



## Patient safety culture from the perspective of the nursing team

### Cultura de segurança do paciente na perspectiva da equipe de enfermagem

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**Objective:** to evaluate the patient safety culture from the perspective of the nursing team. **Methods:** cross-sectional design, survey-type inquiry performed with 221 nursing professionals from a University Hospital. The instrument used was the Hospital Survey on Patient Safety Culture. The Kolmogorov-Smirnov test, the Spearman's correlation coefficient and the Cronbach's alpha coefficient were used in the analyses. **Results:** the patient safety culture has been moderately developed; teamwork within units corresponded to a strong area (75.5%) and the nonpunitive response to errors corresponded to an area for improvement (47.0%). It was observed that the greater the impression of nonexistence of problems and adequacy of the implanted systems, the better the rating assigned to the hospital. **Conclusion:** patient safety culture is in the process of development; the dimension with more positive answers was teamwork within units and, the one with less positive answers was nonpunitive response to errors.

**Descriptors:** Patient Safety; Culture; Nursing; Health Services Research.

**Objetivo:** avaliar a cultura de segurança do paciente na perspectiva da equipe de enfermagem. **Métodos:** delineamento transversal, tipo *survey*, realizado com 221 profissionais de enfermagem do Hospital Universitário. Foi utilizado o instrumento *Hospital Survey on Patient Safety Culture*. Foram realizados o teste de Kolmogorov-Smirnov, a correlação de Spearman e o coeficiente *alpha* de Cronbach. **Resultados:** a cultura de segurança do paciente é moderadamente desenvolvida, o trabalho em equipe dentro das unidades foi área de força (75,5%) e a resposta não punitiva aos erros constituiu área de melhoria (47,0%). Verificou-se que quanto maior a impressão de inexistência de problemas e adequação dos sistemas implantados, melhor foi a nota atribuída para o hospital. **Conclusão:** a cultura de segurança do paciente está em processo de desenvolvimento, a dimensão com mais respostas positivas foi o trabalho em equipe dentro das unidades e, a com menos, a resposta não punitiva aos erros.

**Descritores:** Segurança do Paciente; Cultura; Enfermagem; Pesquisa sobre Serviços de Saúde.

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## Introduction

The reported number of adverse events with harm to patients is high, predominantly due to avoidable health care errors, and is influenced by the degree of safety established in the institution<sup>(1)</sup>. Patient safety is an indispensable component of quality care in health care services.

Patient safety can be defined as reducing the risk of unnecessary harm associated with health care to an acceptable minimum, based on the integration between the composition of values and individual and organizational behaviors that may result from health care. One of the main aspects that contribute to the development of patient safety is the incorporation of safety culture, defined as the individual and collective product of values, attitudes, perceptions, skills and behavior patterns that determine the style and commitment of a healthy and safe organization<sup>(2)</sup>.

Multidimensional aspects are involved in patient safety culture, including the beliefs and practices of the members of the organization, the configuration of relationship with mistakes and learning from mistakes, the commitment and management style of the institution. Effective communication, teamwork, satisfactory working conditions and leadership support favor a well-developed safety culture, contribute to the adoption of preventive measures, organizational learning, and to the elimination of the punitive approach to errors<sup>(3)</sup>.

In Brazil, studies on patient safety culture are relatively recent, and the evaluation of its different perceptions and dimensions can direct the administration of tools towards the improvement of care through the adoption of safer practices, communication, teamwork and knowledge sharing. In order to establish patient safety culture in a health organization, it is necessary, initially, to evaluate the current situation of such culture<sup>(3-4)</sup>.

The present study has its relevance justified by the possibility of knowing the patient safety culture from the perspective of nursing professionals, by eva-

luating how these professionals perceive it in their work. The study also promotes a reflection on the work environment and working conditions and identify what aspects need of adjustments to make patient safety the central point of care<sup>(5)</sup>.

According to the above, the following research question was elaborated: How do nursing professionals perceive the patient safety culture in a university hospital? The objective of the study was to evaluate the safety culture of the patient from the perspective of the nursing team.

## Methods

A cross-sectional study of the survey-type inquiry was carried out with nursing professionals from a university hospital in the Northeast of Brazil from May to June 2016. Simple randomized sampling was used, with calculations for finite populations, and 221 professionals participated in the study. The inclusion criteria were: to work for more than six months in the hospital and for at least two months in the unit, with direct or indirect interaction with patients. Professionals who were on leave of any nature were excluded.

