



Evaluation of patient safety culture: comparative study in university hospitals*

Avaliação da cultura de segurança do paciente: estudo comparativo em hospitais universitários
Evaluación de la cultura de seguridad del paciente: estudio comparativo en hospitales universitarios

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ABSTRACT

Objective: To conduct a benchmarking comparison of the composites of patient safety culture based on the evaluation of Brazilian and Portuguese nurses working in university hospitals. **Method:** Quantitative, cross-sectional, comparative survey. Data collected between April and December 2014, in two teaching hospitals, applying the instrument *Hospital Survey on Patient Safety Culture*, in the versions translated and adapted to the countries. **Results:** 762 nurses distributed in four services participated in the study, 195 Brazilians and 567 Portuguese. Seven of the 12 composites of safety culture showed significant differences between hospitals. The highlights were those related to: "management support for patient safety" (± 17); "handoffs and transitions" (± 15); "teamwork across units" (± 14); and "overall perceptions of patient safety" (± 10). **Conclusion:** The dimension that had the highest significant difference between the studied institutions was "management support for patient safety". These data may support the managers of the study hospitals, enabling continuous improvements and advancements.

DESCRIPTORS

Patient Safety; Organizational Culture; Quality of Health Care; Hospitals; Nursing, Team.

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INTRODUCTION

Patient safety is a dimension of quality of care, considering that quality is the degree to which patient care services increase the probability of desired outcomes⁽¹⁾. The World Health Organization (WHO) stresses that patient safety is a global concern, due to high rates of incidents in health care, which is a public health problem⁽¹⁾.

One of the causes for the difficulty in implementing safety measures is the complexity of health systems. Individual, professional, technological, therapeutic and organizational factors, although effective, make patient safety a multifactorial issue⁽²⁾.

Professional and human factors are part of the organizational culture, since culture is a dynamic phenomenon, constantly played out and created by interactions and shaped by leadership behavior. However, an organization with a strong safety culture is one that values open, fair, effective and trustworthy communication between professionals and one that is guided by the recognition of safety as a priority and by the implementation of preventive measures⁽³⁾.

In general, safety culture assessment in health organizations aims to identify the professionals' perceptions regarding patient safety, to identify strengths and weaknesses or areas with potential for improvement, and to compare results within the units or with other institutions⁽⁴⁾.

Recently, government institutions from Portugal⁽⁵⁾ and Brazil⁽⁶⁾ published the Patient Safety Program, recommending an evaluation of the safety culture in health institutions. In both programs, it is understood that safety culture crosses all areas and directly interferes with the performance of the organization and with patients' care.

This study aims to contribute to the evaluation of safety culture, particularly involving nurses from two public and Portuguese-speaking university hospitals. It is known that nurses have a huge influence on organizational safety culture, since they are the professionals that remain with the patient uninterruptedly⁽⁷⁾.

The evaluation of patient safety culture from the point of view of nurses is considered a priority and can assist risk managers in the hospital organization by identifying differences and improvement strategies among the different composites of culture.

Thus, this study aimed to conduct a benchmarking comparison of the composites of patient safety culture based on the evaluation of Brazilian and Portuguese nurses working in university hospitals.

METHOD

TYPE OF STUDY

Cross-sectional and comparative survey – *benchmarking* – with quantitative approach to data. *Benchmarking* is a

management tool that allows us to carry out a systematic and continuous process to measure and compare the practices of one organization with others, in order to obtain information and opportunities that can help improving the performance level of such practices⁽⁸⁾.

The methodology proposed by the *Agency for Healthcare Research and Quality* (AHRQ)⁽⁴⁾ was used to compare the results of the different culture composites. This methodology consists of comparative analysis based on the percentage of positive responses, standard deviation and rule of thumb.

The percentage of positive responses on the composites was calculated using the number of positive responses to the items of the composite, divided by the total number of valid responses (positive, neutral and negative) to these items. The percentage of positive response represents an assertive reaction regarding patient safety culture and allows the evaluation of strong (scores greater than 75%) and weak (below 50%) areas of the safety culture. The data were described and analyzed by composite and by hospital, since the culture is considered a characteristic of a group or hospital, and not individual.

The standard deviation is a measure of dispersion or variability around the means and it indicates how the results of the hospitals differ from the general mean, that is, if the hospital scores are very different from the mean, the standard deviation is a high number. The 5% difference set by the rule of thumb indicates that when the standard deviation of the hospitals is equal to or greater than 5%, there is a significant difference⁽⁴⁾.

