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Patient safety culture in public teaching hospitals: a comparative study

Cultura de segurança do paciente em hospitais públicos de ensino: estudo comparativo

Cultura de seguridad del paciente en hospitales públicos de enseñanza: un estudio comparativo

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ABSTRACT

Objective: to compare patient safety culture of among nursing teams at four public teaching hospitals in Paraná, Brazil. **Method:** this cross-sectional, descriptive, analytical study was conducted on a proportional representative sample, and was approved by the Ethics Commission. Data were collected using the electronic version of the Hospital Survey on Patient Safety Culture, and analyzed using descriptive and inferential statistics, using the Statistica Single User software, version 13. The dimensions of culture were classified as strong, potential, and fragile; the differences were determined by the chi-square test to significance level $p < 0.05$. **Results:** significant differences were found among the 376 participants in the following dimensions: Frequency of notified events, Perception of safety, Openness to communications, and Management support. Organizational learning/continuous improvement was the only dimension identified as strong at all the hospitals. **Conclusion:** although differences were observed among hospitals, safety culture was fragile and constituted a barrier to the quality of nursing care.
Descriptors: Patient Safety; Organizational Culture; Hospitals, Teaching; Nursing.

RESUMO

Objetivo: comparar a cultura de segurança do paciente entre equipes de enfermagem de quatro hospitais de ensino públicos do Paraná, Brasil. **Método**: estudo transversal, descritivo, analítico, realizado em amostra representativa proporcional, aprovado pelo Comitê de Ética em Pequisa. Utilizou-se a versão eletrônica do instrumento *Hospital Survey on Patient Safety Culture* para a coleta de dados, analisados por meio de estatística descritiva e inferencial, com uso do *Software Statistica Single User* versão 13. As dimensões da cultura foram classificadas em forte, potencial e frágil; as diferenças foram determinadas pelo teste qui-quadrado e nível de significância $p \leq 0,05$. **Resultados**: entre os 376 participantes foram constatadas diferenças significativas nas dimensões Frequência de eventos notificados, Percepção de segurança, Abertura para comunicações e Apoio da gerência. Aprendizagem organizacional/melhora continuada foi a única dimensão forte identificada em todos os hospitais.
Descritores: Segurança do Paciente; Cultura Organizacional; Hospitais de Ensino; Enfermagem.

RESUMEN

Objetivo: comparar la cultura de seguridad del paciente entre los equipos de enfermería de cuatro hospitales públicos de enseñanza en Paraná, Brasil. **Método:** este estudio transversal, descriptivo y analítico se realizó sobre una muestra representativa proporcional y fue aprobado por la Comisión de Ética. Los datos fueron recolectados usando la versión electrónica de la Encuesta Hospitalaria sobre Cultura de Seguridad del Paciente, y analizados usando estadística descriptiva e inferencial, usando el software Statistica Single User, versión 13. Las dimensiones de cultura fueron clasificadas como fuerte, potencial y frágil; las diferencias se determinaron mediante la prueba de chi-cuadrado al nivel de significancia $p < 0.05$. **Resultados:** se encontraron diferencias significativas entre los 376 participantes en las siguientes dimensiones: Frecuencia de eventos notificados, Percepción de seguridad, Apertura a las comunicaciones y Apoyo a la gerencia. El aprendizaje organizacional / mejora continua fue la única dimensión identificada como fuerte en todos los hospitales. **Conclusión:** si bien se observaron diferencias entre hospitales, la cultura de seguridad fue frágil y constituyó una barrera para la calidad de la atención de enfermería.
Descriptores: Seguridad del Paciente; Cultura Organizacional; Hospitales de Enseñanza; Enfermería.

INTRODUCTION

In the patient safety scenario – an element inseparable from quality of care – adverse events (AEs) are seen in the health services and, therefore, are considered a global public health problem[1]. Due to the characteristic dangerousness of health assistance, in which, even when efforts towards safety barriers are exponential (mainly in developed countries), the occurrence of errors and AEs are part of an undeniable reality, mainly in the hospital setting[2].