Data were collected through the questionnaire Hospital Survey on Patient Safety Culture (HSOPSC) developed by the Agency for Health Care Research and Quality (AHRQ). The instrument consists of two parts, covering sociodemographic, work characteristics, and an assessment of patient safety culture. It presents 42 items distributed into five sections and 12 dimensions of patient safety culture (with three or four items), evaluated at the individual, unit and hospital levels, and rated by means of a five-point Likert-type scale for agreement or frequency of events related to patient safety. A total of 266 questionnaires were distributed after considering the AHRQ inclusion criteria, 221 were used for analysis<sup>(6)</sup>. The final response rate was 83.0%.

The safety culture index of each dimension (SCId), from the perspective of nursing professionals, was calculated based on the sum of the actual of sco-

res obtained in its items ( $E_i$ ) and the sum of their maximum possible scores ( $E_{\max i}$ ). For the calculation of the total safety culture index (SCIt) of each professional, the arithmetic mean of the indices of the 12 dimensions was calculated. The index of each dimension for the hospital (SCIdh) was obtained from the arithmetic mean of the SCId values of the evaluated sample (221). The final score could vary from 0 to 1 (0 to 100.0%)<sup>(6)</sup>.

For the descriptive analysis, the Likert-type scale levels were recategorized as: positive (totally agree and agree/always or almost always), neutral (neither agree nor disagree/sometimes), and negative (totally disagree and disagree/never or rarely). Based on the safety culture indices, the items were classified into: area for improvement (from 0 to 50.0%), moderate area (from 50 to 75.0%) and strong area (from 75 to 100.0%)<sup>(6)</sup>. Areas for improvement referred to items with a lower number of positive answers, and thus considered underdeveloped in the hospital, while the strong areas were those that obtained more positive than negative answers, being well developed<sup>(7)</sup>.

The data were processed in the *Statistical Package for the Social Sciences*, version 21.0. The Kolmogorov-Smirnov test used to check the normality of the data and the Spearman correlation test was applied to the continuous variables, when dealing with the level of safety culture as a quantitative measure, with a significance level of 5%. The analysis of internal consistency of the HSOPSC was based on the Cronbach's alpha coefficient. Values above 0.7 were considered satisfactory for the study.

The study complied with the formal requirements contained in the national and international regulatory standards for research involving human beings.

## Results

Among the evaluated professionals, 90 (40.4%) were nurses and 131 (59.3%) nursing technicians; the mean age was 34.8 ( $\pm 6.2$ ), with a minimum of 23 and

a maximum of 52 years; and the majority of participants were females, 184 (83.3%). Table 1 shows the sociodemographic and working characteristics of the sample. The majority of the participants, 208 (94.1%), worked in the hospital for more than one year; among the nurses, 85 (94.4%) were post-graduates, and in the group of nursing technicians, 65 (49.7%) had higher education (Table 1).

**Table 1** – Sociodemographic and work characteristics of nursing professionals (n=221)

Variables	Nurses	Nursing technicians	Total
	n(%)	n(%)	n(%)
Age (years)			
< 35-	54(60.0)	69(52.7)	123(55.7)
> 35	36(40.0)	62(47.3)	98(44.3)
Sex			
Female	73(81.1)	111(84.7)	184(83.3)
Male	17(18.9)	20(15.3)	37(16.7)
Time working in the hospital (years)			
< 1	5(5.6)	8(6.1)	13(5.9)
> 1	85(94.4)	123(93.9)	208(94.1)
Time working in the unit (years)			
< 1-	22(24.4)	24(18.3)	46(20.8)
> 1	68(75.6)	107(81.7)	175(79.2)
Weekly workload			
20-39	85(94.4)	127(96.9)	212(95.9)
40-79	5(5.6)	4(3.1)	9(4.1)
Interaction with patients			
Direct	79(87.8)	128(97.7)	207(93.7)
Indirect	11(12.2)	3(2.3)	14(6.3)
Time working in the specialty (years)			
Up to 10	59(65.6)	93(71.0)	152(68.8)
> 10	31(34.4)	38(29.0)	69(31.2)
Level of education			
Secondary education	-	37(28.2)	37(16.7)
Incomplete higher education	-	29(22.1)	29(13.1)
Complete higher education	5(5.6)	33(25.2)	38(17.2)
Specialization (Masters or PhD degree)			
Specialization	58(64.4)	30(23.0)	88(39.8)
(Masters or PhD degree)	27(30.0)	2(1.5)	29(13.1)
Total	90(40.7)	131(59.3)	221(100.0)

