

Organizational indicator of safety culture in a university hospital

Indicador organizacional da cultura de segurança em um hospital universitário

Indicador organizacional de la cultura de seguridad en un hospital universitario

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ABSTRACT

Objective: to evaluate the organizational safety culture of a Portuguese university hospital on the basis of nurses' perceptions. **Method:** this cross-sectional, survey-type study of 567 nurses at a university hospital in Porto, Portugal, was conducted from April to December 2014, using the Survey on Patient Safety Culture instrument. For the analysis, the Likert Scale was recoded, and descriptive statistics were used. **Results:** the dimensions that returned high percentage positive responses were: *Teamwork within units* (78.69%) and *Supervisor Expectations and Actions Promoting Patient Safety* (65.94%). It was found that 248 (44.4%) of personnel did not report any event, and only 13 (2.3%) had reported more than six events in the prior year. **Conclusion:** the assessment identified one strong dimension in the organization, and some weaknesses. The results are significant and offer a foundation for nursing managers and leaders to improve safety culture.

Descriptors: Organizational culture; patient safety; hospitals; quality of nursing care.

RESUMO

Objetivo: avaliar a cultura de segurança organizacional de um hospital universitário português a partir da percepção dos enfermeiros. **Método:** estudo transversal, tipo survey, com 567 enfermeiros de um hospital universitário do Porto, Portugal, realizado de abril a dezembro de 2014. Utilizou-se o instrumento do *Hospital Survey on Patient Safety Culture*. Para análise, realizou-se a recodificação da Escala de Likert e aplicou-se a estatística descritiva. **Resultados:** as dimensões que apresentaram percentual elevado de respostas positivas foram: *Trabalho em equipe dentro das unidades* (78,69%) e *Expectativa e ações de promoção de segurança do paciente dos supervisores* (65,94%). Evidenciou-se que 248 (44,4%) profissionais não notificaram nenhum evento e apenas 13 (2,3%) notificaram mais de seis eventos no último ano. **Conclusão:** a avaliação permitiu identificar uma dimensão forte e algumas fragilidades da organização. Os resultados são relevantes e servem de embasamento para os gestores e líderes de enfermagem, permitindo avançar na cultura de segurança.

Descritores: Cultura organizacional; segurança do paciente; hospitais; qualidade da assistência de enfermagem.

RESUMEN

Objetivo: evaluar la cultura de seguridad de la organización de un hospital universitario portugués desde el punto de vista de las enfermeras. **Método:** estudio transversal, tipo encuesta, junto a 567 enfermeros de un hospital universitario en Oporto, Portugal, que tuvo lugar entre abril y diciembre de 2014. Utiliza el instrumento de *Hospital Survey on Patient Safety Culture*. Para el análisis, se realizó recodificación de la Escala de Likert y se utilizó la estadística descriptiva. **Resultados:** Las dimensiones que presentaron un alto porcentaje de respuestas positivas fueron: *Trabajo en equipo dentro de las unidades* (78,69%) y *Expectativa y acciones de promoción de seguridad del paciente de los supervisores* (65,94%). Se evidenció que 248 (44,4%) de los profesionales no notificaron ningún evento y sólo 13 (2,3%) notificaron más de seis eventos el último año. **Conclusión:** la evaluación permitió identificar una dimensión fuerte y algunas fragilidades de la organización. Los resultados son relevantes y sirven de base para los gestores y líderes de enfermería, permitiendo avanzar en la cultura de seguridad.

Descriptorios: Cultura organizacional; seguridad del paciente; hospitales; calidad de la atención de enfermería.

INTRODUCTION

The safety culture is composed of open communication, teamwork, recognition of mutual dependence, organizational learning from reporting of events and the primacy of safety as a priority at all levels of the organization¹.

In Portugal, such theme became more evident, based on the recommendation of the Directorate General of Health (DGS). This recommendation proposes the systematic dissemination of the safety culture and the biennial evaluation in every hospital organization in the country, in which safety culture was considered as one of the principles of risk management directed towards the quality of care and patient safety².