STUDY SCENARIO

The study was carried out in two university and public hospitals, one in Rio de Janeiro (Brazil) and another in Porto (Portugal). Both institutions provide care, teaching (undergraduate and graduate) and research functions. They also have patient safety centers, of which, the most recent is the center of the Brazilian hospital, created and instituted at the end of 2013, after the publication of policies focused on patient safety in Brazil.

INSTRUMENT

The instrument used was the version translated and culturally adapted to Brazil⁽⁹⁾ and Portugal⁽¹⁰⁾ of the *Hospital Survey on Patient Safety Culture* (HSOPSC). It is a self-reporting instrument with 42 Likert-type items, distributed in 12 composites (Chart 1), with five choices of answers, varying from 1 (strongly disagree) to 5 (strongly agree). The instrument was applied in paper because other studies have demonstrated that this format presents a better percentage of responses.

Chart 1 – Composites of patient safety culture of the HSOPSC⁽⁴⁾ – Porto, Portugal/Rio de Janeiro, RJ, Brazil, 2014.

Composites of Patient Safety Culture of the HSOPSC
D1 – Teamwork within units
D2 – Supervisor expectations and actions promoting patient safety
D3 – Organizational learning
D4 – Feedback and communication about error
D5 – Communication openness
D6 – Staffing
D7 – Non-punitive response to error
D8 – Management support for patient safety
D9 – Teamwork across units
D10 – Handoffs and transitions
D11 – Overall perceptions of patient safety
D12 – Frequency of events reported

DATA COLLECTION

Data was collected between April and December 2014. The study participants were 1,191 nurses, 312 from the Brazilian hospital and 879 from the Portuguese hospital. The inclusion criteria were: be working in the institution for at least 6 months and being active in nursing care.

Categorical variables were gender; participation in the center of quality and patient safety; number of hours worked per week in the hospital; academic degree; provision of direct care to patients; and time in the profession, in the institution and in the unit. These variables were analyzed according to their absolute values and percentage. For the variable age,

mean, median, minimum and maximum were calculated in years. For the analysis and interpretation of the results, the Likert scale was recoded and the positive response scores were the analysis indicators.

DATA ANALYSIS AND TREATMENT

The data collected were organized, stored and statistically treated in the software *Statistical Package for Social Sciences* (SPSS) 21.0 for *Windows* and *Excel* 2013 for *Windows* 8.

ETHICAL ASPECTS

The study was approved by the Board of Directors and the Nursing Council of both hospitals. It also obtained approval from the Health Research Ethics Committees from both hospitals, through the following protocols: Portuguese no. 2014.032 (024-DEFI/031-CES) and Brazilian No. 791.330/2014.

RESULTS

Participants were 762 nurses, 195 from the Brazilian hospital (BH) and 567 from the Portuguese hospital (PH). The percentage of responses was 62.50% in the Brazilian hospital and 64.50% in the Portuguese hospital. The health professionals were distributed in four services with the following proportions: medical clinic (24.62% and 36.68%), surgical clinic (20.51% and 25.22%), obstetrics and pediatrics (26.67% and 22.22%) and intensive therapy (28.21% and 15.87%).

The nurses were predominantly female and had a median age of 36 years in both hospitals. In the Brazilian hospital and in the Portuguese hospital, respectively, 5.10% and 5.60% of nurses reported being part of the hospital's patient safety center, and the majority reported having direct contact with patients (97.40% in the Brazilian hospital and 99.10% in the Portuguese hospital) (Table 1).

Table 1 – Characterization of nurses in the Brazilian and Portuguese hospitals – Porto, Portugal/Rio de Janeiro, RJ, Brazil, 2014.

Characterization of Nurses		BH (N=195)		PH (N=567)		Total (N=762)	
		n	%	N	%	n	%
Gender	Female	175	89.70	458	80.80	633	83.07
	Male	20	10.30	109	19.20	129	16.93
Participation in the safety center	Yes	10	5.10	32	5.60	42	5.51
Working hours (week)	Up to 40hrs	136	69.70	70	12.30	206	27.03
	More than 40hrs	59	30.30	497	87.70	556	72.97
Graduate course	Yes	154	79.00	265	46.70	419	54.99
Direct patient care	Yes	190	97.40	562	99.10	752	98.69
Time in the profession	Up to 7 years	110	56.41	139	24.51	249	32.68
	More than 8 years	85	43.59	428	75.49	513	67.32
Time in the institution	Up to 7 years	144	73.80	184	32.50	328	43.04
	More than 8 years	51	26.20	383	67.50	434	56.96
Time in the unit	Up to 7 years	154	79.00	278	49.00	432	56.69
	More than 8 years	41	21.00	289	51.00	330	43.31

Still regarding the characterization of the professionals, 87.70% of Portuguese nurses worked more than 40 hours per week. In the Brazilian hospital, the majority of nurses (79.00%) had a graduate degree and in the Portuguese hospital 46.70% of nurses had a graduate degree. Regarding time in the profession,

in the institution and in the unit, the Portuguese nurses had been working for more time than the Brazilians in all three items.