The dimension of teamwork within units (D1) was the most developed in the institution (75.5%), although feedback and communication about error (D4), frequency of events reported (D12) and organizational learning (D3) also stood out with percentages ranging from 70.2% to 73.1%. The nonpunitive response to errors dimension (D7) was considered an area for improvement (47.0%). The others had moderate safety culture indices, ranging from 63.0 to 66.9% (Table 2). The Cronbach's alpha test showed a variation between 0.204 and 0.891 and the dimensions D2, D8 and D12 obtained Cronbach's alpha above 0.7, with consistent answers for these items. The other dimensions obtained reliability of low to moderate consistency (Table 2).

**Table 2** – Distribution of patient safety culture indices by dimension, according to the evaluation of nursing professionals (n=221) and internal consistency

Dimension	Safety culture index (%)	α *
D1 - Teamwork within units	75.5	0.519
D2 - Patient safety actions	65.6	0.815
D3 - Organizational learning	73.1	0.578
D4 - Feedback and communication about error	70.2	0.602
D5 - Communication openness	66.6	0.564
D6 - Staffing	65.6	0.340
D7 - Nonpunitive response to errors	47.0	0.440
D8 - Management support	62.5	0.785
D9 - Teamwork across units	66.3	0.607
D10 - Handoffs and transitions	66.9	0.654
D11 - Overall perceptions	63.0	0.204
D12 - Frequency of events reported	70.8	0.891

\*α: Cronbach's alpha

Table 3 shows the correlation between the responses attributed to patient safety, frequency of events reported, and number of reports completed by the participants of the study.

**Table 3** – Correlation between the dimensions over-all perceptions and patient safety grade, frequency of events reported and number of reports (n=221)

Items of the dimension	Patient safety grade		Nº of event reports	
	r	p	r	p
<b>Overall perceptions of patient safety</b>				
Prevention of serious errors or mistakes	0.081	0.147	0.173	0.012
Safety related to workload	0.279	<0.001	-0.068	0.317
No safety problems	0.471	<0.001	-0.220	0.001
<b>Frequency of events reported</b>	<b>0.417</b>	<b>&lt;0.001</b>	<b>-0.048</b>	<b>0.482</b>
<b>Error prevention systems</b>				
Report of mistake corrected before affecting the patient	0.354	<0.001	-0.196	0.004
Report of mistake with no potential harm to the patient	0.350	<0.001	-0.151	0.026
Report of mistake that could harm the patient, but did not	0.315	<0.001	-0.068	0.319

r\* Spearman's correlation coefficient

Positive and moderate correlations were identified between overall perceptions of patient safety and the assessment held by nursing professionals for the unit of work in the institution, so that the greater the impression of lack of problems (r=0.471) and of the adequacy of the procedures and systems deployed (r=0.417), the better was the rating assigned (p<0.001). For the frequency of events reported and the number of event reports completed in the last 12 months, there was a negative and very low correlation (Table 3). It was identified that the higher the frequency of reporting of corrected mistakes and of mistakes without potential harm, the lower was the number of event reports completed.

## Discussion

The study had as limitations the short time of hospital operation and the possible repercussion of this factor in the work environment and in the responses of the participants. From the methodological point of view, some professionals had difficulties to understand the sentences of items of the questionnaire, re-

questing additional clarifications and also, criticized the length of the instrument.

The dimension teamwork within units obtained the highest patient safety culture index (75.5%), due to the high level of positive responses to this item and respect among professionals. Therefore, two aspects were considered strong areas by nursing professionals. A study carried out in neonatal intensive care units did not show strong areas but had teamwork within units as the best scored dimension (57.0%)<sup>(8)</sup>.

Members working in the same unit of the institution develop a collaborative work and a prevailing climate of respect. However, when analyzing the total positive responses to the item on cooperation across units, the percentage decreased. This was rated as a moderate area, indicating that professionals in the institution work individually in their units and not interrelatedly<sup>(8)</sup>. This characteristic of work between the units generates an environment marked by individualism, competition and difficulty in the development of teamwork and is related to the organizational model and culture. Generally rigid and centralized, the institution itself does not provide an atmosphere for the implementation of coordinated and interdisciplinary work<sup>(9)</sup>.