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In this regard, it is understood that safety culture is transversal to all disciplines and can interfere directly, both in the performance of the organization and in the provision of health care to the patient.

For this reason, this study aims to contribute to the area of patient safety, particularly involving nurses from a university hospital in Portugal. It is known that, in general, nurses have a huge influence on the organizational culture safety, since, quantitatively, it is the largest professional health group that remains for a long time next to the patient. In addition to having specific skills and abilities in the identification, planning, implementation and assessment of health care³.

Thus, assessing the patient's organizational safety culture is extremely relevant and allows a broader view of the organizational indicators. It is recommended, above all, that it be carried out before the implementation of strategies, and it may help the organization's managers and nursing leaders in identifying the areas of strengths and weaknesses.

This study was part of a joint doctorate that included benchmarking involving two university hospitals, one in Brazil and the other in Portugal.

Considering the relevance and currentness of the subject, it is aimed at assessing the organizational safety culture of a Portuguese university hospital, based on the nurses' perception.

LITERATURE REVIEW

The term safety culture was introduced after the Chernobyl nuclear accident in 1986, where a poor safety culture was considered the main cause of the disaster. It is worth mentioning that aviation is known for the use of consistent strategies and robust methodologies to systematically mitigate risk, thus avoiding incidents⁴.

In health, it was based on the publications on patient safety in Harvard Medical Practice Study and the *To Err is Human* report by the *Institute of Medicine*⁵. Both studies had an effect on health professionals, managers and, above all, society, for revealing the risks arising from the provision of health care. Organizations, to be safer, must require a collective effort by the organization and promote the dissemination of a positive safety culture⁶.

Both studies contributed to further research, regulation of public policies and in-depth analysis of incidents, based on organizational and non-individual factors. It is known that one of the causes of the increasing number of incidents has been the complexity of health systems, as well as the high-risk and potentially dangerous individual, professional, technological, organizational and therapeutic factors, which make patient safety a relevant issue⁷.

However, it is assumed that zero error in health care is unlikely to happen, since it is inherent to the nature of human work, although it is avoidable and has multifactorial aspects⁸.

The World Health Organization (WHO) took the lead in the patient safety issue, and, in 2009 published the *Global Priorities for Patient Safety Research* report, establishing deficient research areas, highlighting the implementation of patient safety culture in health services¹.

The Agency for Healthcare Research and Quality (AHRQ) recommends that health organizations use safety culture assessment to identify the health professional's understanding of patient safety; diagnose and assess the current status of patient safety culture; identify the strengths and areas of improvement of patient safety culture; examine the trends of change to patient safety culture over time; evaluate the impact of patient safety culture on initiatives and interventions; and perform internal and external comparisons⁹.

In view of the above and in the context of global concern about the issue, advances in international research on patient safety culture in the hospital environment need to be carried out as an essential condition for changes to be introduced in the behavior of health professionals and in the environments of health care organizations, thus achieving better safety levels¹⁰.

METHODOLOGY

This study is a cross-sectional survey, with a quantitative approach. The AHRQ methodology was used to assess the safety culture¹¹.

The study was carried out in a university hospital, in Porto, Portugal. The institution has as purpose to promote assistance, education and research. There is a structured and multidisciplinary office to manage quality, risk, hygiene, health and safety.

The tool used was the *Hospital Survey on Patient Safety Culture* (HSOPSC) in the translated version culturally adapted for Portugal¹⁰. This tool is the same as that adopted by DGS in the biennial national assessment. It has the advantage of being self-applicable, contains 42 items, distributed in 12 safety culture dimensions. Items are graded in the form of the Likert Scale, in five response choices, ranging from 1 (strongly disagree or never) to 5 (strongly agree or always). See Figure 1.

