:** Ana P. Hermann, Lillian D. G. Wolf, Karla C. Figueiredo, Luciana S. Gonçalves; **Validation:** Ana P. Hermann, Adeli R. P. Medeiros, Camila ZanESCO, Ingrid M. P. G. Andrade, Lillian D. G. Wolf, Karla C. Figueiredo, Luciana S. Gonçalves; **Visualization:** Ana P. Hermann, Adeli R. P. Medeiros, Camila ZanESCO, Ingrid M. P. G. Andrade, Lillian D. G. Wolf, Karla C. Figueiredo, Luciana S. Gonçalves; **Writing - Original Draft Preparation:** Adeli R. P. Medeiros, Camila ZanESCO, Ingrid M. P. G. Andrade, Lillian D. G. Wolf, Karla C. Figueiredo; Paula T. S. Rocha, Luciana S. Gonçalves; **Writing - Review and Editing:** Adeli R. P. Medeiros, Camila ZanESCO, Ingrid M. P. G. Andrade, Karla C. Figueiredo, Lillian D. G. Wolf, Luciana S. Gonçalves.

Funding: No funding.

Submitted on: 02/23/2022

Approved on: 04/27/2023

Responsible Editors:

-  Allana dos Reis Corrêa
-  Tânia Couto Machado Chianca

ABSTRACT

Objective: to describe the profile of reported falls of patients admitted to a public and teaching hospital. **Method:** descriptive and retrospective study, with descriptive, inferential, and multiple correspondence statistical analysis of notification data from the Health Surveillance and Hospital Care Risk Management app on falls of hospitalized patients between 2017 and 2019. **Results:** predominated, among 153 notifications of falls in the period, those occurring in the ward, in surgical, emergency, and clinical care units, suffered by male patients, aged between 20 and 59 years. In this, the elderly stood out. Abrasion was the most reported harm. Multiple correspondence analysis did not show significance. **Conclusion:** the analysis of reported events contributed to the planning and implementation of the Fall Tailoring Interventions for Patient Safety Program in Brazil to improve the management of related risks.

Keywords: Accidental Falls; Patient Safety; Inpatients; Risk Management.

RESUMO

Objetivo: descrever o perfil das quedas notificadas de pacientes internados em um hospital público e de ensino. **Método:** estudo descritivo e retrospectivo, com análise estatística descritiva, inferencial e de correspondência múltipla dos dados de notificações do aplicativo Vigilância em Saúde e Gestão de Riscos Assistenciais Hospitalares sobre quedas de pacientes internados entre 2017 e 2019. **Resultados:** predominaram, dentre 153 notificações de quedas no período, as ocorridas no quarto, em unidades de atendimento cirúrgico, emergencial e clínico, sofridas por pacientes do sexo masculino, na faixa etária entre 20 e 59 anos. Nesta, destacaram-se os idosos. A abrasão foi o dano mais relatado. A análise de correspondência múltipla não apresentou significância. **Conclusão:** a análise dos eventos notificados contribuiu para o planejamento e a implantação do Programa Fall Tailoring Interventions for Patient Safety Brasil para aprimoramento da gestão dos riscos relacionados.

Palavras-chave: Acidentes por Quedas; Segurança do Paciente; Pacientes Internados; Gestão de Riscos.

RESUMEN

Objetivo: describir el perfil de las caídas de pacientes internados reportadas en un hospital público y de enseñanza. **Método:** estudio descriptivo y retrospectivo, con análisis estadístico descriptivo, inferencial y análisis de correspondencias múltiples de datos de notificación de la aplicación Vigilancia en Salud y Gestión de Riesgos de Atención Hospitalaria sobre caídas de pacientes hospitalizados entre 2017 y 2019. **Resultados:** predominó, entre 153 notificaciones de caídas en el período, las ocurridas en el dormitorio, en unidades quirúrgicas, de emergencia y de atención clínica, sufridas por pacientes del sexo masculino, con edades entre 20 y 59 años. En este último, se destacaron los adultos mayores. La abrasión fue el daño más reportado. El análisis de correspondencia múltiple no mostró significación. **Conclusión:** el análisis de los eventos notificados contribuyó para la planificación e implementación del Programa Fall Tailoring Interventions for Patient Safety Brasil para mejorar la gestión de sus riesgos relacionados.

