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Original Article

Risks and occurrences of adverse events in the perception of health care nurses*

Riscos e ocorrências de eventos adversos na percepção de enfermeiros assistenciais

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Objective: to analyze the risks and occurrences of adverse events in hospitalized patients from the perspective of nurses. **Methods:** cross-sectional study, developed with 41 nurses. We used a self-administered instrument titled Adverse Events Associated with Nursing Practices validated in Portugal and adapted to the Brazilian reality. **Results:** the amount of employment bonds (p=0.019) and weekly workload (p=0.002) foster failures in care assistance. There was a positive correlation between pressure and falls injuries (p<0.001), medication errors and pressure injuries (p=0.004) and infections related to health care and medication errors (p=0.006). **Conclusion:** the analysis showed that the occurrence of adverse events in care such as pressure injuries and infections related to health care were the most frequent in the perception of nurses. Drug errors had the lowest incidence among the results of the explored domains.
Descriptors: Patient Safety; Nursing Care; Patient Harm.

Objetivo: analisar os riscos e ocorrências de eventos adversos em pacientes hospitalizados na perspectiva de enfermeiros. **Métodos**: estudo de corte transversal, desenvolvido com 41 enfermeiros assistenciais. Utilizou-se instrumento autoaplicável intitulado Eventos Adversos Associados às Práticas de Enfermagem validado em Portugal e adaptado à realidade brasileira. **Resultados**: a quantidade de vínculos empregatícios (p=0,019) e a carga horária semanal (p=0,002) se mostraram potencializadores de falhas nos cuidados assistenciais. Houve correlação positiva entre lesões por pressão e quedas (p<0,001), erros de medicamentos e lesões por pressão (p=0,004) e infecções relacionadas à assistência à saúde e erros de medicamentos (p=0,006). **Conclusão**: a análise evidenciou que a ocorrência de eventos adversos nos cuidados assistenciais como lesões por pressão e infecções relacionadas à assistência à saúde foram as mais frequentes na percepção de enfermeiros. Dos domínios explorados, erros de medicamentos apontou entre os resultados com menor incidência.
Descritores: Segurança do Paciente; Cuidados de Enfermagem; Dano ao Paciente.

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Introduction

Debates regarding the quality of patient care and safety have been a global trend due to the existence of risks and occurrences of adverse events in hospital environments. Ensuring the safety of hospitalized patients is still a major challenge for health systems and nursing professionals[1].

Studies conducted in Portuguese and Canadian hospitals show an incidence of adverse events in health care practices from 12.5% to 15.3%, with frequent pressure injuries, falls, errors in medication administration, hospital infections and surgical procedures[1-2]. Among the factors that contribute to the occurrence of adverse events, we highlight the deficit of staff, work overload, conflicts among professionals, lack of leadership and inadequate supervision[3].

An analysis conducted in seven hospitals in Brazil identified that all had adverse event reporting system, 71.4% had a Risk Management Commission, 80.0% held discussions of the events, with consensus for changes favorable to patients' safety. However, the fear of the employees for punishment due to their failures and the events underreporting were still present in the work environment[4], which reveals that it is still necessary to advance in strengthening the safety culture.

In health, nursing is the greatest workforce, encouraging patient safety strategies and preventing adverse events, with articulation and cooperation between health institutions and professional education[5]. However, the health professional needs to recognize, perceive and discuss the risk situations to properly manage the service and assistance, the prevention of failures and the establishment of the culture of security in the organization of the hospital[3].

In the scenario of services evaluation, considering the advances in the health sector and the scope of nursing regarding the patient safety policies, the following question arises: what is the perspective of nurses from a teaching hospital regarding risks and occurrences of adverse events in hospitalized patients, in the face of health service organization and management?

The analysis of failures that occur in the assistance can help to identify organizational processes that need to be improved in order to strengthen the safety culture, especially regarding the omission of adverse events notification due to guilt, emotional stress and fear of punishment against the ethical precepts to which they are exposed, as well as in mitigating risks and occurrences of adverse events in care practices[5]. Considering the need to develop organizational policies that consider all professionals as active subjects in the risk management process, our objective is to analyze the risks and occurrences of adverse events in hospitalized patients from the perspective of nurses.

Methods

This is a cross-sectional study developed in the clinical, surgical and renal replacement therapy units of a state teaching hospital in the Midwest region of Brazil. Accredited at level two by the National Accreditation Organization, it has a structured and active Patient Safety Nucleus since 2013.

