

Nursing practice environment in intensive care units

Ambiente da prática de enfermagem em unidades de terapia intensiva

Ambiente de la práctica de enfermería en unidades de terapia intensiva

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Keywords

Critical care nursing; Working environment;
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Descritores

Enfermagem de cuidados críticos; Ambiente de
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Descriptores

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Abstract

Objective: To analyze the nursing practice environment in intensive care units.

Methods: This is a descriptive study with a quantitative approach, carried out with 209 nursing professionals of three Brazilian teaching hospitals. The nursing work environment was evaluated using the Practice Environment Scale. Data were analyzed descriptively, assuming a significance level of 5% ($p < 0.05$). Cronbach's alpha coefficient was used to assess the internal consistency of the constructs.

Results: Nurse professionals considered unfavorable four of the five professional practice environment dimensions: nurse participation in hospital affairs, nursing foundation for quality of care, nurse manager ability, leadership and support of nurses and staffing and resources adequacy. Only the dimension of collegial nurse-physician relations presented a positive evaluation. Unfavorable characteristics of the working environment were recognized more strongly by nurses in comparison to nursing technicians.

Conclusion: The environment proved to be unfavorable for the practice of nursing professionals. Efforts are necessary to make the work environment more attractive to them, thus stimulating improvements in the quality and safety of care delivered to patients.

Resumo

Objetivo: Analisar o ambiente da prática de enfermagem em unidades de terapia intensiva.

Métodos: Estudo descritivo, de abordagem quantitativa, realizado com 209 profissionais de enfermagem de três hospitais de ensino brasileiros. O ambiente da prática de enfermagem foi avaliado através da *Practice Environment Scale*. Os dados foram analisados descritivamente, assumindo nível de significância de 5% ($p < 0,05$). O coeficiente *Alfa de Cronbach* foi utilizado para examinar a consistência interna dos construtos.

Resultados: Os profissionais de enfermagem consideraram desfavoráveis quatro das cinco dimensões do ambiente da prática profissional: participação dos enfermeiros na discussão dos assuntos hospitalares; fundamentos de enfermagem voltados para a qualidade do cuidado, habilidade, liderança e suporte dos coordenadores/supervisores de enfermagem aos enfermeiros/equipe de enfermagem; e adequação da equipe e de recursos. Apenas a dimensão relações colegiais entre profissionais de enfermagem e médicos apresentou avaliação positiva. Enfermeiros reconheceram mais fortemente atributos desfavoráveis no ambiente de prática do que técnicos de enfermagem.

Conclusão: O ambiente mostrou-se desfavorável para a prática dos profissionais de enfermagem. Esforços são necessários para tornar o ambiente de prática mais atrativo aos profissionais de enfermagem, e assim estimular melhorias na qualidade e na segurança da assistência prestada.

Resumen

Objetivo: Analizar el ambiente de la práctica de enfermería en unidades de terapia intensiva.

Métodos: Estudio descriptivo, de abordaje cuantitativo, realizado con 209 profesionales de enfermería de tres hospitales de enseñanza brasileños. El ambiente de la práctica de enfermería fue evaluado utilizándose la *Practice Environment Scale*. Datos analizados descriptivamente, asumiéndose nivel de significatividad de 5% ($p < 0,05$). Se utilizó coeficiente *Alfa de Cronbach* para examinar la consistencia interna de los constructos.

Resultados: Los profesionales de enfermería consideran desfavorables cuatro de las cinco dimensiones del ambiente de la práctica profesional: participación de enfermeros en discusión de asuntos hospitalarios; fundamentos de enfermería orientados a calidad del cuidado; habilidad, liderazgo y soporte de coordinadores/supervisores de enfermería a los enfermeros/equipo de enfermería; y adecuación del equipo y de recursos. Solamente la dimensión relaciones entre profesionales de enfermería y médicos mostró evaluación positiva. Los enfermeros reconocieron más sólidamente atributos desfavorables en el ambiente de práctica que los auxiliares de enfermería.

Conclusión: El ambiente se mostró desfavorable para la práctica de los profesionales de enfermería. Son necesarios esfuerzos para que el ambiente de práctica sea más atractivo para los profesionales de enfermería, estimulando así mejoras en calidad y seguridad de la atención brindada.