The general mean of the hospitals, the standard deviation and the benchmarking result are shown below, based on the responses of the participating nurses (Table 2).

Table 2 – Evaluation of the composites of safety culture in the hospitals – Porto, Portugal/ Rio de Janeiro, RJ, Brazil, 2014.

Composite	BH		PH		General mean		Significant difference $\geq 5\%$
	μ^*	σ^{**}	μ^*	σ^{**}	μ^*	σ^{**}	
Teamwork within units	68	± 10	79	± 12	74	± 6	Yes
Supervisor expectations and actions promoting patient safety	69	± 7	66	± 12	68	± 2	No
Organizational learning	57	± 10	65	± 11	61	± 4	No
Feedback and communication about error	39	± 11	54	± 5	47	± 8	Yes
Communication openness	59	± 15	56	± 11	58	± 2	No
Staffing	34	± 6	43	± 18	39	± 5	Yes
Nonpunitive response to error	23	± 8	28	± 12	26	± 3	No
Management support for patient safety	15	± 2	48	± 7	32	± 17	Yes
Teamwork across units	23	± 8	51	± 12	37	± 14	Yes
Handoffs and transitions	36	± 16	66	± 6	51	± 15	Yes
Overall perceptions of patient safety	36	± 14	56	± 4	46	± 10	Yes
Frequency of events reported	29	± 2	30	± 6	30	± 1	No

* Mean of the positive answers of the items in this composite; ** Standard deviation.

Seven composites presented a significant difference between the two hospitals: “teamwork within units”, 68% and 79% (± 6); “feedback and communication about error”, 39% and 54% (± 8); “staffing”, 34% and 43% (± 5); “management support for patient safety”, 15% and 48% (± 17); “teamwork across units”, 23% and 51% (± 14); “handoffs and transitions”, 36% and 66% (± 15); and “overall perceptions of patient safety”, 36% and 56% (± 10).

DISCUSSION

The percentage of responses in the hospitals was satisfactory when compared to other studies in both countries^(9,11-12). This data differs from the results of a study carried out in Ceará involving three hospitals, with percentages between 18.50% and 49.60%⁽¹³⁾.

In this study, there were similarities between Brazilian and Portuguese nurses in the elements gender, age, predominance of young nurses, median age of 36 years, direct contact with patients and non-participation in the institutions' patient safety centers.

However, there are also divergent data, for example, working hours per week. Portuguese nurses work more than 40 hours per week (87.70%), while Brazilian nurses work up to 40 hours per week (69.70%). Among the Portuguese nurses, few have a graduate degree, but they have more time in the profession, in the institution and in the research unit. The mean age is similar, however, it is noteworthy that Portuguese nurses have more time in the profession (67.50%), which may lead to increased knowledge about their work conditions when compared to Brazilian nurses.

The Brazilian hospital had a lower overall score of positive responses compared to the Portuguese hospital, showing a weak patient safety culture according to the nurses' perception. One possible explanation for this difference may be the fact that the Portuguese hospital is accredited and the center of quality and patient safety has existed for much longer in this hospital.

The results showed that, among the 12 composites of safety culture measured by the HSOPSC instrument in the Brazilian hospital, eight were considered weak and with potential for improvement. Considering that the evaluation of the safety culture is one of the first steps for the identification of the organizational culture, it is hoped that these results can assist managers in the implementation of processes to achieve better quality in the care provided.

The composite “Management support for patient safety”, which had the highest significant difference (± 17), is the most worrisome in the nurses' perception. In the Brazilian hospital, it was the composite with the lower percentage of positive responses (15%), a result similar to the one found in a study carried out in the state of Santa Catarina, Brazil (13%)⁽¹⁴⁾. In this composite, nurses from both hospitals, especially those from the Brazilian hospital, perceive that managers are insufficiently concerned with patient safety issues, which is a critical situation for hospital administration.

