Cogitare Enfermagem

ORIGINAL ARTICLE

ASSOCIATION BETWEEN SAFETY CLIMATE AND NURSING WORKLOAD*

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ABSTRACT
Objective: To verify the association between safety climate and the workload of nursing professionals of an Intensive Care Unit.
Method: Cross-sectional analytical study, with data collected from June to October 2014, in a public hospital in the state of Paraná. The Safety Attitudes Questionnaire (SAQ) and Nursing Activities Score (NAS) instruments were used. The median of the unit's Nursing Activities Score (571 points) was used as cutoff point, and the scores of the Safety Attitudes Questionnaire were dichotomized among professionals under high workload (> 571 points).
Results: An association between three domains of the SAQ: teamwork climate (p = 0.010), safety climate (p = 0.009) and job satisfaction (p-value 0.020) was obtained.
Conclusion: The findings of this study can serve as a basis for actions aimed at improving working conditions and, consequently, job satisfaction and quality of care.

DESCRIPTORS: Patient Safety; Safety Management; Workload; Intensive Care Unit; Organizational culture.

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ASSOCIAÇÃO ENTRE CLIMA DE SEGURANÇA E A CARGA DE TRABALHO DA ENFERMAGEM

RESUMO
Objetivo: verificar a associação entre clima de segurança e carga de trabalho dos profissionais de enfermagem de uma Unidade de Terapia Intensiva.
Método: estudo transversal e analítico, com coleta de dados de junho a outubro de 2014, em um hospital público do estado do Paraná, utilizando os instrumentos Safety Attitudes Questionnaire e Nursing Activities Score. Utilizou-se a mediana do Nursing Activities Score da unidade (571 pontos) como ponto de corte e os escores do Safety Attitudes Questionnaire foram dicotomizados entre profissionais submetidos à alta carga de trabalho (>571 pontos).
Resultados: obteve-se associação entre três domínios do SAQ: clima de trabalho em equipe (p= 0,010) clima de segurança (p=0,009) e satisfação no trabalho (p-valor 0,020).
Conclusão: os resultados podem embasar ações voltadas à obtenção de melhores condições de trabalho e, consequentemente, à satisfação profissional e qualidade do cuidado

DESCRITORES: Segurança do Paciente; Gestão da Segurança; Carga de Trabalho; Unidade de Terapia Intensiva; Cultura organizacional.

ASOCIACIÓN ENTRE CLIMA DE SEGURIDAD Y CARGA DE TRABAJO DE ENFERMERÍA

RESUMEN:
Objetivo: Verificar la asociación entre clima de seguridad y carga de trabajo de los profesionales de enfermería en una Unidad de Terapia Intensiva.
Método: Estudio transversal y analítico, con datos recolectados de junio a octubre de 2014 en hospital público del estado de Paraná, utilizando los instrumentos Safety Attitudes Questionnaire y Nursing Activities Score. Se utilizó la mediana del Nursing Activities Score de la unidad (571 puntos) como punto de corte. Los puntajes del Safety Attitudes Questionnaire fueron clasificados entre profesionales sometidos a alta carga laboral (>571 puntos).
Resultados: Se obtuvo asociación entre tres dominios del SAQ: clima de trabajo en equipo (p=0,010), clima de seguridad (p=0,009) y satisfacción laboral (p-valor 0,020).
Conclusión: Los resultados pueden constituir la base de acciones orientadas a obtener mejores condiciones laborales y, consecuentemente, satisfacción profesional y calidad de la atención.

DESCRIPTORES: Seguridad del Paciente; Gestión de la Seguridad; Carga de Trabajo; Unidades de Cuidados Intensivos; Cultura Organizacional.

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INTRODUCTION

Based on the understanding of the relationship between patient safety, professional behavior and institutional support, a global movement for the promotion of organizational culture aimed at the development of safer care[1]. Safety culture is conceived as a set of values, attitudes, skills and behaviors that determine commitment to health and safety management [1-2], which can be measured through the safety climate. As for the safety climate, it is a transversal measure based on the health professionals' perception of the institutional encouragement to carry out actions aimed at patient safety [3].