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Introduction

Healthcare systems all over the world are constantly challenged to meet communities' health demands, facing budget constraints, which limit the potential of structures and affect working conditions.^(1,2) However, it is increasingly evident that these conditions impact on the professionals' capacity to provide care with quality and safety, especially on the nursing staff, as they spend more time in care environments and have a stronger interaction with the structure and culture of the organizations.⁽³⁾

The nursing practice environment has been understood as the organizational characteristics of a work context that facilitate or hinder professional practice. In summary, it is the sum of material resources, personnel, corporate atmosphere and all others elements that affect directly or indirectly the care delivered to patients.⁽⁴⁾

In Brazil, the evaluation of the nursing work environment was boosted over the last years using predominantly the Nursing Work Index (NWI).⁽⁵⁾ This instrument was developed in the 1980's, aiming to describe the hospital organizational characteristics that are attractive to nursing. In 2002, the instrument was reformulated creating the Practice Environment Scale (PES), a robust instrument based on sociological theories of organizations and work, able to capture information about the nursing practice environment.⁽⁴⁾

Given its robustness, internal validity and evidence combined to the nursing body of knowledge, the use of the PES has been recommended and disseminated as a preferential measure in the nursing practice environment by the National Quality Forum (NQF) of the United States of America (USA) and as an effectiveness indicator of nursing care in the accreditation protocols of the Joint Commission.⁽⁶⁾ However, its use is still limited in Brazil, considering that only one Brazilian study using the PES instrument was found after reviewing the literature.⁽⁷⁾

International studies have shown a strong effect of the nursing practice environment on nursing care indicators.^(8,9) In this perspective, consid-

ering the ICU a highly complex and dynamic scenario, with multiple interventions aimed at the recovery of patients with limited physiological capacity,⁽¹⁰⁾ the role of the nursing staff is fundamental to the success of the patients' hospitalization and recovery. Therefore, a question emerges: what are the characteristics of the nursing practice environment in ICUs based on the Practice Environment Scale?

This study is justified by the relevancy of knowing the characteristics of nursing practice environments in ICUs based on an instrument that is internationally known, disseminated and valid. The PES has been proved as a fundamental tool in the management process of health decision makers, in the strategic planning focused on the nursing workforce, and in supporting actions for the improvement of professional and organizational performance.

The objective of this study was to analyze the nursing practice environment of intensive care units.

Methods

This is a descriptive study with a quantitative approach, carried out in four ICUs of teaching hospitals located in the Federal District, Brazil.

The sample was made up of nurses and nursing technicians who worked directly with patients. Professionals on vacation and/or leave and managers were excluded because they do not provide direct care to patients.

Data collection occurred from September 2016 to March 2017, through the application of semi-structured questionnaires and documentary analysis. A total of 245 questionnaires were given to 209 participants. The response rate was 85%. The questionnaires were divided into two parts; the first one comprised sociodemographic information and the second PES-NWI scale items.

The sociodemographic variables questioned were: age, sex, marital status, professional category, time since graduation, time working in the institution, length of experience in the ICU, num-

ber of employment links, performance of overtime, monthly average of overtime hours worked, weekly workload and ICU category of work. The second part addressed the nursing practice environment evaluation using the PES. The PES is a Likert-type scale created by North American nurses using the Nursing Work Index aiming to evaluate characteristics of the work environment. It has 31 items and answers range from 1 to 4 (1= strongly disagree, 2= disagree, 3=agree and 4= strongly agree).⁽⁴⁾

The PES is organized in five dimensions; 1) *nurse participation in hospital affairs* (nine items), which reveals the participants role and the appreciation of nursing professionals, and concerns career progression and the opportunity of participating in decision-making bodies; 2) *nursing foundation for quality of care* (10 items), which emphasizes the nursing foundations for a high standard service based on a nursing care model; 3) *nurse manager ability, leadership and support of nurses* (five items), focusing on the head nurses' role and their abilities of management, leadership and team support; 4) *staffing and resources adequacy* (four items), which refers to human and material resources available to provide patient care with quality; 5) *collegial nurse-physician relations* (three items), which describes the relationship between nursing professionals and physicians.

Each one of the five dimensions is obtained from the arithmetic mean of the corresponding items. The nursing environment is the arithmetic mean of all 31 items. Scores higher than 2.5 are considered favorable to nursing practice.⁽¹¹⁾

The PES instrument was validated to the Brazilian reality presenting the following values for internal consistency: nurse participation in hospital affairs (0.87); nursing foundation for quality of care (0.83); nurse manager ability, leadership and support of nurses (0.87); staffing and resources adequacy (0.83); and collegial nurse-physician relations (0.76).⁽⁷⁾

Documentary analysis occurred daily (45 days per unit) while questionnaires were being applied, through the verification of attendance records, work schedules and nursing staff sizing, aiming to estab-

lish a rate of patients per nursing professional. Daily values originated the mean rate of patients per nurses and nursing technicians.