Considering the focus of the study, the inclusion criteria of the population were: working in direct patient care and working time, in health care, for six months or more, in the institution of the study. The population consisted of 45 nurses, with a response rate of 41 (91.1%) Participants. Four nurses did not participate in the study because they were on leave during the data collection period.

We collected data between January and May 2017, using two instruments. The first, built for the purpose of this study, investigated the socio-demographic and professional characterization of the participants as gender, age, time of professional training, time of professional activity, amount of employment bonds, weekly workload, courses in the area of patient safety and qualification course.

The second instrument consisted of the Adverse Events Associated with Nursing Practices sca-

le, built and validated in Portugal[6-7] and adapted to Brazil. This is a scale of risk analysis and occurrences of adverse events associated with nursing practices, self-applicable, with domains related to indicators of care practices outcomes, namely: aggravation and complications by lack of surveillance and inadequate clinical judgment, defense deficit and inappropriate delegation of a professional less prepared to perform care, falls, pressure injuries, medication errors and infection related to health care, considered as outcome variables.

The items were answered on a five-point Likert-type scale, corresponding the score (1) to Never, (2) to rarely, (3) to a few times, (4) to often and (5) to always. The frequencies of the instrument were grouped into three items: never and rarely; sometimes; often and always, to facilitate the visualization of the results.

We analyzed the data collected in the Statistical Package for the Social Sciences software version 24.0 and Stata, version 14.0. Initially, we verified the normality of the quantitative variables using the Kolmogorov-Smirnov test. For bivariate analysis, we used the Spearman correlation tests for the quantitative variables and the Wilcoxon-Mann-Whitney or Kruskal-Wallis test for the qualitative ones. The descriptive analysis of the items and domains was performed with mean, standard deviation, minimum, maximum and percentage. We made the analysis of the internal reliability of the subscales by the standardized Cronbach's alpha, with internal reliability ≥0.7.

The study was approved by the Research Ethics Committee of the Hospital das Clínicas of the Universidade Federal de Goiás and a coparticipant institution under Opinion nº 1,876,211/2016. All participants signed the term of free and clarified commitment.

Results

Among the 41 nurses, 31 (75.6%) were female, the average age was 33 years, 19 (46.3%) had one employment bond and 22 (53.7%) two bonds. The weekly workload showed an average of 56.2 hours. The time of graduation and professional performance was between five and 10 years, respectively, for 23 (56.1%) and 17 (41.5%) professionals. In the last 12 months, 26 (63.4%) conducted a patient safety training course. As for the qualification course, 19 (46.3%) had some specialization, including a nurse who had a PhD.

In the correlation between the variables of the professional profile and the risk and occurrence of adverse events, there was a positive association between nurses with more than one employment bond (p=0.019) and a higher weekly workload (p=0.002) with the delegation of less prepared professionals for assistance. The extensive weekly workload increased the risk and occurrence of adverse events with drugs (p=0.012). The participation of nurses in a patient safety training course indicated a reduction in risk and occurrence of adverse events related to pressure injuries (p=0.019).

Although 58.5% of the nurses reported that patient complications never or rarely occur due to inadequate clinical judgment, 46.3% sometimes pointed out the occurrence of adverse events related to falls and 14.6% reported that pressure injuries are frequent in the institution. Although 80.5% of the nurses perceived that there is no risk of complications of the patient due to inappropriate delegation of professionals less prepared for care, 4.9% of the nurses confirmed that the occurrence of medication errors was frequent and only 26.8% denied the occurrence of health care-related infections in the care process. We show the other adverse event analyses in Table 1.

We observed that the perception about the risk of falls, pressure injuries, medication errors and infections related to health care in the institution was higher than the perception of occurrence. When analyzing the domains, we verified that all the care practices perceived by the nurses obtained an average of 2.5 or more, except for the domain "Defense deficit and inappropriate delegation". Cronbach's alpha showed a variation in the domains between 0.566 and 0.778. The domain that addressed the risk of aggravation

and complications of the patient by inappropriate delegation showed good reliability, with α=0.77. The other domains obtained reliability of low to moderate consistency (Table 2).

Table 3 shows the correlations of risks and occurrences of adverse events associated with nursing care practices.