A research study carried out in eight Irish hospitals verified a 12% prevalence of AEs and, of these, more than 70% were considered avoidable[3]. In Brazil, the Unified Health System's recent data point out that 331,136 AEs occurred from March 2014 to June 2019, 93.3% in hospital environments[4].

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In order to encourage the implementation of strategies directed to patient safety, the National Patient Safety Program establishes measures since 2013 to qualify the care offered in health services at their three care levels, and has the development of the Patient Safety Culture (PSC) as one of the elementary fronts[5,6].

The PSC consists of a series of skills, behaviors, values, and attitudes that relate individual and collective commitment to safety management and improvement in the health services offered[5].

Therefore, the adoption of this predominantly cultural "institutional device" is important because it enables the mobilization of efforts so that the points considered weak are resolved and those considered favorable, strengthened[6]. In other words, the PSC can be a barrier or a facilitator, so that patient safety strategies occur in the dynamics of health care provision[7].

In the PSC assessment as a key stage for implementing feasible strategies for safe care, recent studies carried out in Croatia, Oman, Turkey, Malaysia, and Brazil point to a punitive culture related to errors; inadequacy of staff/workers, high stress in the work environment, and the need to develop actions transposing the safe work prescribed, suggesting that there are demands for improvements[8-12].

The referred difficulties/barriers are usually mentioned by nurses, acknowledgedly strategic actors in the process to plan and implement patient safety actions[7]. Therefore, the importance of identifying and comparing data regarding the PSC and related to Nursing is evident, since this type of action can encourage improvement strategies in the work dynamics of health care teams with more assertiveness and quality.

Considering that Nursing is the undeniable protagonist in the health assistance process and in the improvement of quality of care indicators, this study is based on the following question: Regarding the assessment of patient safety, is there any difference across the Nursing teams of public teaching hospitals within the same state? In order to answer this question, this study aims at comparing the patient safety culture across Nursing teams of four public teaching hospitals of Paraná, Brazil

METHOD

A cross-sectional, descriptive, and analytical study carried out from June to September 2019 in four public teaching hospitals of the state of Paraná, Brazil, referred to as Hospital A; Hospital B; Hospital C, and Hospital D. These institutions have a number of hospital beds ranging from 123 to 313.

The research participants were Nursing team professionals who met the following inclusion criteria: working for at least three months in one of the study's hospital, regardless of their employment contract (statutory civil servant, CLT, accredited employees, or service provider) or area of expertise. Those who, for any reason, were on leave during the data collection period or did not respond to the data collection instrument in full were excluded.

The sample size was established by a representative sample proportional to the totality (n=1,969) of Nursing professionals of the hospitals studied, using the *StatDisk* program, version 8.4. To such end, a confidence level of 95%, a sampling error of 5%, and a population proportion of 50% were adopted, whose result (n=322), plus 15% for replacement of losses, determined the minimum sample of 371 participants, stratified among the study sites.

For data collection, the Hospital Safety Culture E-Questionnaire was used, an electronic/digital and validated alternative of the Hospital Survey on Patient Safety Culture (HSOPSC). This questionnaire is composed of 8 sections (A to H) grouped into 12 dimensions and 61 questions/items, plus the following two items: "Number of incident notifications" and "General Patient Safety rating", which do not compose the PSC dimensions and are assessed separately. The items are grouped by themes, according to the 12 dimensions, and the answers are given following a *Likert*-type scale in 5 levels[13].

It is highlighted that section "G" of the instrument is to characterize the study participants and to assess patient safety in the hospital, measuring on a 10-point scale. Section H, an optional item, provides a space for comments about patient safety[13].

The PSC analysis is performed based on the percentage of positive answers attributed to each dimension and classified as follows: Strong – or positive – area for patient safety (75% or more of positive answers); Potential – or neutral – area for patient safety (50% to 74.9% of positive answers); and Weak – or negative– area for patient safety (49.9% or less of positive answers)[14].

