

SAFETY CULTURE AMONG HEALTH PROFESSIONALS IN A TEACHING HOSPITAL

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ABSTRACT: Objective: assess the safety culture among health professionals of a teaching hospital. Method: Cross-sectional survey-type study with 645 professionals of a teaching hospital of the State of Paraná, from October 2014 to July 2015, through the use of a self-administered instrument of the Agency for Health care Research and Quality. Quantitative variables were represented in percentage values: the safety culture was considered satisfactory if $\geq 75\%$ of the responses were positive; neutral, if 74 to 51% of the responses were positive, and fragile, if $\leq 50\%$ of the responses were positive. Reliability was measured by Cronbach's alpha coefficient. Results: the highest value was obtained for dimension "Expectations about your supervisor/boss and safety-promoting actions", with 70.8% (n=455) of positive responses and "Non punitive responses to error" obtained the lowest value, with 25.6% (n=164). The Cronbach's alpha coefficient obtained an average of 0.62, showing low reliability Conclusion: The results reveal an unsatisfactory safety culture and stress the importance of actions targeted to the promotion of a safety culture, with emphasis to a collective and non-punitive approach to errors.

DESCRIPTORS: Organizational culture; Health personnel; Patient safety; Quality management; Indicators of healthcare quality.

CULTURA DE SEGURANÇA ENTRE PROFISSIONAIS DE SAÚDE EM HOSPITAL DE ENSINO

RESUMO: Objetivo: avaliar a cultura de segurança organizacional entre os profissionais de um hospital de Ensino. Método: estudo tipo survey com 645 profissionais de um hospital de ensino no Estado do Paraná, de outubro de 2014 a julho de 2015, utilizando instrumento autoaplicável da Agency for Health care Research and Quality. Variáveis quantitativas foram representadas em percentuais; quando $\geq 75\%$ das respostas foram positivas, cultura de segurança satisfatória; 74 a 51% neutra; e $\leq 50\%$ frágil. A confiabilidade foi mensurada pelo coeficiente Alfa de Cronbach. Resultados: maior índice foi obtido na dimensão "Expectativas sobre o seu supervisor/chefe e ações promotoras da segurança", com 70,8% (n=455) de respostas positivas e "Respostas não punitivas ao erro" o menor, com 25,6% (n=164). O coeficiente Alfa de Cronbach obteve média de 0,62, mostrando baixa confiabilidade. Conclusão: resultados mostram cultura de segurança insatisfatória e relevância de ações de promoção, com destaque à abordagem coletiva e não punitiva de erros.

DESCRIPTORIOS: Cultura organizacional; Pessoal de saúde; Segurança do paciente; Gestão da qualidade; Indicadores de qualidade em assistência à saúde.

CULTURA DE SEGURIDAD ENTRE PROFESIONALES DE SALUD EN HOSPITAL DE ENSEÑANZA

RESUMEN: Objetivo: Evaluar la cultura de seguridad organizacional entre los profesionales de un hospital de enseñanza. Método: Estudio tipo survey con 645 profesionales de un hospital de enseñanza en Estado de Paraná, de octubre de 2014 a julio de 2015, con instrumento auto aplicable de Agency for Health care Research and Quality. Variables cuantitativas fueron representadas en porcentajes; cuando $\geq 75\%$ de las respuestas fueron positivas, cultura de seguridad satisfactoria; 74 a 51% neutra; y $\leq 50\%$ débil. La confiabilidad fue mensurada por el coeficiente Alfa de Cronbach. Resultado: Mayor índice fue obtenido en la dimensión "Expectativas sobre el supervisor/jefe y acciones promotoras da seguridad", con 70,8% (n=455) de respuestas positivas y "Respuestas no punitivas al error" el menor, con 25,6% (n=164). El coeficiente Alfa de Cronbach obtuvo media de 0,62, presentando baja confiabilidad. Conclusión: Los resultados muestran cultura de seguridad insatisfactoria y relevancia de acciones de promoción, destacándose abordaje colectivo y no punitivo de errores.