In hospitals, the importance of knowing and improving the safety climate is expressed in the assistance provided, in the positive example, in the best results related to adverse events, serious damage to patients, and even in severity-adjusted mortality[4]. Nevertheless, concern with the safety climate should not be limited to the implementation of formal measures, such as tools/strategies for safe care. In fact, safety climate should be turned into an organizational policy, otherwise its beneficial effect might not be readily noticeable[5].

Among the hospital services, Intensive Care Units (ICU) are a challenge for safety, since their classification as critical areas imply greater risks for the occurrence of adverse events [6-7]. Thus, the diagnosis of the patient's safety climate in this environment may be even more crucial [8].

Heavy workloads are another well-known objective aspect that influences the patient's safety climate, as they may interfere in the perception and safety attitudes of nursing teams, that is, in the patient's safety climate [9]. A multicenter study [9], with hospital nursing teams from Japan, the United States of America and Taiwan, found that nurses who work a maximum of 40 hours per week rate the safety conditions of their workplace area as "very good" and are more likely to detect errors or near misses. They also explained that this perception is gradually reduced when they work more than 40 hours a week.

Studies conducted in Brazil have already confirmed that nurses' work overload results in worse care outcomes, including infections related to health care, pressure injuries, mortality and reduced patient satisfaction [7,10-11]. However, regarding the relationship between workload and safety climate, there is a significant knowledge gap in the country, since most studies address the investigation of the patient's safety culture [12]. Other recent studies have related the safety climate with characteristics of nursing work [13], practice environment and job satisfaction [14], which reinforces the lack of knowledge of the relationship between safety climate and nurses' workload.

The scenario described justifies the urge to investigate the relationship between the patient's safety climate and the nursing workload, which undoubtedly is a contribution that transcends the local reality. Thus, this study is based on the following question: Is there an association between patient's safety climate and the workload of the nursing team? Therefore, its objective was to verify the association between the safety climate and the workload of nursing professionals of an ICU.

METHOD

Cross-sectional analytical study with a quantitative approach developed in an adult intensive care unit (AICU) of a public university hospital in Paraná. The AICU has eight beds exclusively destined for patients assisted by the Unified Health System (SUS), characterized as a general ICU. The nursing team consisted of 14 nurses and 22 nursing technicians, distributed in five work shifts (2 day and 3 night teams), in a work schedule of 36 hours per week.

Data collection was performed between June and October 2014 in two stages: the first, to identify the safety climate; the second, to measure the nursing workload. In the

first stage, the following inclusion criteria were considered: full-time nursing professional who has been working in an AICU for a minimum of six months. Of the 36 professionals of the nursing team, two were on medical leave; two, after three attempts to complete the instrument, refused to participate and four were excluded due to incomplete filling of identification data and items of the instrument. Thus, 28 subjects (78%) participated in the study, as follows: 15 nursing technicians and 13 nurses.

Data was obtained through a demographic survey questionnaire and the Safety Attitudes Questionnaire (SAQ), previously translated into Portuguese and adapted to the Brazilian cultural context [15]. The SAQ is composed of 36 items distributed in six domains: (1) Teamwork climate, which concerns the quality of the relationship and the collaboration among team members; (2) Safety climate, which reflects the professionals' perception of the organizational commitment to patient safety; (3) Job satisfaction, which addresses the positive view of the workplace; (4) Stress perception, which involves measuring the degree of impact of stressors in work performance; (5) Perception of the unit and hospital management, which seeks the approval of the management or administration actions; and, (6) Working conditions, which describes the perception of the quality of the work environment.

The SAQ items are presented in a six-point Likert scale, with the responses scored as follows: I totally disagree (0 point); I partly disagree (25 points); I'm neutral (50 points); I partly agree (75 points); I totally agree (100 points) and Not applicable (no score) [15]. The data was grouped by domains and the scoring of each domain was subsequently rated: a mean score ≥ 75 points indicated a positive evaluation, and a mean score lower than 75 points indicated a negative evaluation [15].

In the second stage of data collection, the inclusion criteria was patients admitted to the AICU for at least 24 hours. In this stage, 88 hospital admissions that occurred during the four months of data collection were analyzed. Of these, two admissions were excluded because they did not fit the inclusion criteria. Thus, 86 hospitalizations (97.72%) were effectively investigated, including five readmissions.