In the context of hospital health, it is essential that hospital management adopts an incident prevention policy as a safety requirement, with the main purpose of creating a consistent and safe basis for decision-making and for patient safety planning⁽¹⁵⁾. This can be carried out by a

multidisciplinary committee aimed at organizing programs and processes to identify the opportunities and to use unsafe actions for organizational learning⁽¹⁶⁻¹⁷⁾, as the Portuguese hospital is already doing.

Faced with this problem 17 years after the release of the Institute of Medicine report, the current scenario is surprising, since no major progress or improvement has been achieved. According to this institute, in 2012, one in every three patients suffered an adverse event during the period of hospitalization, and one in five of these returned to the hospital for readmission within 30 days⁽¹⁸⁾.

The other composite that presented a high significant difference (± 15) between the hospitals was "Handoffs and transitions", which presented 36% of positive responses in the Brazilian hospital and 66% in the Portuguese hospital. Studies have shown that the transition is one of the most complex moments in patient care, since essential information can be lost, especially because the human mind is unable to handle so much information without ceasing to function safely and effectively^(2,19), particularly when the selection of relevant information is subjective. In order to avoid misunderstandings and loss of important information, there are techniques and tools that should be implemented to assist health care professionals to provide information that can ensure the quality and continuity of care.

During the data collection, it was possible to perceive that the Portuguese hospital has a dedicated, exclusive and uninterrupted period for shift handover. This strategy can be a technique to properly value this moment.

Another composite with a significant difference (± 14) between hospitals was "Teamwork across units". A possible explanation for the results of the Portuguese hospital (51%) being better than those of the Brazilian hospital (23%) is the fact that the Portuguese nurses had more experience in the unit and in the institution, which corroborates the idea that more experienced professionals have greater skills and abilities to develop teamwork. The same result was found in two studies carried out in Brazil^(7,13), revealing that there is little cooperation for an effective teamwork.

Analogously, there was also concern about the composite "Teamwork within units" (± 6). It seems that teamwork, support and collaboration in team activities are questioned by the nurses studied. This data reflects a concern with the relationship between the nursing team and demonstrates the commitment in the search for a common goal⁽²⁰⁾. Despite the significant difference between hospitals, this composite presented a high positive response score in the Portuguese hospital (79%), expressing a strong safety culture, and a 68% score in the Brazilian hospital, which does not represent a strong nor a weak score, but one that can be improved by the organization's managers, in order to make it a strong composite.

Another composite with a significant difference between hospitals, based on the nurses' evaluation, was "Overall perceptions of patient safety" (± 10), which had 36% of positive responses in the BH and 56% in the PH. This result may be associated with the fact that the nurse working at the accredited PH follows pre-established protocols for

processes, structures and results, aimed at achieving excellence in quality⁽¹⁴⁾. On the contrary, in the Brazilian hospital, the participants expressed that patient safety can be compromised due to high workload and procedures and systems not sufficiently effective to reduce the occurrence of errors, causing serious problems for patient safety⁽³⁾.

The composite "Feedback and communication about error" (± 8), which had 39% of positive responses in the Brazilian hospital and 54% in the Portuguese hospital, revealed that there is a concern with the feedback on the notifications, especially regarding errors that occur within the unit. A study conducted in Palestine⁽²¹⁾ with 1,460 participants from 11 public hospitals found a 46% score in this composite, revealing that poor communication about error is a huge challenge for hospital organizations, since insufficient feedback and lack of communication regarding errors means that staff are less informed about errors that occur and the ways to prevent errors are not properly discussed. Communication is fundamental to unite the teamwork in health organizations^(1,3).

It is important to point out that the management of the Portuguese hospital introduced an innovation with a professional that exercises the function of interlocutor of quality and patient safety, mediating the communication between the professionals of the unit and the managers, thus assuring the continuity of the actions and continuous training and facilitating the transmission of information.

Finally, another composite with significant difference between the two hospitals was the "Staffing" (± 5) in the services to conduct the daily work, with 34% of positive responses in the Brazilian hospital and 43% in the Portuguese hospital. Given these results, the nurses in the hospitals revealed that the numbers of professionals in the services is not adequate to provide care to patients, so they need to work longer hours.

National and international studies have found similar results. A study in Portuguese hospitals⁽¹⁰⁾ with 884 professionals found a positive response score of 39%, the second lowest score in the study. In Brazil, two studies, one conducted in two hospitals in Rio de Janeiro, with 322 participants⁽⁹⁾, and another in Santa Catarina, in two intensive care units, with 91 professionals⁽¹⁴⁾, also found low evaluation scores (42% and 44%, respectively). A study conducted in Palestine with 3,229 nurses and physicians found a score of 38% related to the reduced number of professionals in the practice of care⁽²¹⁾.