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Before data collection, authorization was requested from the technicians responsible for the institutions' Nursing Services. Data was collected face-to-face, during working hours, through visits scheduled to the sectors.

The data were typed in Microsoft Office Excel® spreadsheets. Later, they were transferred and analyzed using the *Statistica Single User* software, version 13, through descriptive and inferential statistical techniques. The categorical variables were analyzed through measures of percentage proportion. To test the difference (comparison) of the dimensions across the hospitals, the chi-square test was used, adopting a significance level of 5%, expressed in a p-value ≤ 0.05.

The research project of this study was submitted to appreciation by the Research Ethics Committee institutionalized in *Plataforma Brasil* and approved in 09/04/2019 under opinion No. 3,480,841/2019 and CAAE No. 12854419.2.0000.0104.

RESULTS AND DISCUSSION

The study participants were 376 professionals, characterized according to Table 1.

TABLE 1: Distribution of the Nursing teams in public teaching hospitals of Paraná, according to professional category and to sector (n=376). Paraná, Brazil, 2019.

Categories	Hospital A	Hospital B	Hospital C	Hospital D	Total
	n (%)	n (%)	n (%)	n (%)	n (%)
Professional Category					
Nurse	27 (23.3)	26 (30.2)	43 (38.4)	27 (43.5)	123 (32.7)
Nursing Technician	89 (76.7)	56 (65.1)	69 (61.6)	29 (46.8)	243 (64.6)
Nursing Assistant	-	4 (4.7)	-	6 (9.7)	10 (2.7)
Sector					
Surgical	28 (24.1)	6 (7.0)	18 (16.1)	14 (22.6)	66 (17.6)
Clinical	12 (10.3)	8 (9.3)	17 (15.2)	13 (21.0)	50 (13.3)
Pediatrics	4 (3.4)	14 (16.3)	7 (6.3)	8 (12.9)	33 (8.8)
ICU	34 (29.3)	28 (32.6)	38 (33.9)	16 (25.8)	116 (30.9)
Obstetrics	28 (24.1)	6 (7.0)	6 (5.4)	9 (14.5)	49 (13.0)
Emergency	4 (3.4)	18 (20.9)	15 (13.4)	-	-
Others	6 (5.2)	6 (7.0)	11 (9.8)	2 (3.2)	25 (6.6)

By means of a comparative analysis, it is verified that there was predominance of the Nursing Technicians category (64.6%), working in Intensive Care Units (ICUs) (30.9%).

Table 2 shows the data regarding the percentage of positive, neutral, and negative answers of the 12 dimensions of the patient safety culture attributed by the Nursing teams of the four hospitals.

The analysis of the PSC dimensions across the hospitals considered the mean and standard error of the positive answers, which resulted in significant statistical differences for the following four dimensions: Frequency of events notified (p=0.0221); Safety perception (p=0.0129); Openness for communication (p=0.0023); and Hospital management support for patient safety (p=0.0040). These data indicate that the dimensions reported have different assessments of the safety culture by the Nursing professionals across the hospitals. This fact can be related to the time of implementation of patient safety strategies in the institutions researched, or also because the professionals perceive these dimensions as the most unsatisfactory ones.

In the “Frequency of events notified” dimension, it was possible to verify that the percentage of positive answers in hospitals B (29.1%) and C (43.8%) shows an indicator significantly lower than the one in hospitals A (50.9%) and D (50.0%), which, although having obtained better results, were not sufficient to classify the dimension as strengthened. This result can be related to the recent implementation of the Center for Patient Safety in all the hospitals researched or, also, to the blaming culture that, according to the literature, is detrimental to the system and causes under-notifications of AEs[15].

Individual blaming is what most inhibits the professionals from pointing out errors, triggering under-notification[6,10,15]. The professionals' fear of punishment can encourage under-notification, resulting in an institutional difficulty in measuring the quality of the care offered and in providing strategies to improve patient safety[8,15].