Palabras clave: Accidentes por Caídas; Seguridad del Paciente; Pacientes Internos; Gestión de Riesgos.

How to cite this article:

Hermann AP, Medeiros ARP, ZanESCO C, Andrade IMPG, Wolff LDG, Figueiredo KC, Rocha PTS, Gonçalves LS. Falls of patients admitted to a public and teaching hospital: an analysis of notifications. REME - Rev Min Enferm. 2023[cited _____];27:e-1511. Available from: <https://doi.org/10.35699/2316-9389.2023.38457>

INTRODUCTION

As one of the quality dimensions, patient safety corresponds to the minimization of unnecessary harm associated with health care. In Brazil, from Ordinance No. 529/2013, consolidated by Ordinance No. 05/2017, it became mandatory to notify incidents, adverse events and technical complaints involving products and equipment to the National Health Surveillance Agency (ANVISA-*Agência Nacional de Vigilância Sanitária*)⁽¹⁾.

Among safety incidents, those that result in some type of harm to the patient are called Adverse Events (AE). The harm resulting from these events can be classified as mild, moderate, and severe or lead the individual to death. In hospital environments, falling, defined as the unintentional movement of the human body to the ground or at a lower level than the original level, excluding intentional changes in position to lean on furniture, walls or other objects⁽²⁾, is among the AEs that most occur, and it is directly influenced by health care, with the potential to compromise patient safety^(3,4).

Worldwide, the incidence of falls in hospitals varies according to care practices, institutions, and populations, with values between 1.4 and 13 occurrences per 1,000 patient-day⁽⁵⁾. In a study on the incidence of falls in a hospital institution in Brazil, between 1.7 and 7.2 cases were found for every 1,000 patient-day⁽³⁾ and it is estimated that 30% of falls can cause physical harm and, of these, between 4 and 6% are severe⁽⁶⁾.

In the hospital under study, the Health Surveillance and Hospital Care Risk Management Application (*Vigihosp-Vigilância Hospitalar*) has been used since 2016, which allows the spontaneous notification, in real time, of patient safety incidents by healthcare professionals, as well as its investigation⁽⁷⁾. From this system, information is selected for subsequent notification in the national computerized system of ANVISA.

When the risks of harm are not controlled, the safety of processes and the quality of services offered by health institutions are compromised^(3,4,8). Falls are directly related to the specificities of the place of hospitalization, routines, care processes and human resources involved^(5,9,10). Still, they are linked to diseases and clinical conditions that can affect both the judgment and the mobility of hospitalized people, in addition to exposure to unfamiliar or unfamiliar environments⁽¹⁰⁾.

This study corresponds to the first stage of the pioneering implementation of the Fall Tailoring Interventions for Patient Safety Program (*Fall TIPS*) in Brazil, based on scientific evidence that prioritizes the engagement of patients, family members and healthcare professionals

in preventing incidents. Understanding the information arising from the investigation and analysis of voluntary reports of hospital falls contributes to the management and management of their related risks, providing useful data for monitoring the Fall TIPS Program being implemented at the participating institution.

Thus, the study had as its guiding question: what is the profile of falls reported between 2017 and 2019 in a public and teaching hospital in southern Brazil? The objective is to describe the profile of reported falls of patients admitted to a public and teaching hospital.

METHOD

Descriptive and retrospective research, correlated to the project entitled “Dissemination and adoption of Fall TIPS Brazil: engagement of patients, professionals and clinical leadership for the prevention of falls in the hospital environment”. The study site was a public hospital and teaching complex located in the southern region of Brazil. The institution has approximately 485 beds and is part of the Unified Health System, being a reference for several specialties. Since 2010, it has carried out actions related to the management of healthcare risks, which were approved by the Patient Safety Center (PSC) in 2016.

The *Vigihosp* application makes it possible to notify various incidents by filling in open and closed fields and is in use in approximately 40 hospitals managed by the Brazilian Company of Hospital Services⁽⁷⁾. Filling and sending of notifications are carried out via the web, without the need for registration and regardless of the professional category (technical and higher level). Receipt of notifications by the Assistance Risk Management Unit is immediate and without intermediaries and the team has access to the system through login and password⁽⁷⁾.