Cronbach's Alpha coefficient was used to examine the PES internal consistency. Test values can range from zero to one. Values between 0.61 and 0.80 indicate substantial reliability and scores over 0.80 indicate very good consistency.⁽¹²⁾

The data collected were descriptively analyzed using the Statistical Package for the Social Sciences (SPSS) software, version 24. The Kolmogorov-Smirnov test was used to test data normality. Mean and standard deviation values were calculated for continuous variables. When suitable, the median was calculated. For categorical values, absolute and relative frequencies were used. To analyze differences in the evaluation of the nursing practice environment and in professional category, the Mann-Whitney (comparing medians among groups) and the Chi-square (comparing proportions among groups) tests were used. A significance level of 5% (p-value < 0.05) was assumed.

The study was approved by the Health Sciences Teaching and Research Foundation (FEPECS) under the Certificate of Presentation for Ethical Consideration number: 52389415.0.0000.5553. Data were collected once the participants had read, complied with and signed the informed consent form. Participation in the study was voluntary.

Results

The participants of the study were 209 nursing professionals who worked in the four ICUs involved in the present study; 51(24.4%) were nurses and 158(75.6%) were nursing technicians. The mean age was 36.2 (SD = 8.54), 73.2% were women and 60.3% worked in specialized ICUs. Characteristics of the participants are described in table 1.

Table 2 presents the mean and median scores of the dimensions and the composite of the nursing work environment. Nursing technicians present-

Table 1. Characteristics of the participants

Variables	n(%)	Mean (SD)
Age		36.20(±8.54)
Women	153(73.20)	
Years since graduation		11.90(±7.13)
Time working in the institution (in years)		5.80(±6.40)
Length of experience in the ICU		4.90(±5.84)
Weekly workload		42.90(±15.13)
Marital Status		
Single	118(56.50)	
Married	91(43.50)	
Professional Category		
Nurse	51(24.40)	
Nursing Technician	158(75.60)	
Rate of patients per professional		
Nurse		7(±2.21)
Nursing Technician	2(0)	
Employment links		
1 (one)	137(65.60)	
2 (two) or more	72(34.40)	
ICU category of work		
Specialized	126(60.30)	
General	83(39.70)	
Overtime	76(36.40)	
Average of overtime hours worked		39.8(±25.89)

ed statistically higher medians when compared to nurses for the following variables: nursing foundation for quality of care, collegial nurse-physician relations and the composite of the nursing work environment.

Data show that 76.1% of all nursing professionals identified their work environment as unfavorable. This perception was more accentuated among nurses. The variable “staffing and resources adequacy” was identified as unfavorable for more than 85% of the participants, whereas 55% of the professionals identified relationships between physicians and nurses as being favorable. The assessment of the internal consistency of the measures through the Cronbach’s alpha coefficient revealed substantial scores for all dimensions and robust values for the overall composition (Table 3).

Table 2. Nursing work environment according to professional category

Dimensions	General		Nurse		Nursing technician		p-value*
	Median	Mean (SD)	Median	Mean (SD)	Median	Mean (SD)	
Nurse participation in hospital affairs	2.00	2.06 (±0.57)	2.11	2.06 (±0.47)	2.00	2.06 (±0.59)	0.93
Nursing foundation for quality of care	2.40	2.38 (±0.53)	2.10	2.13 (±0.36)	2.47	2.47 (±0.56)	≤0.01
Nurse manager ability, leadership and support of nurses	2.40	2.42 (±0.62)	2.40	2.32 (±0.58)	2.40	2.46 (±0.63)	0.28
Staffing and resources adequacy	1.75	1.86 (±0.65)	1.75	1.76 (±0.58)	1.75	1.89(±0.66)	0.31
Collegial nurse-physician relations	3.00	2.88 (±0.59)	2.67	2.68 (±0.53)	3.00	2.94 (±0.60)	≤0.01
Composite: nursing practice environment	2.25	2.27 (± 0.47)	2.10	2.15 (±0.36)	2.29	2.32 (±0.49)	0.05

*Mann–Whitney U test / Level of statistical significance p≤0.05

Table 3. Work environment classification among professional categories

Dimensions	Cronbach’s alpha coefficient	Nurse n(%)	Nursing technician n(%)	p-value*
Nurse participation in hospital affairs	0.78			0.23
Favorable		6(11.80)	30(19.00)	
Unfavorable		45(88.20)	128(81.00)	
Nursing foundation for quality of care	0.76			≤0.01
Favorable		3(5.90)	61(38.60)	
Unfavorable		48(94.10)	97(61.40)	
Nurse manager ability, leadership and support of nurses	0.70			0.12
Favorable		13(25.50)	59(37.30)	
Unfavorable		38(74.50)	99(62.70)	
Staffing and resources adequacy	0.75			0.39
Favorable		5(9.80)	23(14.60)	
Unfavorable		46(90.20)	135(85.40)	
Collegial nurse-physician relations	0.70			≤0.01
Favorable		29(56.90)	122(77.20)	
Unfavorable		22(43.10)	36(22.80)	
Composite: Nursing work environment	0.90			0.11
Favorable		8(15.70)	42(26.60)	
Unfavorable		43(84.30)	116(73.40)	