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TABLE 2: Comparison of the patient culture safety between the public teaching hospitals, by Nursing professionals (n=376). Paraná, Brazil, 2019.

Dimensions	Hospital A (n=116)	Hospital B (n=86)	Hospital C (n=112)	Hospital D (n=62)	Total (n=376)	p-value
	n (%)	n (%)	n (%)	n (%)	n (%)	
D1 - Frequency of events notified						
Positive	59 (50.9)	25 (29.1)	49 (43.8)	31 (50.0)	164 (43.6)	
Negative	42 (36.2)	39 (45.3)	47 (42.0)	18 (29.0)	146 (38.8)	0.0221*
Neutral	15 (12.9)	22 (25.6)	16 (14.3)	13 (21.0)	66 (17.6)	
D2 - Safety perception						
Positive	16 (13.8)	7 (8.1)	26 (23.2)	10 (16.1)	59 (15.7)	
Negative	83 (71.6)	70 (81.4)	64 (57.1)	46 (74.2)	263 (69.9)	0.0129*
Neutral	17 (14.7)	9 (10.5)	22 (19.6)	6 (9.7)	54 (14.4)	
D3 - Expectations and actions of the unit/service management/supervision						
Positive	21 (18.1)	20 (23.3)	21 (18.8)	16 (25.8)	78 (20.7)	
Negative	67 (57.8)	51 (59.3)	64 (57.1)	26 (41.9)	208 (55.3)	0.2764
Neutral	28 (24.1)	15 (17.4)	27 (24.1)	20 (32.3)	90 (23.9)	
D4 - Organizational learning/Continuous improvement						
Positive	102 (87.9)	74 (86.0)	96 (85.7)	47 (75.8)	319 (84.8)	
Negative	9 (7.8)	6 (7.0)	7 (6.3)	8 (12.9)	30 (8.0)	0.4144
Neutral	5 (4.3)	6 (7.0)	9 (8.0)	7 (11.3)	27 (7.2)	
D5 - Teamwork in the unit/service						
Positive	80 (69.0)	58 (67.4)	72 (64.3)	46 (74.2)	256 (68.1)	
Negative	34 (29.3)	23 (26.7)	38 (33.9)	13 (21.0)	108 (28.7)	0.3266
Neutral	2 (1.7)	5 (5.8)	2 (1.8)	3 (4.8)	12 (3.2)	
D6 - Openness for communication						
Positive	65 (56.0)	40 (46.5)	61 (54.5)	25 (40.3)	191 (50.8)	
Negative	43 (37.1)	29 (33.7)	30 (26.8)	17 (27.4)	119 (31.6)	0.0023*
Neutral	8 (6.9)	17 (19.8)	21 (18.8)	20 (32.3)	66 (17.6)	
D7 - Feedback and communication about errors						
Positive	83 (71.6)	58 (67.4)	75 (67.0)	38 (61.3)	254 (67.6)	
Negative	23 (19.8)	14 (16.3)	25 (22.3)	11 (17.7)	73 (19.4)	0.2731
Neutral	10 (8.6)	14 (16.3)	12 (10.7)	13 (21.0)	49 (13.0)	
D8 - Non-punitive response to errors						
Positive	78 (67.2)	49 (57.0)	64 (57.1)	44 (71.0)	235 (62.5)	
Negative	29 (25.0)	31 (36.0)	40 (35.7)	13 (21.0)	113 (30.1)	0.3154
Neutral	9 (7.8)	6 (7.0)	8 (7.1)	5 (8.1)	28 (7.4)	
D9 - Staffing						
Positive	23 (19.8)	14 (16.3)	23 (20.5)	22 (35.5)	82 (21.8)	
Negative	71 (61.2)	59 (68.6)	75 (67.0)	28 (45.2)	233 (62.0)	0.0589
Neutral	22 (19.0)	13 (15.1)	14 (12.5)	12 (19.4)	61 (16.2)	
D10 - Hospital management support for patient safety						
Positive	14 (12.1)	22 (25.6)	34 (30.4)	10 (16.1)	80 (21.3)	0.0040*
Negative	102 (87.9)	64 (74.4)	78 (69.6)	52 (83.9)	296 (78.7)	
D11 - Teamwork						
Positive	42 (36.2)	23 (26.7)	31 (27.7)	20 (32.3)	116 (30.9)	
Negative	48 (41.4)	47 (54.7)	56 (50.0)	29 (46.8)	180 (47.9)	0.6305
Neutral	26 (22.4)	16 (18.6)	25 (22.3)	13 (21.0)	80 (21.3)	
D12 - Internal transfer and shift change						
Positive	4 (3.4)	4 (4.7)	12 (10.7)	1 (1.6)	21 (5.6)	
Negative	106 (91.4)	77 (89.5)	99 (88.4)	58 (93.5)	340 (90.4)	0.0582
Neutral	6 (5.2)	5 (5.8)	1 (0.9)	3 (4.8)	15 (4.0)	