The sample consisted of information on reports of inpatient falls, voluntarily performed by healthcare professionals in the *Vigihosp* application between 2017 and 2019 and composed of the following data: gender, care unit, place of occurrence, characteristics of the fall, if it was witnessed or reported by someone and, if it resulted in what kind of harm. All information was stored in electronic spreadsheets using Microsoft Excel[®] software. The time frame adopted is justified by being prior to the period of the pandemic due to the new coronavirus, which brought changes in the profile of care, in the provision of services and in the distribution of care units in the studied hospital.

To facilitate the understanding of information from notifications, units with the same service profile were grouped together. In addition, given the fact that, during

the notification at Vigihosp, the existence of free fields allows the use of synonymous words by the notifiers, the authors proposed a standardized nomenclature for variables such as characteristics of the fall, place of occurrence and type of harm, if any.

Thus, the following variables were analyzed descriptively, calculating the simple and relative frequencies: gender, age group, unit and place where the fall occurred, whether it was witnessed or reported by someone and occurrence/type/consequence of harm to the patient. Afterwards, a comparison was made of the difference in proportions in the characterization variables in the care units with the highest occurrence of falls reported using the chi-square test, the difference being considered significant when $p < 0.05$. Units dedicated to clinical, surgical, and emergency care were examined for carrying out the test, as they present more than 70% of notifications.

In the end, to obtain the profile of falls, multiple correspondence analysis was used, an alternative to the main component analysis or factor analysis for qualitative data. Since there is no dependent variable and all results refer to falls, the use of an alternative to conventional analyzes was necessary. All analyzes were performed in the R environment (R Core Team, 2021) and the multiple correspondence analysis with the “ca” package⁽¹¹⁾. The association between the variables was verified by the proximity of the axes formed individually by them. The intensity of this association was verified by the distance of the axes to

the origin, if the more distant, the less random the behavior of the vector variability.

The ethical precepts directed to research with human beings, described in Resolution No. 466/12 of the National Health Council, were considered. The researchers assured the secrecy and anonymity of the collected data, as well as that its use would be exclusively for scientific purposes. The project was evaluated and approved by the Ethics in Research with Human Beings Committee under CAAE No. 25637519.8.0000.0096.

RESULTS

The data extracted from the 153 reports of falls are presented in Table 1 in a descriptive way, by year, age group, gender, unit of occurrence, place of the incident, if the fall was witnessed or reported and by whom, harm, type of injury and its consequences.

Of the total, 94 falls (61.4%) were related to male patients. There was a concentration of falls in patients aged between 20 and 59 years, totaling 80 notifications (52.4%); 56 falls (36.7%) occurred in clinical care units; and 68 falls (40.4%) in the patient's ward.

Falls witnessed by companions, visitors, or other patients and by members of the Nursing team totaled 51 (56.7%) and 44 (48.9%) of the cases, respectively.

Those that were not witnessed were later reported by the patient or by the Nursing team. Harm was associated with 34 falls (22.2%), with abrasion being the most prevalent, in 12 (35.3%) patients. As for the consequences

Table 1 - Characteristics of the profile of reported falls according to age group, gender, care unit, incident location, witnessed incident, reported incident, occurrence of harm, type of injury and consequence of harm. Curitiba, PR, Brasil, 2017 to 2019 (n=153)

VARIABLES		YEAR							
		2017		2018		2019		Total	
		n	%	n	%	n	%	n	%
Age range	90+	0	0.0	0	0.0	1	1.9	1	0.7
	80 to 89	4	10.0	8	13.3	3	5.7	15	9.8
	70 to 79	4	10.0	3	5.0	5	9.4	12	7.8
	60 to 69	8	20.0	10	16.7	15	28.3	33	21.6
	50 to 59	9	22.5	11	18.3	13	24.5	33	21.6
	40 to 49	4	10.0	10	16.7	6	11.3	20	13.1
	30 to 39	3	7.5	6	10.0	5	9.4	14	9.2
	20 to 29	4	10.0	6	10.0	3	5.7	13	8.5
	10 to 19	1	2.5	0	0.0	1	1.9	2	1.3
	0 to 9	1	2.5	6	10.0	1	1.9	8	5.2
	Not informed	2	5.0	0	0.0	0	0.0	2	1.3

Continue...