DESCRIPTORIOS: Cultura organizacional; Personal de salud; Seguridad del paciente; Gestión de la cualidad; Indicadores de cualidad en asistencia a la salud.

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● INTRODUCTION

Patient safety has been defined by the World Health Organization as the reduction of risk of unnecessary harm associated with healthcare to an acceptable minimum⁽¹⁾. Therefore, it is assumed that a zero error goal is unlikely to be achieved in healthcare. Although adverse events and incidents are inherent to healthcare, they are preventable and can be caused by multiple factors. Better work conditions related to infrastructure, organization, qualification and workforce contribute to prevent harm.

The set of values, commitments and competences of a health organization contribute to the promotion of patient safety and represent a culture of organizational safety⁽¹⁾. This culture directly influences the quality of care provided, through the attitudes of professionals and leaders aimed to implement measures and solutions that minimize risks and avoidable harm⁽²⁾.

The concept of safety culture emerged in the industrial sector after the nuclear disaster in Chernobyl, and regulates and investigates organizational factors, rather than individual factors. Likewise, its use in healthcare reiterates the importance of the health organization's global vision, rather than individual actions, to address errors⁽³⁾. Thus, the culture of organizational safety consists of a set of shared beliefs that support safe practices among its health professionals. Such a culture is marked by open communication, teamwork, recognition of mutual dependence and the primacy of security as a priority at all levels of the organization⁽¹⁾.

To ensure high-quality and safe healthcare, it is necessary that a culture of safety is discussed in health institutions, and the management should encourage health professionals to promote safety⁽³⁾. In an attempt to assess the safety culture in health institutions, the tool Hospital Survey on Patient Safety Culture (HSOPSC) was developed in 2004 by the Agency for Health Care Research and Quality (AHRQ). In Brazil, this instrument has been translated and transculturally adapted by Reis⁽⁴⁾ and consists of 12 dimensions of the safety culture, which show the strengths and weaknesses of safety, and contribute to the planning of actions targeted to the promotion of safety in the care delivered in hospital services.

Aware of the relevance and the timeliness of this topic, the present study aimed to assess the organizational safety culture in a teaching hospital in the State of Paraná.

● METHOD

This is a cross-sectional survey with a quantitative approach. The site of the study comprised the services and health care units of a large teaching hospital in Curitiba-PR. Data were collected between October 2014 and July 2015, with the use of the HSOPSC questionnaire translated and validated for Brazil⁽⁴⁾.

The HSOPSC is a self-administered questionnaire with 50 items, of which, 44 concern safety culture and six concern personal information. Of the 12 dimensions of the organizational safety culture, three are related to the hospital, seven to the unit where the professional performs his/her duties and two are variables of results, related to the respondent's view about the degree of safety assigned to the hospital and to the number of events reported by the respondent. Most items are answered with the use of a five-point agreement or frequency scale⁽⁵⁾.

Responses were positive when the participants agreed/fully agreed with positively worded items. Responses to negatively worded items were reversed for the presentation of the results and the analysis. When $\geq 75\%$ of the responses are positive, the dimension is considered strong for patient safety, and results $\leq 50\%$ indicate weak dimensions and need for improvements in patient safety⁽⁵⁾. Neutral responses are those whose response rate ranges between 51 and 74%.

The internal consistency of the dimensions was analyzed using Cronbach's Alpha coefficient to measure the reliability of the HSOPSC. This coefficient is commonly used to measure internal consistency and suitable when the instrument is administered only once to a given sample. Cronbach's alpha values range from 0 to 1, and values closer to 1.0 indicate greater internal consistency of the dimensions, and hence greater reliability of the instrument⁽⁴⁾.