At this stage, the Nursing Activities Score (NAS) was completed during the daily visits to the AICU, and retrospective analysis of the data contained in the patient's chart related to the last 24 hours of hospitalization [16] was performed. Due to the lack of recorded information, the nursing team of the sector was consulted.

The NAS consists of 32 nursing activities that result in a score that corresponds to the percentage of the time spent on direct care to the patient in 24 hours, with a maximum score of 176.8 points per patient [16].

At first, the general workload of the nursing professionals was calculated through the median of the period (571 points), and the value obtained was used as a cutoff point for the dichotomous classification of workload (high or low) among professionals.

The nursing workload per shift was obtained with the NAS average on weekdays to determine the values for the daytime period, because the workload of night shift professionals includes the weekends. For night shift workers, their respective nights on duty were considered (Night 1, Night 2 and Night 3). Finally, the association between the mean scores for SAQ domains among professionals exposed to low and high workloads was tested, through the application of statistical tests T-Student and Anova One-Way. The level of significance was 5% (p-value ≤0.05).

The study complied with all the ethical and legal regulations, and the project was approved by the Research Ethics Committee under protocol no 692,000, on June 9, 2014.

RESULTS

Table 1 includes data related to the characterization of the nursing professionals who participated in the study.

Table 1 – Characterization of the Adult ICU (AICU) nursing team (n=28). Paraná, Brazil, 2014

Data/characterization		**n (%)**
Position/Function	Nursing technician	15 (53.57)
	Nurse	13 (46.42)
Gender	Female	20 (71.42)
	Male	8 (28.57)
Age range	20 - 29 years	1 (3.57)
	30 - 39 years	9 (32.14)
	40 - 49 years	18 (34.29)
	50 - 59 years	0 (0)
	60 years or older	0 (0)
Length of time in the profession	1-2 years	3 (10.71)
	3-4 years	0 (0)
	5-10 years	4 (14.29)
	11-20 years	16 (57.14)
	21 years or more	5 (17.86)

Of the professionals investigated, 15 (53.57%) were nursing technicians, 20 (71.42%) were female, with ages ranging from 30 to 49 years 27 (66.43%), and had been working in their professions for more than 11 years in the institution 21 (75%). Table 2 shows the results of the association between the SAQ domains and the dichotomized workload of the nursing team.

Table 2 – Association between scoring of the SAQ domains of the nursing professionals exposed to high or low workload. Maringá-PR, Brazil, 2014 (continues)

Domains	**Low workload Median (SD)**	**High workload Median (SD)**	**p - value**
Teamwork climate	79.41 (9.01)	71.21 (21.03)	0.010
Safety climate	71.01 (11.42)	65.91 (23.44)	0.009
Job satisfaction	90.88 (10.64)	77.73 (25.82)	0.020
Stress perception	72.42 (28.39)	52.27 (24.25)	0.064
Perception of management	64.17 (13.72)	54.32 (27.94)	0.223
Working conditions	76.84 (17.08)	71.02 (22.41)	0.443

SD= standard deviation.

The domains of teamwork climate (p-value 0.010), Safety climate (p-value 0.009) and Job satisfaction (p-value 0.020) obtained a positive statistical association, which demonstrates the negative influence of the workload on the low scores of these items.

DISCUSSION

In addition to the higher percentage of women, which is common in the nursing profession, most professionals were over 30 years of age. This fact can be justified by the fact that most nursing professionals hired were approved in public contests, thus enjoying stability, and consequently, less likely to assume other jobs (turnover) [18].

As for the length of time in the profession, most nursing professionals have been performing their duties for more than five years (n = 25, 89.27%). This may be related to the complexity of care in the intensive care environment, which requires high technical and scientific skills and, therefore, professionals with a longer period of training in their jobs [18].

It should also be noted that there were more professionals with secondary education (n=15; 53.57%) than with higher education. According to the law that regulates the nursing professional practice nurses are exclusively responsible for providing direct care in complex cases of patients at higher risk for death. Therefore, ICU patients should receive direct care from nurses [19].

However, the literature, as well as the present study, showed that the activities carried out by professionals with secondary education in intensive care units are not consistent with the recommendations of the Brazilian legislation. As a result of such irregularities and work overload, these nursing professionals may end up carrying out tasks or duties not included in their job description [20-21].