...continuation.

Table 1 - Characteristics of the profile of reported falls according to age group, gender, care unit, incident location, witnessed incident, reported incident, occurrence of harm, type of injury and consequence of harm. Curitiba, PR, Brasil, 2017 to 2019 (n=153)

VARIABLES		YEAR							
		2017		2018		2019		Total	
		n	%	n	%	n	%	n	%
Gender	Male	25	62.5	38	63.3	31	58.5	94	61.4
	Female	15	37.5	22	36.7	22	41.5	59	38.6
Unity	Clinical Care	6	15.0	27	45.0	23	43.4	56	36.7
	Surgical Unit	6	15.0	9	15.0	12	22.6	27	17.6
	Emergency Care	11	27.5	11	18.3	4	7.5	26	17.0
	Assistance to Women and Children	10	25.0	5	8.3	4	7.5	19	12.4
	Intensive care	5	12.5	5	8.3	9	17.0	19	12.4
	Outpatient Services	2	5.0	3	5.0	1	2.0	6	3.9
Place of occurrence of the fall	Ward	18	45.0	22	36.7	28	52.8	68	44.4
	Bathroom	17	42.5	24	40.0	20	37.7	61	39.9
	Other environments within the hospital	4	10.0	5	8.4	4	7.6	13	8.6
	Corridor	1	2.5	5	8.3	1	1.9	7	4.6
	Area outside the hospital (during transport)	0	0.0	4	6.7	0	0.0	4	2.7
Fall witnessed by*	Companions, visitors, and other patients	15	62.5	21	41.2	15	50.0	51	56.7
	Nursing team member	9	37.5	20	45.5	15	50.0	44	48.9
	Medical team member	3	12.5	1	2.8	4	13.3	8	8.9
	Other employee	2	8.3	5	13.9	3	10.0	10	11.1
Fall reported by*	Patient who suffered the fall	4	25.0	7	30.4	4	17.4	15	22.7
	Other patients, companions, and visitors	3	18.8	3	13.0	3	13.0	9	13.6
	Nursing team member	2	12.5	6	26.1	7	30.4	15	22.7
	Medical team member	1	6.2	1	4.3	0	0.0	2	3.0
Harm to the patient?	Yes	16	40.0	9	15.0	9	17.0	34	22.2
	No	19	47.5	41	68.3	37	69.8	97	63.4
	Not informed	5	12.5	10	16.7	7	13.2	22	14.4
Type of injury (n=34 falls with harm)	Bruise	2	12.5	2	22.2	0	0.0	4	11.8
	Abrasion	4	25.0	2	22.2	6	66.7	12	35.3
	Pain	1	6.2	2	22.2	0	0.0	3	8.8
	Excoriation	2	12.5	2	22.2	0	0.0	4	11.8
	Catheter traction	1	6.2	0	0.0	0	0.0	1	2.9
	Not informed	6	37.5	1	11.1	3	33.3	10	29.4
Harm consequence (n=34 falls with harm)	Significant or persistent disability	1	6.2	0	0.0	0	0.0	1	2.9
	Death	1	6.2	0	0.0	0	0.0	1	2.9
	Temporary disability	1	6.2	2	22.2	0	0.0	3	8.8
	Hospitalization was prolonged	2	12.5	0	0.0	0	0.0	2	5.9
	Hospitalization was not prolonged	8	50.0	4	44.4	6	66.7	18	52.9
	Not informed	3	18.7	3	33.3	3	33.3	9	26.5

*The sum may exceed 100%, as the incident may have been witnessed or reported by more than one person.
Source: Research data, 2021

of the AE, there was no prolongation of hospitalization in 18 (52.9%) of the episodes. One death was reported due to the fall; however, after investigation, the association with other causes was concluded.

In tables 2 and 3, the variables characterizing falls are presented and their proportions compared using the chi-square test, in each type of care unit, covering 109 (71%) of the 153 reports of falls.

In the surgical and emergency care units, the most frequent place of fall was the ward, and in the clinical care units, the bathroom. There was no statistical significance in the relationship between inpatient units and whether incidents were witnessed or reported by someone.