Non-probability sampling was used. The target population consisted of 1,807 professionals and workers who perform their activities in the hospital, with a minimum weekly working load of 20 hours and a predominantly providing direct care to patients. The participants who answered less than 50% of the items and/or with at least one entire section not completed⁽⁵⁾ were excluded. After extensive dissemination of the survey by the hospital's media, the target population was directly contacted in the workplace, individually and/or in groups. During these contacts, the health professionals were invited to participate in the study and received additional information on the survey. Specific sites were also made available for clarification and data collection. All ethical standards regarding research with human subjects were observed, and the present study was approved by the Research Ethics Committee of the health institution under protocol CEP/SD 241.958.

A database was organized with Microsoft Office Excel® software, and the double data entry procedure was adopted followed by checking and correction of inconsistencies. The results of the quantitative variables were described by mean, standard deviation, median, minimum value and maximum value. The qualitative variables were presented as frequencies and percentages. For each of the dimensions, Cronbach's Alpha was estimated and the data were analyzed using IBM SPSS Statistics v.20 software and statistical professional advice.

● RESULTS

Seven hundred and forty-four (744) professionals completed the questionnaire, which represents 41.17% of the target population. Ninety-nine were excluded after application of the exclusion criteria, and the final sample of participants accounted for 35.69% (n = 645) of the target population.

The results obtained concern the items answered by the participants, and these were characterized as follows: 88% (n = 568) were women; 22% (n = 142) had completed a university course and 34.2% (n = 221) had a specialization. The mean age ranged from 33.9 to 49.9 years, with a median age between 26 and 50 years, with a standard deviation between 6.9 and 12.3 years. Among the respondents, 29.5% (n = 190) had been working in the hospital for 11-20 years and 31.3% (n = 202) have been working in the hospital for more than 20 years. However, 21.5% (n = 139) were performing their work activities in the unit for less than one year and 27.9% (n = 180) between one and five years.

Regarding the weekly workload, 58.3% (n = 376) reported working from 20 to 39 hours a week; 81.8% (n = 528) did not work in another hospital, and among those who had two jobs, 40% (n = 48) reported an additional workload of less than 20 hours and 48.7% (n = 57) between 20 and 39 hours more per week. Regarding the shift, 34.4% (n = 222) of the participants reported working full time, 16.3% (n = 105) in the afternoon and 12.2% (n = 79) at night.

The participants had been working in their position for 16 years on average, 89.5% (n = 566) mostly provided direct care to patients and 84.6% (n = 535) had direct contact with the patients. Most of the sample consisted of nursing professionals (Table 1).

Table 1- Positions of the participants of the survey on the organizational safety culture. Curitiba, PR, Brazil, 2015

Position	Target population		Participants		Relationship between the number of participants and the target population %
	n	%	n	%	
Nursing Assistant	485	26.8	176	27.8	32.3
Nurse	240	13.3	108	17.1	45
Nursing Technician	189	10.5	72	11.4	38.1
Physician	332	18.4	32	5.1	9.6
Resident doctor/in training	320	17.7	30	4.7	9.4
Other higher-level positions*	128	7.1	106	16.8	82.8
Other medium-level positions**	113	6.2	108	17.1	95.6
Total	1807	100	632	100	35

Note: 13 participants did not answer

* Social Assistant; Occupational Therapist; Psychologist, Dentist, Nutritionist, Speech Therapist, Physiotherapist, Pharmacist.

** Laboratory Technician; Nursing Attendant Nutrition Assistant, Administrative Assistant, Surgical Instrument Technician.

Table 2 presents the results of the organizational safety culture in each of the 12 dimensions. None was considered strong ($\geq 75\%$). Four were considered neutral (51 to 74%), with emphasis on “Expectations about your supervisor/boss and safety-promoting actions” and “Teamwork within the units”; and eight dimensions were considered weak ($\leq 50\%$), the most critical being “non-punitive responses to error”.