* Chi-square test / Level of statistical significance p ≤0.05

Discussion

The nursing practice environment involves multiple dimensions and maintaining them favorable is important for the work of nursing professionals. Over the last years, nursing practice environment evaluation was made mandatory by high standard regulatory and certifying agencies around the world. In Brazil, information regarding this theme is still limited; however, its analysis can subsidize people management and nursing care processes.

The authors studied the nursing work environment characteristics through the analysis of nursing professionals who assist critical care patients. It was concluded that the nursing work environment in the ICUs was unfavorable. A previous Brazilian study, conducted in two hospitals (one public and the other private) using the same instrument to analyze the characteristics of the work environment revealed that nurses identified in their workplace the necessary attributes for their professional practice.⁽⁷⁾ Similarly, another study using the Nursing Work Index (NWI) found positive results for the professional nursing work environment.⁽¹⁰⁾ In these studies, differences related to the hospital type and professionals' work contract can explain the distinct findings.

The nursing practice environment has great influence on the capacity, performance and commitment of nursing professionals to the delivery of care.^(13,14) Unfavorable nursing practice has been associated with worse care outcomes, such as an increase in mortality rates, higher rates of infection and lower satisfaction among family members and patients.⁽¹⁵⁻¹⁷⁾ Previous studies have also shown a relationship between unfavorable environments, emotional exhaustion and a small desire to keep the current job.^(18,19)

Considering the ICU as a specialized unit intended for the care of seriously ill and unstable patients, which demands high technically trained nursing professionals on a permanent basis, a low retention of these workers not only can compromise institutional results but also elevate operational costs.^(20,21)

The comparative analysis of the nursing practice environment among the professional categories demonstrated that the unfavorable perception was

proportionally higher among nurses. Considering that in the current context more responsibility has been given to nurses, being their exclusive obligation tasks ranging from complex technical procedures, to leadership and decision-making tasks during the ICU care process, such finding is concerning and can compromise the nursing care delivered. It reinforces, at the same time, the need for rearranging work processes.^(22,23)

The authors' finding showed that the nursing staff sizing of the ICUs studied is adequate to the government regulation. Thus, considering the low results of the variable "staffing and resources adequacy", such regulation seems insufficient to the demands of nursing.⁽²⁴⁾ Although the relationship between personnel dimensioning and the perception of the professional practice environment conditions has not been tested in this study, the results found suggest they are associated, as it has been shown in other studies.^(25,26)

In addition, the variable "collegial nurse-physician relations", which has been historically described as conflictive and competitive, was the only work environment variable that had a positive assessment, suggesting that these professionals collaborate with each other. A previous study shows that collaborative healthcare teams (nursing-medicine) increase patient safety, quality of care and improve nursing professionals' energy and dedication.⁽²⁷⁾

The authors' findings need to be interpreted with caution, as the sample is limited to four public ICUs and data were collected during working hours, which might influence the participants' response pattern. This is also the first study published in Brazil using the Practice Environment Scale instrument. It provides a scenario of the environment without addressing the interrelations and determining factors of the studied condition. However, the internal consistency indices are relevant and the high professional participation rate brings robustness to the results obtained.

The authors recommend considering the study findings for critical care units of developing countries with universal health systems implemented or under implementation. Additionally, higher investments in the ICU nursing practice environment, as well as the development of studies that can assess the relationship

between work environment and professional and care indicators are suggested by the authors. Studies that might broaden the understanding of the role of nursing personnel dimensioning on the nursing practice environment perception are also recommended.

Conclusion

The nursing practice environment of the ICUs studied was unfavorable. Although this was a consensual perception among the nursing staff, it was higher among nurses. The “collegial nurse-physician relations” dimension was favorable, whereas the “adequacy of the staff to the resources” dimension was highly unfavorable. Health directors, managers and decision-makers should consider investing in the nursing work environment to guarantee adequate conditions for professional practice, quality and safety in nursing care.

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Collaborations

Azevedo Filho FM, Rodrigues MCS and Cimiotti JP participated in the project design, data analysis and interpretation; writing of the paper, critical review and approval of the version to be published.

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