There was harm in more than 20% of falls that occurred in surgical and emergency care units, while in clinical care units, harm was present in 12.5% of falls. Abrasion was the most prevalent type of injury in surgical care units, while in clinical and emergency care units there was a predominance of lack of information on this issue.

From the multiple correspondence analysis, it was not possible to establish a profile of occurrence of falls for the joint analysis. The behavior of the proportions was random, although there was statistical significance in the isolated analysis of the data.

Table 2 - Comparison between proportions in the variables characterizing the profile of falls in terms of sex, age group and place of falls, witnessed and reported by the patient and the Nursing, considering the type of care unit. Curitiba, PR, Brasil, 2017 to 2019 (n=109)

VARIABLES		UNITIES						p-value*
		Surgical Unity		Clinical Care		Emergency Care		
		n	%	n	%	n	%	
Gender	Female	11	40.7	18	32.1	8	30.8	0.035
	Male	16	59.3	38	67.9	18	69.2	
Age range	0 to 19 years	2	7.4	0	0.0	0	0.0	0.008
	20 to 59 years	17	63.0	25	44.6	19	73.1	
	≥60 years	8	29.6	31	55.4	7	26.9	
Place of the fall	Ward	14	51.9	20	35.7	17	65.4	0.018
	Bathroom	9	33.3	32	57.1	7	26.9	
	Others	4	14.8	4	7.1	2	7.6	
Fall witnessed by companion	Yes	7	25.9	23	41.1	4	15.4	0.052
	No	20	74.1	33	58.9	22	84.6	
Fall witnessed by companion	Yes	6	22.2	11	19.6	10	38.5	0.174
	No	21	77.8	45	80.4	16	61.5	
Fall reported by the patient	Yes	3	11.1	7	12.5	3	11.5	0.981
	No	24	88.9	49	87.5	23	88.5	
Fall reported by the Nursing	Yes	1	3.7	7	12.5	3	11.5	0.442
	No	26	86.3	49	87.5	23	88.5	

*The comparison test between proportions (chi-square) was performed for each unit. Source: Research data, 2021.

Table 3 - Comparison of variables related to the presence/type of harm and the consequences of the adverse event, considering the care unit. Curitiba, PR, Brasil, 2017 to 2019 (n=109)

VARIABLES		UNITIES						p-value*
		Surgical Unity		Clinical Care		Emergency Care		
		n	%	n	%	n	%	
Harm to the patient	Yes	6	22.2	7	12.5	6	23.1	0.047
	No	17	63.0	43	76.8	18	69.2	
	Not informed	4	14.8	6	10.7	2	7.7	
Type of injury	Bruise	0	0.0	1	14.3	1	16.7	0.043
	Abrasion	3	50.0	2	28.6	1	16.7	
	Pain	1	16.7	0	0.0	1	16.7	
	Excoriation	2	33.3	1	14.3	1	16.7	
	Not informed	0	0.0	3	42.9	2	33.3	
Consequence of adverse event	Significant or persistent disability	0	0.0	0	0.0	1	12.5	0.455
	Temporary disability	0	0.0	1	7.7	0	0.0	
	Hospitalization was not prolonged	3	30.0	3	23.1	1	12.5	
	Hospitalization was prolonged	0	0.0	0	0.0	1	12.5	
	Not informed	7	70.0	9	69.2	5	62.5	

Source: Research data, 2021.

DISCUSSION

The falls reported in the analyzed period occurred predominantly in males, among adults in clinical care units. Although the gender variable does not constitute a risk factor for the occurrence of the event, the results match with the provisions of a previous research⁽⁶⁾. Cultural aspects related to the male population stand out, such as greater resistance to requesting and accepting help to perform basic care⁽⁶⁾ and adoption of lifestyles that increase the chances of developing serious diseases early, with disabling and lethal potential⁽¹²⁾.

It is remarkable that public health policies are predominantly aimed at children, women, and the elderly, creating an environment of exclusion for men to maintain contact with health services in a preventive manner. Furthermore, it is known that there are rules for companions among adults, restricting their presence to this age group in most hospitalizations. However, engagement strategies aimed at companions help them to assume proactive and central roles in the care process and in the prevention of falls⁽⁴⁾.