Table 1 – Risk analysis and occurrences of adverse events from the perspective of nurses in a teaching hospital (n=41)

Domains	Never/ Rarely	Sometimes	Often/Always	Mean (DP*)	Minimum	Maximum
	n (%)	n (%)	n (%)			
Surveillance deficit	17 (41,5)	19 (46,3)	5 (12,2)	2,7 (0,8)	1,0	4,0
Clinical judgment Inappropriate	23 (58,5)	15 (36,6)	2 (4,9)	2,4 (0,7)	1,0	4,0
Defense deficit	27 (65,9)	11 (26,8)	3 (7,3)	2,3 (0,8)	1,0	4,0
Inappropriate delegation	33 (80,5)	5 (12,2)	3 (7,3)	1,8 (0,9)	1,0	5,0
Falls						
Risk	9 (22,0)	20 (48,8)	12 (29,3)	3,2 (0,9)	2,0	5,0
Occurrence	19 (46,3)	19 (46,3)	3 (7,3)	2,6 (0,7)	1,0	5,0
Pressure injuries						
Risk	9 (22,0)	18 (43,9)	14 (34,1)	3,2 (0,8)	2,0	5,0
Occurrence	18 (43,9)	17 (41,5)	6 (14,6)	2,7 (0,8)	2,0	5,0
Medication errors						
Risk	20 (48,8)	11 (26,8)	10 (24,4)	2,9 (1,1)	2,0	5,0
Occurrence	31 (75,6)	8 (19,5)	2 (4,9)	2,3 (0,7)	1,0	5,0
Health care-related infections						
Risk	11 (26,8)	17 (41,5)	13 (31,7)	2,8 (0,9)	1,0	5,0
Occurrence	11 (26,8)	24 (58,5)	6 (14,6)	2,7 (0,8)	1,0	5,0

*Standard deviation

Table 2 – Analysis by domain of risks and occurrences of adverse events (n=41) and internal consistency

Domains	Mean (SD*)	Minimum	Maximum	Cronbach's Alpha
Lack of surveillance and inadequate clinical judgment	2,5 (0,6)	1,0	4,0	0,566
Defense deficit and inappropriate delegation	2,0 (0,8)	1,0	4,0	0,778
Falls	2,9 (0,7)	1,5	5,0	0,648
Pressure injuries	2,9 (0,7)	2,0	5,0	0,630
Medication errors	2,6 (0,8)	1,5	5,0	0,684
Health care-related infection	3,0 (0,8)	1,0	5,0	0,697

*Standard deviation

Table 3 – Correlation between risks and occurrences of adverse events from the perspective of nurses in a teaching hospital (n=41)

Domains	Inadequate clinical trial and surveillance	Defenseless and inappropriate delegation	Falls	Pressure injuries	Medication errors	Care-related infection
	(r_s) p	(r_s) p	(r_s) p	(r_s) p	(r_s) p	(r_s) p
Inadequate clinical trial and surveillance	-					
Defenseless and inappropriate delegation	(0,205) 0,199	-				
Falls	(0,026) 0,871	(0,292) 0,064	-			
Pressure injuries	(0,306) 0,052	(0,136) 0,395	(0,460) < 0,001	-		
Medication errors	(0,175) 0,274	(0,302) 0,055	(0,216) 0,176	(0,442) 0,004	-	
Care-related infection	(0,080) 0,617	(0,130) 0,418	(0,274) 0,083	(0,123) 0,442	(0,421) 0,006	-

r_s: Spearman's correlation coefficient

There was a positive correlation between adverse events related to pressure injuries and falls ($p<0.001$); medication errors and pressure injuries ($p=0.004$); and infections related to drug care and errors ($p=0.006$).

Discussion

The study are limitations regarding its application in a single hospital and population restriction in the use of the instrument built specifically for nurses. In the existence of a multiprofessional staff, nurses are not the only responsible for the risks and occurrences of adverse events. However, the results allowed us to know the perspective of them with regard to the difference in the quality of care provided and to correlate adverse events to the safety of hospitalized patients.

Planning safe nursing care with actions aimed at preventing adverse events should be based on direct patient surveillance and adequate clinical judgment of the nurse, capable of diagnosing individual needs of each patient. In the hospital setting, the unpreparedness of health professionals, due to lack of knowledge and critical vision, little experience and lack of training, influences the care provided and the health institutions process of risk management[4-15].

In health practice, the role of nurses in the delegation of professionals for the accomplishment of care becomes an act of defending the patient, since actions aimed at health promotion and risk prevention favor the safety in the care provided. The nurse is an important agent in the appropriate delegation of tasks to achieve the expected results of the therapeutic plan established for the patient[4,9].

The Quality and Safety Education for Nurses Institute affirms the professional needs to develop knowledge, skills and attitudes around six axes considered priority to the competencies for patient safety: patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, security and computing[10].