Table 2 – Dimensions of the safety culture of the organization (N=642). Curitiba, PR, Brazil, 2015

Dimension	Average percentage		
	Negative Response	Neutral Response	Positive Response
1. Teamwork within the workers' units	21.9	10.1	68
2. Expectations about your supervisor/boss and safety promoting actions	13.9	15.4	70.8
3. Organizational learning – continuous improvement	18	15.9	66.1
4. Management support to patient safety	35.8	25.1	39.1
5. General perception of patient safety	40.9	12.4	46.7
6. Feedback of the information generated and communication of errors	24.4	29.6	46.1
7. Communication openness	18.9	25.9	55.2
8. Frequency of event reporting	28.6	22.2	49.2
9. Teamwork across hospital units	40.2	25	34.8
10. Adequacy of the professionals	47.9	14.9	37.1
11. Handover/shift changes and transition in care	43.4	22	34.6
12. Non-punitive responses to error	58	16.4	25.6

Regarding the answers to the items in each dimension, we highlight as positive results the answers to the questions “We are actively contributing to improve patient safety” with 82.9% (n = 532) and “My boss/supervisor overlooks patient safety problems that happen over and over, “with 81.6% (n = 524). These questions concern dimensions one and two (Teamwork within units and Expectations about your supervisor/boss and safety-promoting actions), respectively.

Negative results were obtained for the items “Patient safety is never jeopardized by the greater amount of work to be done”, reported by 32.8% (n = 211), “There are patient safety problems in this unit”, reported by 38.2% (n = 245), both from dimension nine (Teamwork within the workers' units) and “There is lack of coordination among hospital units” by 26.2% (n = 168), from dimension six (Feedback of the information generated and communication of error).

However, the items that obtained the highest level of negative responses were “There are enough professionals to meet the work demands” with 72.6% (n = 466) and “The professionals believe their reported errors can be held against them” with 63.6% (n = 408) of respondents, both from dimension nine (Teamwork within the workers' units).

The scores assigned by the participants to patient safety were, respectively, Very Good (48.9%), Regular (38.5%), Excellent (7.3%), Bad (4.2) and Very Bad (1, 1%). Regarding the reporting of adverse events over the twelve months prior to the survey, 365 (56.6%) said they have never reported adverse events. Nurses were the health professionals who mostly reported adverse events, compared to physicians and the other professionals of the nursing team (Table 3).

Table 3 – Number of adverse events reported according to the professional occupation. Curitiba, PR, Brazil, 2015

Number of events	% per professional occupation					
	General	Nurse	Nursing Technician	Nursing Assistant	Physician	Resident doctor/ in training
None	56.6	20.4	51.4	70.5	56.3	46.7
1-2	20.1	13.9	33.3	18.8	31.3	36.7
3-5	11.9	31.5	8.3	6.3	-	13.3
6-10	6.9	20.4	4.2	3.4	3.1	3.3
11-20	2.3	8.3	-	0.6	3.1	-
≥21	2.2	5.6	2.8	0.6	6.3	-

The reliability of the instrument, measured by Cronbach's Alpha coefficient, obtained an average of 0.62. The dimensions "Non-punitive responses to error" and "General perception of patient safety" obtained the lowest value (0.47). The "Frequency of event reporting" and "Management support to patient safety" dimensions obtained the highest values, with 0.81 and 0.77, respectively (Table 4).

Table 4 – Values of Cronbach's alpha coefficient for each dimension of organizational culture of safety. Curitiba, PR, Brazil, 2015

Dimension	Number of items	Cronbach's alpha
Teamwork within the workers' units	4	0.63
Expectations about your supervisor and safety promoting actions	4	0.67
Organizational learning – continuous improvement	3	0.49
Management support to patient safety	3	0.77
General perception of patient safety	4	0.47
Feedback of the information generated and communication of the error	3	0.68
Communication openness	3	0.67
Frequency of event reporting	3	0.81
Teamwork across hospital units	4	0.59
Adequacy of the professionals	4	0.49
Handover/shift changes and transitions in care	3	0.66
Non-punitive responses to error	3	0.47

● DISCUSSION

The results obtained with the administration of the questionnaire provided us with elements to assess the safety culture in several aspects, although no dimension has shown satisfactory results, revealing weak areas of the safety culture in the 12 dimensions. Regarding the reliability of the instrument, we stress the low internal consistency in most of the dimensions investigated.