The highest incidence of falls among adults was also reported in a study that found, among patients who suffered falls, an average age of 47.69 years in clinical units and 42.42 years in trauma care services⁽¹⁸⁾. The occurrence in

specific age groups does not spare attention to the others, since, for all ages, falls are the third most common cause of death due to unintentional injury⁽¹⁴⁾. Still, when using scales to identify the risk of falls, adults receive a classification corresponding to a lower risk compared to the elderly, so that the daily assessment of clinical conditions must be personalized to guide the planning of preventive actions and the corresponding interventions⁽⁴⁾.

The findings according to the type of care are in line with what was reported in a previous study, in which there was a higher occurrence of falls involving, mostly, clinical patients⁽⁹⁾. In this population, the predominance of elderly patients is corroborated by another study, which presented the presence of comorbidities, advanced age and longer stay in the institution as factors contributing to the increased risk of falls⁽⁶⁾.

Although the falls analyzed in the study occurred more frequently in the ward and bathroom and were not observed or witnessed by a companion or Nursing team, there is agreement with previous studies^(5,14). It is noteworthy that the incidence may vary according to the institutional peculiarities and the hospitalization unit itself, the characteristics of the patients treated, the adopted definition of the adverse event and the methodology used in data collection and analysis⁽⁹⁾. However, one should invest

in promoting a safety culture among all health professionals, patients, and caregivers, regardless of potential risks, considering the complexity of hospital institutions and their consequence in increasing the risk of falls^(4,9).

Unaccompanied falls are more frequent and associated with more serious consequences when compared to assisted falls⁽⁵⁾. Regularly, some situations contribute to the occurrence of falls and the worsening of their consequences, such as the patient overestimating their physical abilities or feeling embarrassed to request support to perform basic actions⁽⁵⁾. In this sense, it is worth mentioning the protagonism of the patient and his companion in the care process, made possible by engagement, which consists of training actors to facilitate and support active involvement in care^(4,15). This is the main proposal of the Fall TIPS⁴ program, considering that it is still necessary to encourage the protagonism of professionals and the promotion of a safety culture based on the notification of security incidents⁽³⁾.

From the adhesion of all actors, it is possible to identify the causes of incidents, develop indicators and establish improvement measures. In this sense, notification systems are required, computerized or not, since they are important tools for providing feedback to health teams and planning training aimed at improvement^(6,9). In general, the technologies used for reporting and investigating incidents need to consider the reality in which they are inserted, the experiences of individuals, as well as strive for objectivity, to produce favorable impacts on patient safety¹⁶. The accuracy of spontaneous notifications has an impact on the success, to a greater or lesser extent, of attempts at interpretation and measures to be used in the management of care risks⁽¹⁶⁾.

Another finding of this study, which corroborates other studies, refers to the predominance of falls without harm to the patient^(3,14). However, even in the absence of physical harm, the occurrence of a fall is directly associated with future episodes of decreased mobility and independence, as well as an increase in fear of falling, which predispose to new episodes⁽¹⁷⁾. Also, patients who fall usually have the initially predicted length of hospital stay doubled, demand treatments and additional costs, which progressively increase according to the severity of the harm^(14,17).

It is known that approximately 90% of falls that occur in hospital environments can be avoided⁽¹⁸⁾. However, despite the implementation of initiatives aimed at preventing and managing the risks of these AEs in hospital services, there are still few studies that present data on the incidence and results of preventive actions in Brazil,

mainly among adult individuals, and multifactorial strategies aimed at engagement of the patient, the team and the family have been shown to be effective in preventing falls^(9,10).

The Fall TIPS is an example of success, as it advocates identifying the patient's needs and measuring the risk of falls through the application of the Morse Scale. Based on this information, it enables the development of a care plan and appropriate interventions, prioritizing engagement, communication, and knowledge on the part of patients, family members and professionals throughout the process⁽⁴⁾. Its implementation in different institutions over almost three years has shown a reduction in the incidence of falls by 15% and by 34% for falls that caused more serious harm⁴ and is being implemented in the public and teaching hospital studied.