The findings showed a positive correlation between nurses' work overload and the risk of inappropriate delegation of professionals less prepared to perform care. We can infer, therefore, that the work overload negatively influences clinical decision making during care management, which may favor the occurrence of incidents. This finding corroborates with a study conducted in Finnish hospitals, in which overwork attributed to nursing professionals increased the risk of safety incidents and adverse events between 8 and 34.0% with a chance of a patient dying of 40.0%[11].

When analyzing the domain related to patients falls, a large part of the nurses (46.3%) said that sometimes these events happen in the institution, which needs to be cautiously investigated for the potential to cause damage and increase the length of hospitalization. A study developed in a hospital environment maintains that falls still occur and cause serious consequences to patients, estimating a rate of 12.6 for each 1,000 patients per day[12].

Results related to falls indicated a positive correlation with other types of adverse events such as pressure injuries. This finding draws attention to the need to understand the complexity of the environment where care occurs and the relationship between the various risks and care failures. It is worthy to emphasize, therefore, that nursing care cannot be based on a fragmented process and the holistic view of care aims to detect on time any changes in the clinical condition of the patient that, if not considered, may increase the risk of adverse events in all care process[13].

As for the occurrence of pressure injury, despite continuous efforts to prevent it, such as measures of risk analysis and the development of protocols to improve the quality of care[14], we can still observe its recurrence in health institutions. In this study, for 14.6% of the nurses, pressure injuries always occur. A cross-sectional study conducted in a university hospital showed even higher data, with prevalence of pressure injuries in 40.0%[14].

We also evidenced that adverse events related to pressure injuries were less associated with profes-

sionals who participated in patient safety training. This association allows to infer that those professionals with more clarification on the theme have a more critical view of the work environment and a greater perception of health care risks control, giving greater security to the work process.

Nurses with greater capacity for self-reflection and discernment have more critical thinking regarding clinical practice and the qualification of nurses significantly influences the development of this critical thought[15]. This reality corroborates with a study that shows that actions of continuing education aimed at reducing risks and occurrences of avoidable adverse events favor the increased reliability of the system and work processes of nurses[16].

From the domains explored in this study, medication errors indicated among the results with lower incidence. Only 4.9% of the nurses considered the occurrence of these events in the institution. A comparison study conducted in Portuguese hospitals showed even lower results, with an assertion of 0.9% of nurses for adverse events with medicines[6]. These findings are relevant and may be associated with the implementation of international patient safety goals through risk management, in order to reduce avoidable damage in the process involving drug therap[17].

Medication errors were associated with other types of events such as infections and pressure injuries, once again pointing to many factors involved in the occurrence of an incident. Errors in the process involving drug therapy such as the absence of hand sanitization before preparing and administering medication can potentiate the emergence of other types of adverse events in care such as infections[6]. When involving events such as pressure injuries in hospitalized patients may be associated with decreased sensory perception due to excess sedatives, analgesics and muscle relaxant[18].

The risks and occurrences of infections associated with care practices were the most frequent, since only 26.8% of the nurses denied the occurrence of these events in the institution. A study conducted in Portugal also identified a higher frequency of this type of event, evidencing that only 30.5% of the nurses denied its occurrence[6].

Infections associated with healthcare practices are one of the main challenges for maintaining the quality of care. It is a public health problem that generates social and financial impact, Money which could be invested in the control and prevention of infections, implementing norms, guidelines and indicators. However, in order to achieve positive results in care, there is a need to offer material, human resources and better organizational conditions[19].

The current incentive for the prevention and reduction of adverse events is the adoption of multifaceted strategies in order to work with most of causal factors involved in the occurrence of incidents[1-3]. Stimulation of clinical and reflective reasoning is fundamental in the performance of nurses' indispensable skills and capacities[13-15], which are essential components to be incorporated into the safety culture. For this, continuous and continuing education should be inserted as a tool in the work process to promote changes in behavior and professional posture, determinants in the decision-making of care[16-20].

Conclusion

The analysis showed that the occurrence of adverse events in care such as pressure injuries and infections related to health care were the most frequent in the perception of nurses. From the explored domains, drug errors indicated among the results with lower incidence. The occurrence of these events showed a link to the emergence of other types of adverse events during the nursing care process, such as medication errors associated with infections and pressure injuries. On the other hand, there was also a significant association between the lower risks of pressure injuries occurrence for nurses who underwent a patient safety course.

Collaborations

Amaral RT and Bezerra ALQ contributed to the conception of the project, analysis and interpretation of data, writing the article and critical review of the intellectual content. Teixeira CC, Paranaguá TTB, Afonso TC and Souza ACS collaborated with data analysis and interpretation, writing the article and critical review of the intellectual content and approval of the final version to be published.

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