Dimensions
D1 - Teamwork within units
D2 - Expectations and actions of promotion of patient safety by the supervisors
D3 - Organizational learning
D4 - Feedback and communication regarding errors
D5 - Communication openness
D6 - Adequacy of personnel
D7 - Nonpunitive responses to errors
D8 - Management support for patient safety
D9 - Teamwork across units
D10 - Handoffs or internal transfers
D11 - General perceptions of patient safety
D12 - Frequency of events reported

FIGURE 1: Patient safety culture dimensions from *Hospital Survey on Patient Safety Culture*. Porto (PT), 2018.

The data gathering technique used was a tool in paper format, since it allows better response rate in a safety culture study, carried out from April to August 2014. The total population was composed of 608 nurses. The sample was intentional, rather than probabilistic, and the following inclusion criteria were used: to have been working in the institution for at least six months and providing nursing care; and the exclusion criteria was being on vacation or leave and those who answered less than 50% of the questions and/or with at least one full section not completed^{9,11}.

After the wide dissemination in the internal communication system of the hospital, the participants were approached directly in their work unit, individually, for the additional invitation and communication about the research. The study was authorized by the directors and members of the management boards and nurses of the hospital and was approved by the Health Ethics and Research Committee, through protocol no. 2014.032 (024-DEFI/031-CES). Participants who agreed to the research signed the Informed Consent Form (ICF).

In order to compose the percentage of positive responses; the participants' responses – strongly agree/agree – were considered for those positively worded questions. The negatively worded questions, in their turn, underwent a recoding for presentation of results and analysis. A strong safety culture was considered to be a result $\leq 75\%$ positive responses, and a poor safety culture $\geq 50\%$ of positive responses, and neutrality for values from 51 and 74%.

The data collected were organized and stored through double typing, followed by statistical treatment, according to the *Statistical Package for Social Science*® (SPSS) 21.0 and *Microsoft Office Excel*® 2013.

The sociodemographic variables were gender, professional experience in the unit, hours worked and direct contact with the patients. These variables were analyzed according to their absolute and percentage values. For the analysis and interpretation of the results, the recoding of the *Likert Scale* was performed, and the positive response scores were the analysis indicator.

RESULTS

567 nurses answered the questionnaire, representing 91.40% of the target population. Among the participants, most of them, 453 (80.60%) were women and 112 (19.90%) had more than 21 years of professional experience. The participants' mean age was 38 years (± 8.40).

Regarding the weekly working hours, 492 (87.40%) reported working from 40 to 59 hours per week. Regarding the activities performed, 561 (99.10%) reported direct contact with the patients.

The *Cronbach's Alpha* coefficient was measured in order to analyze the reliability of the tool for the reality of the population being studied. All dimensions studied obtained a coefficient greater than 0.50. The dimensions that showed the greatest coefficient value were *Expectations and actions of promotion of patient safety by the supervisors* followed by *Management support for patient safety* and *Teamwork within units*, all with a coefficient greater than 0.70. See Table 1.

TABLE 1: Values obtained by applying Cronbach's Alpha Coefficient and comparing national and international studies. Porto (PT), 2018.

Dimensions	Portuguese Hospital	Sorra and	Cruz	Pimenta
		Nieva (2007) USA	(2018) Brazil	(2013) Portugal
D1 Teamwork within units	0.72	0.83	0.63	0.75
D2 Expectations and actions of promotion of patient safety by the supervisors	0.75	0.75	0.67	0.74
D3 Organizational learning	0.67	0.76	0.49	0.66
D4 Feedback and communication regarding errors	0.70	0.78	0.68	0.69
D5 Communication openness	0.69	0.72	0.67	0.59
D6 Adequacy of personnel	0.53	0.63	0.49	0.47
D7 Nonpunitive responses to errors	0.60	0.79	0.47	0.54
D8 Management support for patient safety	0.74	0.83	0.77	0.73
D9 Teamwork across units	0.68	0.80	0.59	0.72
D10 Handoffs or internal transfers	0.66	0.80	0.66	0.73
D11 General perceptions of patient safety	0.62	0.83	0.47	0.65
D12 Frequency of events reported	0.82	0.84	0.81	0.92
Total Average	0.68	0.78	0.61	0.68