CONCLUSIONS

The results made it possible to identify the profile of falls reported at the participating hospital and support the planning of actions aimed at improving the reporting process, consolidating the institutional safety culture, and minimizing care risks. In addition, the evidenced context emphasizes the protagonism of Nursing professionals, whether in the volume of notifications made or as influential leaders in favor of patient safety.

The profile obtained by the notifications paves the way for the continuity of the analysis initiated here through actions of the macro-project to which this study is linked, namely the pioneering implementation of the Fall Tailoring Interventions for Patient Safety (Fall TIPS) in Brazil, a fall prevention program considered a potential technological innovation for health care and the mitigation of falls in the Brazilian reality.

As recommendations, there is the routine analysis of the profile of falls for planning care improvement strategies, as well as for the development and improvement of systems aimed at patient safety and risk management based on scientific evidence. Furthermore, the need for continuous reinforcement is highlighted to enhance the process of spontaneous reporting of falls, as it promotes the strengthening of the patient's safety culture.

The time frame adopted (2017 to 2019) for the analysis of notifications is recognized as limitations of the study, due to significant changes in the scenario and institutional demands imposed by the pandemic of the new Coronavirus; the need to exclude data inherent to the care units for women and children and intensive care for the analysis of multiple correspondence, given the peculiarities both in the risk assessment (adopted scales) and in the length of

stay in the institution (postpartum women); the failure to reach significance in the multiple correspondence analysis for the variables addressed in the study, when taken together, which may be related to weaknesses in the process of spontaneous reporting of patient falls; and the restriction of data to a single reality, not allowing broad generalization. Another limitation identified was the absence of a field to fill in, at Vigihosp, information on the degree of harm caused by falls, in line with the International Classification of Patient Safety Incidents.

These issues do not detract from the potential of the study; on the contrary, they show potential and possible interventions aimed at improving incident recording systems and preventing falls, with the Fall TIPS *Brasil* program being an important tool. The continuity of the research project provides for qualitative and quantitative analyzes of other records of reports of falls, such as the health team and attention to the institutional protocol for preventing falls, implementation and evaluation of the program and its dissemination in Brazil.