These results are of concern given the relationship between low safety culture scores and the occurrence of adverse events⁽⁶⁾ as well as the internal consistency observed in the use of this instrument in the health institution where the study was conducted.

The findings of this study are similar to those from a study conducted in three intensive care units that administered the same tool. 75.4% of positive responses were obtained for dimension two

(Expectations about your supervisor/boss and safety promoting actions), 75⁽⁷⁾. The AHRQ report⁽⁸⁾, related to data from 600 hospitals of the United States, showed similarity, with 78% positive responses.

The present study showed that this dimension is strong for patient safety culture in the institution (70.8%), as the leaders take into consideration the suggestions and opinions of the staff to promote patient safety and encourage employees to adhere to safety standards, communicate errors and learn from these errors and promote the necessary changes. This is expressed in the item "My supervisor/boss overlooks patient safety problems that happen over and over" to which 81.6% of professionals said they "disagree" or "disagree completely."

The item "We are actively contributing to improve patient safety", from dimension three (Organizational learning - continuous improvement), obtained the highest percentage of positive responses (82.9%). This reinforces the fact that, despite the shortage of professionals and a punitive organizational culture regarding errors, the health professionals are concerned about patient safety, developing constant actions and identifying situations that may have a negative impact on care.

Regarding dimension 12 (Non-punitive responses to error), there was a lower percentage of positive responses, which is similar to a study conducted in São Paulo⁽⁷⁾ as well as in a study involving US hospitals⁽⁸⁾, with 29.6% and 45%, respectively, when compared to the results of this study (25.6%). On the other hand, we perceive that the punitive culture of errors is also a weakness in health institutions, not only in Brazil. Still, the punitive approach to error persists, with errors seen as consequences of personal factors that result from lack of skill of the health worker in performing his/her professional duties or neglect. However, errors result from a set of sequential failures in the health system, and not because of an isolated factor, such as carelessness⁽⁹⁾.

Studies have demonstrated that errors resulting from a set of failures should not be addressed as isolated incidents. Therefore, in to ensure that a non-punitive response to error is identified as a strong dimension in patient safety culture, it is necessary to expose the failures of the system, without punishing individuals for what is mistakenly regarded as an isolated incident⁽¹⁰⁾. A predominantly individual approach does not favor the necessary changes in the organization. A punitive culture may discourage adverse event admission and reporting, preventing organizational learning⁽¹⁰⁾.

In this regard, in the present study there was a high percentage of health professionals who said they had not reported any adverse events over the past twelve months or one to five adverse events (88.6%), indicating a low adherence to the reporting system of the hospital. These results corroborate a study conducted in Bahia, in which approximately 88% of the professionals had not reported adverse events⁽¹¹⁾.

Another aspect that reinforces this issue was the item "Professionals believe their errors can be held against them", from dimension 12 (Non-punitive responses to error), in which 63.6% "agree" or "totally agree" indicating they feel intimidated and unable to effectively communicate their errors. In a study carried out in southeastern Brazil, 72.5% of the professionals said their errors could be held against them⁽¹²⁾. These findings reinforce other Brazilian surveys that reported health workers' difficulty to address healthcare-related errors⁽¹³⁻¹⁴⁾.

Dimension one (Teamwork across hospital units) showed the highest percentage of positive responses (82%) in the North-American report⁽⁸⁾, and in the present study 68% positive responses were obtained. The scores of this dimension were similar to those from other Brazilian studies that identified values lower than the minimum required for a dimension to be considered strong for patient safety^(11,13-14).