When assessing the safety culture among the 12 dimensions, it was evidenced that the positive responses showed higher percentage, in dimension *Teamwork within units* and *Expectation and actions of promotion of patient safety by the supervisors* with 78.69% and 65.94% respectively. However, according to AHRQ, only the first dimension has reached the level of strength of safety culture, since this only occurs with more than 75% of positive responses for a given dimension. See table 2.

TABLE 2: Results of the assessment of Patient Safety Culture dimensions. Porto (PT), 2018.

Dimensions	Mean percentage		
	Negative Response	Neutral Response	Positive Response
D1 Teamwork within units	7.06	14.26	78.69
D2 Expectations and actions of promotion of patient safety by the supervisors	11.39	22.92	65.94
D3 Organizational learning	9.64	25.66	64.70
D4 Feedback and communication regarding errors	12.33	33.69	53.98
D5 Communication openness	12.31	31.82	55.86
D6 Adequacy of personnel	33.63	23.17	43.20
D7 Nonpunitive responses to errors	39.98	32.32	27.70
D8 Management support for patient safety	16.73	34.99	48.28
D9 Teamwork across units	11.76	37.29	50.97
D10 Handoffs or internal transfers	11.46	22.88	65.66
D11 General perceptions of patient safety	18.31	25.34	56.35
D12 Frequency of events reported	39.85	30.43	29.73

Regarding the dimensions assessed, it is noticed that although only one dimension has reached the level of strength, many dimensions showed a higher frequency of positive responses.

In this same sense, the dimensions that showed the greatest weakness, that is, the lowest percentage of positive response, were those related to *Nonpunitive response to errors*, *Frequency of events reported* and *Adequacy of personnel*.

In relation to indicator *Patient safety scores*, most of the health professionals classified patient safety as very good – 272 (49.00%), followed by average – 255 (45.90%), poor – 13 (2.30%), excellent – 12 (2.20%) and very poor – 3 (0.50%).

The number of adverse events reported was also analyzed and it was found that 248 (44.40%) health professionals did not report any event, 190 (34.00%) reported one or two events, 108 (19.30%) from three to six and only 13 (2.30%) reported more than six events in the past year.

DISCUSSION

The percentage of responses from the Portuguese university hospital was higher when compared to the national report itself^{1,10}. It is assumed that this value was reached by choosing the technique of data collection in paper format, which is different from the electronic technique adopted at national level.

It was found that the calculation of the *Cronbach's Alpha* coefficient for the 12 safety culture dimensions showed a mean (0.68) similar to another Portuguese study¹². There is evidence of variation in results by conducting the *Cronbach's Alpha* test in several countries, which is justified by some phenomena, such as: sample size, respondent's interpretation, number of questions per dimension and cultural diversity, which may require adjustments to the questions in the questionnaire^{9,11}.

In this sense, the value varies from 0 to 1, where 1 means better reliability of the tool; a value above 0.70 is accepted, but in the field of social sciences a value of up to 0.60 is acceptable, which guarantees high instrument reliability¹³.

Regarding the dimensions of safety culture, only one dimension *Teamwork within units* showed to be strong in the hospital studied, evidencing that professionals support each other, treat each other with respect and work together as a team. As a possible explanation for this fact, one can emphasize that the nurses at the studied hospital have worked for a longer time in such profession.

Regarding the dimensions with the greatest safety culture weaknesses, in the Portuguese hospital studied, there are *Nonpunitive response to errors* (27.70%), *Frequency of events reported* (29.73%) and *Adequacy of personnel* (43.20%).