The second dimension with the highest percentage of positive responses was organizational learning, with representativeness of the characteristic of performance of active actions to promote safety. Understood as the ability to learn from mistakes and to analyze mechanisms to prevent the repetition of failures, organizational learning can be made possible through management of measures that prioritize patient safety, direct the focus to the problem that generated the mistake, and provide recognition to professionals who identify serious errors in place of the culture of culpability<sup>(10)</sup>.

The results were in agreement with studies in which the dimensions teamwork within units and organizational learning obtained high percentage of positive responses; such work were developed in Palestine (71.0% and 62.0%)<sup>(11)</sup>, Mexico (82.1% and

83.6%)<sup>(12)</sup>, and the Middle East (83.4% and 81.1%)<sup>(13)</sup>. It is notorious that these dimensions are considered positive in the safety culture and seem to be non-related to cultural differences of regions.

The fact that nonpunitive response to errors was the domain that represented the main areas for improvement of the hospital indicates a poorly developed patient safety culture. Professionals fear that their errors will be recorded on functional sheets and used against them, promoting the persistence of a culture of culpability focused on the individual that makes the mistake instead of the problem that generated the mistake. This, in turn, may lead to more underreporting of events, especially when considering the inhibition for questioning superior decisions and compromising safety due to increased workload, also pointed out as areas for improvement in the institution.

The literature constantly points out the low frequencies in the studies of the dimension nonpunitive response to errors. The flaws arise from the combination of properties of the systems in force and individual aspects of workers in managerial and operational levels, making it difficult to distinguish human errors in unreliable systems from willful unsafe acts. Flaws in the care process point to insufficient identification and analysis of events and promote the persistence of underestimation of the actual extent of the problem. The anonymous and spontaneous record of adverse events is a fundamental mechanism to the identification of defective systems, prevention of errors, and further development of patient safety<sup>(14-15)</sup>.

Nursing professionals who responded positively the items on overall perception of patient safety attributed better grades for patient safety at the hospital. In the Middle East, nurses who had a better impression about expectation and actions for patient safety, communication openness, teamwork across units, and handoffs and transitions had a better overall perception of patient safety ( $p < 0.001$ )<sup>(13)</sup>.

In this study, the negative and low correlation between frequency of events reported and the num-

ber of reports completed indicates that, although the group assigned a moderate safety culture index to the dimension of frequency of events reported (70.8%), there was a low frequency of completed reports of events. Scores were higher in comparison to those of studies in which the dimension of frequency of events reported obtained low grades<sup>(16-17)</sup>. This result may be related to the strong punitive culture imbued in most health institutions. This is observed when considering the percentage obtained for the dimension nonpunitive response to errors (47.0). Therefore, the data need to be interpreted with caution, considering the influence of the fact that the instrument was answered inside the institution.

Overall, the professionals rated the patient safety culture at the hospital as moderate. As mentioned earlier, improving patient safety requires the evaluation of the safety culture and determination of priority areas that require management of resources and staff mediation. Research at the individual level in the units and in the hospital may promote the identification of outcome variables and of the perception of professionals who directly or indirectly act in patient care. Behaviors and individual and group skills can determine the commitment, the style and the level of safety culture present in the institution.

Discussions and actions of the entire health organization must take place in order to target safety culture and emphasize the importance of permanent education for the whole institution, aiming at the dissemination of a culture favorable to safe practices, as well as the training for specific actions to prevent errors and adverse events.

This study broadens the knowledge in the area by exploring the attributes that make up the dimensions of safety culture, indicating which and how they contributed to the results obtained in the rating of dimensions, besides showing the sociodemographic and work characteristics of the professionals in this composition. The results may prompt professionals and managers to devise strategies for further developing safety culture at hospitals, and encourage future

research to identify the root cause of the barriers to patient safety.

## Conclusion

The study revealed that patient safety culture in the university hospital studied is in the process of maturing and that the dimension with more positive responses was teamwork within units and, the one with least positive answers was nonpunitive response to errors.

## Collaborations

Tavares APM and Nogueira LT contributed to the conception and design, analysis and interpretation of the data and writing of the article. Moura ECC, Avelino FVSD and Lopes VCA contributed to the relevant critical review of intellectual content. All authors collaborated with final approval of the version to be published.

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