It is known that inadequate staffing can cause damages to patients, compromising their right to risk-free health care⁽²²⁾. The optimization of resources that already exist in the services and the allocation of qualified nursing staff are essential for an adequate patient care⁽²³⁾. It should be noted that an overstaffed nursing team incur high costs, but understaffing can lead to lower efficiency of the service provided and cause a high impact on patient mortality⁽²⁴⁻²⁵⁾.

The main limitations of this work are the results which were found through the application of the instrument and, therefore, should not be analyzed separately, but complemented by other techniques and methods. Another limitation is the probable non-response bias, which is common on

survey studies and impairs the generalization of the results to the study population. In addition, the inclusion of only one professional category in the diagnosis of the safety culture can be pointed as a limitation, since this should be shared.

CONCLUSION

In this study, it was possible to conduct a benchmarking comparison of the composites of patient safety culture between a Brazilian hospital and a Portuguese hospital, according to the AHRQ methodology.

According to the Portuguese and Brazilian nurses in this study, the safety culture showed significant difference in seven dimensions: *Management support for patient safety*; *Handoffs and transitions*; *Teamwork across units*; *Overall perceptions of patient safety*; *Feedback and communication about error*; *Teamwork within units*; and *Staffing*.

It is hoped that the results of this research are useful and can support managers of the hospitals studied and other hospitals, allowing for advances and continuous improvement of patient safety culture.

RESUMO

Objetivo: Realizar um *benchmarking* entre as dimensões de cultura de segurança do paciente a partir da avaliação de enfermeiros brasileiros e portugueses que atuam em hospital universitário. **Método:** Estudo quantitativo, tipo *survey* transversal, comparativo. Dados coletados entre abril e dezembro de 2014, em dois hospitais de ensino, aplicando o instrumento *Hospital Survey on Patient Safety Culture*, nas versões traduzidas e adaptadas aos países. **Resultados:** Participaram do estudo 762 enfermeiros, 195 brasileiros e 567 portugueses, distribuídos em quatro serviços. Sete das 12 dimensões de cultura de segurança apresentaram diferenças significativas entre os hospitais. Destacaram-se aquelas relacionadas com: “suporte da gestão para a segurança” (± 17); “passagem de plantão e transferências” (± 15); “trabalho em equipe entre as unidades” (± 14); e “percepções gerais sobre segurança do paciente” (± 10). **Conclusão:** A dimensão que evidenciou maior diferença comparativa entre as instituições estudadas foi relacionada ao “suporte da gestão para a segurança”. Esses dados poderão servir de embasamento para os gestores dos hospitais do estudo, possibilitando avanços e melhorias contínuas.

DESCRITORES

Segurança do Paciente; Cultura Organizacional; Qualidade da Assistência à Saúde; Hospitais; Equipe de Enfermagem.

RESUMEN

Objetivo: Realizar un *benchmarking* entre las dimensiones de cultura de seguridad del paciente a partir de la evaluación de enfermeros brasileños y portugueses que actúan en hospital universitario. **Método:** Estudio cuantitativo, tipo *survey* transversal, comparativo. Datos recolectados entre abril y diciembre de 2014, en dos hospitales de enseñanza, aplicando el instrumento *Hospital Survey on Patient Safety Culture*, en las versiones traducidas y adaptadas a los países. **Resultados:** Participaron en el estudio 762 enfermeros, 195 brasileños y 567 portugueses, distribuidos en cuatro servicios. Siete de las 12 dimensiones de cultura de seguridad presentaron diferencias significativas entre los hospitales. Se destacaron aquellas relacionadas con: “soporte de la gestión para la seguridad” (± 17); “cambio de turno y transferencias” (± 15); “trabajo en equipo entre las unidades” (± 14); y “percepciones generales sobre seguridad del paciente” (± 10). **Conclusión:** La dimensión que evidenció mayor diferencia comparativa entre los centros estudiados estuvo relacionada con el “soporte de la gestión para la seguridad”. Dichos datos podrán servir de fundamento para los gestores de los hospitales del estudio, posibilitando avances y mejorías continuas.

DESCRIPTORES

Seguridad del Paciente; Cultura Organizacional; Calidad de la Atención de Salud; Hospitales; Grupo de Enfermería.

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