Another factor that should be stressed is work overload due to understaffing. "We have enough an adequate number of professionals to handle the workload", from dimension 10 (Adequacy of professionals), was the item that obtained the highest percentage of negative responses, with 72.6%. This percentage was high due because most of these responses were provided by nursing professionals, which are the most numerous professionals of hospital institutions. A study carried out in two intensive care units of Brazilian public hospitals found that approximately 78% of the adverse events that did not result in injuries and of adverse events in patients were related to nursing care, being attributed to work overload and are associated with increased risk of mortality of patients⁽¹⁵⁾.

Regarding the objective of each dimension, we emphasize that dimension four (Management Support to Patient Safety) assesses whether hospital management promotes patient safety and addresses the issue as a priority in the units; dimension one (Teamwork across hospital units) assesses whether the hospital units cooperate with each other to ensure the best quality of care; dimension 10 (Adequacy of professionals) assesses whether the workload of the employees does not impact the planning of patient care; Dimension 11 (handover/shift changes and transitions in care) assessed whether necessary information for ensuring the continuity of care is exchanged during handover; and dimension 12 (non-punitive response to error) seeks to identify how health workers feel about reporting their errors⁽⁴⁾.

In the present study, the management is perceived by the healthcare workers as being unwilling to promote an environment favorable to patient safety. These workers are also dissatisfied with the workload and believe their reported errors can be held against them. These findings corroborate another survey on patient safety culture⁽¹⁶⁾.

Regarding the dimension management support to patient safety, the results indicate the need for greater involvement of the management in the promotion of patient safety, through the encouragement of the health workers' leaders to obtain higher quality indicators for their institutions. To ensure the identification of the weak dimensions (areas) of patient safety culture, the involvement and commitment of the entire organization is required, particularly of the hospital management, which is responsible for promoting patient safety, ensuring improved care by the health teams, and establishing open communication of errors⁽¹⁷⁾.

Knowledge and skills, associated with adequate working conditions such as supervision, communication and equipment, are key to safety. These variables are affected by organizational processes and managerial decisions, impacting healthcare safety⁽⁷⁾.

Regarding the professional training of the participants of this study, it was found that they seek specialization, which is a positive aspect when it comes to patient safety. Training contributes to change the professional's attitudes and views regarding the delivery of high quality care, promoting responsibility and the continuous search for improving their professional activities⁽¹⁸⁾.

Also, it was found that 89.5% of the participants mostly provided direct care to patients. Although the patient's safety culture should pervade all spheres of the organization⁽¹⁹⁾, those professionals who provide direct care to patients will interfere more frequently in care safety. Therefore, these workers should be permanently encouraged to promote a safety culture⁽²⁰⁾.

The association between a strong safety culture in the institution and patient safety, which has been examined in many countries, is emphasized here. A study conducted in urgent and emergency units in the Netherlands identified positive dimensions of culture associated with patient safety⁽²¹⁾. Another study, conducted in 68 Lebanese hospitals with 6,807 health professionals, found significant evidence of the relationship between positive culture and patient safety⁽²²⁾. A study carried out in seven hospitals in China confirmed the hypothesis that a positive culture is related to the minimization of the occurrence of adverse events⁽²³⁾.

Some authors claim that changes in the organizational culture and in the individual culture of the health professional can have a positive effect on the patient's safety culture, being key to the delivery of safe and high quality care, since they impact motivation and safe behaviors, improving daily practice⁽²⁴⁾.

One limitation of this study concerns the low survey response rates of some professional occupations and the absence of inferential statistical analysis, which can be conducted in subsequent studies.

● CONCLUSION

The sample of this study, mostly composed of experienced and mature workers and professionals who interact and provide assistance to patients, support the results obtained, which revealed important weaknesses related to communication, teamwork, adequacy of professionals, management support and, particularly, perception that health professionals who communicate errors may be punished and underreporting of adverse events in the institution.

Paradoxically, the participants described patient safety in the institution as very good and recognize the active role they, as well as their supervisors, in the construction of this important indicator of the quality of care.

Despite the low internal consistency of the instrument, it is concluded that the weaknesses and gaps in patient safety identified in this study can be useful for the planning of systemic managerial actions aimed to promote a strong organizational safety culture.

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