The statistically positive difference observed in the domain teamwork climate between the professionals submitted to high workload indicates that environments with high workload load interfere in the work dynamics, i.e. they prevent the establishment of a collaborative environment. On the other hand, the environment of nursing practice has already been measured as positive and the safety climate as negative in another recent study [14], which emphasizes the importance of measuring the workload, since it can directly affect the patient's safety behavior.

Because it involves work relationships, the healthcare system is the result of a complex socio-technical system, which makes it vulnerable to unsafe conditions [5]. In this context, stimulating the adoption of safe attitudes among professionals, without providing adequate working conditions, can be an insufficient and ineffective measure to minimize risks.

Given that minimum working conditions allow for improvements in teamwork, it is important to emphasize the need for qualitative and quantitative adjustment of nursing personnel, according to the hospitalization care profile. In this regard, a study carried out in four ICUs on the allocation of the nursing team and the incidence of adverse events found that when the number of hours available for the nursing team to provide care was lower than the number of hours required to provide appropriate patient care, patient's safety was compromised, or else, the higher the workload, the higher the frequency of adverse events in the sector [7].

Analysis of the care profile to ensure a proper distribution of health professionals is a managerial practice that aims to promote the safety of patients admitted to ICU, since work overload tends to reduce the efficacy of care and, results in poorer care outcomes [11].

Concern about working conditions (including working hours, workload and availability of resources) can reduce the causes of inappropriate behavior in the performance of duties and result in increased safety in care [22]. To ensure this, managers must understand that the

promotion of better working conditions is closely related to care improvement, and this aspect should not be neglected.

A statistically positive difference was also observed in the safety climate domain, which refers to organizational commitment to safety [15] between the professionals submitted to high workload, resulting in a lower mean in the SAQ evaluation. As it is understood that a safety culture can only be implemented through the engagement of professionals and managers [1], this result points to a possible communication weakness in the investigated institution. Thus, care models that keep lines of communication open, so that health professionals responsible for the delivery of direct care to patients are consulted in the decision making process, can ensure safer care.

A study conducted in Canada aimed to verify a possible association between care models and the occurrence of adverse events found that health teams composed of professionals of higher level and who participate in managerial decisions obtain better care results related to care-related infections, medication errors and development of pressure injury, compared to functional models that reflect the outdated view of nursing as a broad set of tasks [23].

Managers should examine work processes, investigate and improve communication, as this is the only way to establish strategies to prevent susceptibility to failures inherent to care and that result in a weak system. The implementation of a safety culture in the institution is the first step to establish patient safety [2].

Aware of the importance of the involvement of healthcare professionals, the World Health Organization (WHO) recommends that health institutions promote a fair culture that provides adequate resources and infrastructure for the delivery of health services, prioritizing safety above financial and operational objectives[2]. According to the WHO, the implementation of such measures will make it possible to establish a collaborative environment in health institutions, targeted to the promotion employee satisfaction [2].

The job satisfaction domain was the only one that reached a positive mean score at the SAQ instrument, that is, above 75 points, in both situations (high and low workload), indicating that nursing professionals are generally satisfied in the work environment. Nevertheless, the professionals obtained a lower score in the SAQ in the item exposure to high workload. Thus, a higher workload also impacted this domain, which is an important indicator in the retention of talents in the health segment [14]. Thus, it is inferred that, although the workers are satisfied, a high workload also impacts their views about the safety climate.

It should be noted that although there was not a statistically significant difference between the domains stress perception, perception of management and working conditions, there was a gradual decrease in their respective average scores when the workload of the professionals was considered. Nursing professionals submitted to high workloads had worse scores for safety climate.

The main limitation of this study was the sample size, for it was conducted in only one AICU. Further studies aimed to identify, from the perspective of health professionals and managers, the inherent difficulties in promoting a safety culture in hospital facilities are recommended.

CONCLUSION

It was concluded that a higher workload of the nursing team influenced the negative perception of the patient's safety climate, particularly in the domains teamwork climate, safety climate and job satisfaction.

Given the association found between workload and the perception of safety by

nursing professionals, the results of the present study can encourage nurses to make more assertive decisions. Also, they can support actions aimed to improve working conditions and hence job satisfaction and quality of care.

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