These results show that the prevailing perception of nurses is the idea of punitive culture against the errors committed, low frequency of incidents reported and insufficient number of professionals to promote health care. Two other Portuguese studies corroborate the same results found, mainly because punishing errors interferes directly in the frequency of events reported by the professionals^{12,14}. In fact, these dimensions require intervention with the institution's managers to reverse such result, aiming at a safety culture based on transparency, trust, organizational learning and communication of errors¹⁵.

There is a tendency to stigmatize and punish fallibility, in which error equals incompetence. This may be one of the reasons that may lead the professional not to report events, out of fear that they would be punished, exposed before co-workers and even dismissed from the organization¹⁶.

This finding prevails in safety culture studies, as can be observed in a study involving 1,460 health professionals, also revealing the existence of a punitive and guilt culture. The researchers pointed out that this dimension is the main challenge of improvements for safe health care to hospital patients¹⁷.

The same was also found in another research involving 3,689 medical-surgical unit nurses, in which the fear of reporting the error persists, meaning problem and fragile attribute, which require strategies to overcome them¹⁸.

In health, human error can occur as a result of isolated or multiple factors, and it may be inherent to the patient or institutional-, financial- or structural resource-related, besides the human factor itself, such as lack of competence and skill¹⁵. The first step for understanding and preventing human error is to know the likelihood of it happening, in addition to its types, causes and consequences¹⁹.

In Portugal, through the National Patient Safety Plan, it was recommended that reporting of events be made by professionals with the purpose of monitoring, analyzing and investigating the incidents, and it may be both an internal system and a system external to the hospital organization²⁰. Although the institution studied has the internal and external system in place, it is known that such implementation, by itself, is not sufficiently relevant to make the act of reporting frequent. It is estimated that much more is needed to improve this indicator related to reporting events.

It is believed that the adequate amount of events reported is not directly related to the existence or not of an institutional reporting system, since the hospital concerned has both systems classified as cohesive, confidential and independent.

Regarding the adequacy of personnel, it is noticed, in this study, that Portuguese nurses work more hours per week to provide care to patients. In view of the above, dimensioning in nursing is an initial stage of the staffing process that aims to review the number and quality of professionals required to directly and indirectly meet nursing care



needs²¹. When this requirement is inadequate, it is known that it can cause harm to the patient and compromise the right to health care, free of risks inherent to the care provided.

This issue was also described in a study that revealed a positive association between inadequate dimensioning and the appearance of damage to the patient's health, highlighting that if the number of nursing professionals were adequate, the risk of pneumonia associated with mechanical ventilation would be reduced by 53%²². Likewise, another research involving nine hospitals showed a positive association between patient fall prevention and staff turnover and high workload²³.

The nurses at the Portuguese university hospital gave a very positive score to patient safety at the institution. The characterization of the Portuguese institution shows greater solidity in the assessment processes and seems to be well prepared for the patient safety measure, perhaps because it is an accredited institution and has a patient safety nucleus with years of experience.

Finally, it is understood that no patient seeks the health care system hoping that their condition will get worse, as a result of incidents suffered in the care process or due to a procedure performed. In this sense, it is expected that nursing professionals will be engaged in their responsibilities, commitments, training, updating and in compliance with institutional rules in order to safely develop daily activities²⁴. Everyone needs to be aware of the risks inherent in health care, because in complex systems, as is the case with health, activities generally have high reliability⁴.

CONCLUSION

It was possible to assess the organizational safety culture of a Portuguese university hospital, based on the nurses' perception, according to the AHRQ methodology.

In this study, the safety culture in the studied Portuguese hospital revealed strength only in one dimension *Teamwork within units*, and the greatest weaknesses were for dimensions *Nonpunitive response to errors*, *Frequency of events reported* and *Adequacy of personnel*.

In short, the results of this research are relevant and serve as a basis for the organization's managers and nursing leaders, so as to support future advances and the implementation of patient safety strategies.

The main limitations of the article refer to the safety culture diagnosis performed by nurses and to the application of a single methodology. Further studies should deepen the analysis of organizational culture, with an emphasis on patient safety.

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