REFERENCES

- Ministério da Saúde (BR). Portaria nº 529, de 1º de abril de 2013. Institui o Programa Nacional de Segurança do Paciente (PNSP). Diário Oficial da União [Internet]. Brasília: MS; 2013[cited 2022 Oct 16]. Available from: https://bvsms.saude.gov.br/bvs/saudelegis/gm/2013/prt0529_01_04_2013.html
- World Health Organization. WHO Global report on falls prevention in older age [Internet]. Geneva: World Health Organization; 2007[cited 2021 July 14]. Available from: https://www.who.int/ageing/publications/Falls_prevention7March.pdf
- Barbosa AS, Chaves EHB, Ribeiro RG, Quadros DV, Suzuki LM, Magalhães AMM. Caracterização dos incidentes de quedas de pacientes adultos internados em um hospital universitário. Rev Gaúch Enferm [Internet]. 2019[cited 2022 Feb 9];40(esp):e20180303. Available from: <https://doi.org/10.1590/1983-1447.2019.20180303>
- Dykes PC, Burns Z, Adelman J, Benneyan J, Bogaisky M, Carter E, et al. Evaluation of a Patient-Centered Fall-Prevention Tool Kit to Reduce Falls and Injuries: a nonrandomized controlled trial. JAMA Network Open [Internet]. 2020[cited 2021 July 16];3(11): e2025889. Available from: <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2773051>
- Luzia MF, Prates CG, Bombardelli CF, Adorna JB, Moura GMSS. Características das quedas com dano em pacientes hospitalizados. Rev Gaúch Enferm [Internet]. 2019[cited 2022 Feb 9];40(esp):e20180307. Available from: <https://doi.org/10.1590/1983-1447.2019.20180307>
- Tiensioli SD, Moreira MC, Morais SM, Matozinhos FP, Gomes FSL. Contexto de quedas notificadas em um hospital universitário. Rev Baiana Enferm [Internet]. 2019[cited 2022 Feb 9];33:e32590. Available from: <http://dx.doi.org/10.18471/rbe.v33.32590>
- Empresa Brasileira de Serviços Hospitalares (EBSERH). Vigihosp 2021 [Internet]. Brasília: MS; 2021[cited 2022 Jan 15]. Available from: <https://www.gov.br/ebserh/pt-br/governanca/plataformas-e-tecnologias/sig/modulos/vigihosp>
- Paulino GME, Matsuda LM, Matta ACG, Ferreira AMD, Dias AO, Silva LF. Custos e causas-raízes de erros de medicação e quedas em hospital de ensino: estudo transversal. Texto & Contexto Enferm [Internet]. 2021[cited 2022 Feb 5];30:e20200045. Available from: <https://doi.org/10.1590/1980-265X-TCE-2020-0045>
- Luzia MF, Cassola TP, Suzuki LM, Dias VLM, Pinho LB, Lucena AF. Incidence of falls and preventive actions in a university hospital. Rev Esc Enferm USP 2018[cited 2022 Feb 1];52:e03308. Available from: <http://dx.doi.org/10.1590/S1980-220X2017024203308>
- Canuto CPAS, Oliveira LPBA, Medeiros MRS, Barros WCTS. Safety of hospitalized older adult patients: an analysis of the risk of falls. Rev Esc Enferm USP [Internet]. 2020[cited 2021 Dec 20];54:e03613. Available from: <https://doi.org/10.1590/S1980-220X2018054003613>
- Greenacre M, Nenadić O. Correspondence Analysis in R, with Two- and Three-dimensional Graphics: the capackage. J Stat Softw [Internet]. 2007[cited 2022 Feb 9];20(3):1-13. Available from: <https://doi.org/10.18637/jss.v020.i03>
- Sousa JL, Alencar GP, Antunes JLF, Silva ZP. Marcadores de desigualdade na autoavaliação da saúde de adultos no Brasil, segundo o sexo. Cad Saúde Pública [Internet]. 2020[cited 2022 Jan 15];36(5):e00230318. Available from: <https://doi.org/10.1590/0102-311X00230318>
- Aguiar JR, Barbosa AO, Galindo Neto NM, Ribeiro MA, Caetano JA, Barros LM. Fatores de risco associados à queda em pacientes internados na clínica médico-cirúrgica. Acta Paul Enferm [Internet]. 2019[cited 2022 Feb 1];32(6):617-23. Available from: <https://www.scielo.br/j/ape/a/WWTkrlSPVMhFsvwYhksZQzj/?lang=pt>
- Romão AL, Nunes S. Quedas em internamento hospitalar - causas, consequências e custos: estudo de caso numa unidade hospitalar de Lisboa. Port J Public Health [Internet]. 2018[cited 2021 July 13];36:1-8. Available from: <https://doi.org/10.1159/000488073>
- Santos JC, Arreguy-Senna C, Pinto PF, Paiva EP, Parreira PMSD, Brandão MAG. Queda domiciliar de idosos: implicações de estressores e representações no contexto da COVID-19. Rev Gaúch Enferm [Internet]. 2021[cited 2022 Feb 1];42(esp):e20200221. Available from: <https://doi.org/10.1590/1983-1447.2021.20200221>
- Moraes AFSP, Wolff LDG, Silvestre AL, Gonçalves LS, Rosa SCS. Tecnologias da informação e comunicação em saúde e a segurança do paciente. J Health Inform [Internet]. 2020[cited 2022 Jan 15];12:300-6. Available from: <http://www.jhi-sbis.saude.ws/ojs-jhi/index.php/jhi-sbis/article/view/830/433>
- Higa CML, Siqueira FRR, Tair, LSP, Benites PT. Incidente de queda com dano: diagrama de Ishikawa e plano de ação. Braz J Health Rev [Internet]. 2021[cited 2021 Dez 14];4(1):3231-9. Available from: <https://www.brazilianjournals.com/index.php/BJHR/article/view/24927>
- Dykes PC, Adelman J, Alfieri L, Bogaisky M, Carroll DL, Carter E, et al. The fall TIPS (Tailoring Interventions for Patient Safety) Program: a collaboration to end the persistent problem of patient falls. Nurse Lead [Internet]. 2019[cited 2022 Jan 15];17(4):365-70. Available from: <https://www.falltips.org/wp-content/uploads/2019/09/Dykes-2019.pdf>