* Significant chi-square test

A recent research study of the literature review type, aiming to identify and analyze national publications on reasons for the non-notification of patient safety incidents by the professionals, within the context of the Brazilian health services, evidenced the following main reasons: fear or apprehension of notifying; notification was only focused on severe events; lack of knowledge about the theme or how to notify; and centralization of notifications on the nurse[15].

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The explained literature, added to the findings of this study, allow identifying that under-notification of errors is a problematic reality, and this is undoubtedly related to the fact that it is a practice that requires personal impulse to inform the incidents, but also needs institutional support to face issues that are often considered taboos in the work dynamics.

Regarding safety perception, in relation to the percentage of positive answers, it is observed that hospitals A (13.8%) and B (8.1%) obtained an indicator significantly lower than hospitals C (23.2%) and D (16.1%). This fact can be associated with the professionals' difficulty in identifying institutional actions directed to the safety culture, coupled with its non-consolidation in the institutions. In such scenarios, there is consonance with the literature when it points out the adoption of institutional strategies as important for the sensitization of the collaborators and for the approximation of leaderships to the assistance team[16].

Regarding the difficulties in implementing the safety culture in health institutions, it is verified that themes of organizational culture are understood as a management obstacle and can be intensified in the hospital setting since, according to the literature[17], the historical characteristics of the services tend to be unfavorable to changes and can interfere with the acquisition of new institutional habits.

In the Openness for communication dimension, the percentage of positive answers point out a significant difference, as hospitals A (56.0%) and C (54.5%) show an indicator significantly higher compared to hospitals B (46.5%) and D (40.3%), suggesting that those have the communication culture better established and that there is greater openness for dialog about errors. In the communication scope, for the improvement in the quality of care indicators to occur, it is necessary that the professional categories be encouraged to communicate errors, as openness for communication is an effective means to strengthen the PSC[7,15,17].

This fact, referring to openness for communication, is important because easiness in the transmission of information among different hierarchical levels within the organization enables teamwork development and affects workers' greater adherence to the AE notification process[18].

Regarding hospital management support for patient safety, the data showed important differences in the percentage of positive answers, as hospitals A (12.1%) and D (16.1%) presented an indicator significantly lower compared to hospitals B (25.6%) and C (30.4%). The results of this dimension suggest that there is lack of management support to implement strategies for patient safety within the institutions. This aspect is also approached in a study[7] that mentions the fact that public teaching hospitals have insufficient support to apply safety strategies, which are aggravated by changes within the political context and little management flexibility due to the need for complying with the laws governing Public Administration.

In an environment where there is lack of institutional support, the importance of the managers' commitment to create patient safety strategies is evidenced because such practices provide safe assistance and, for this reason, they must be encouraged by means of systematic and continuous institutional policies[7].

Regarding the individual assessment of the dimensions by the teams, per hospital, in a strong, potential, or weak culture for patient safety, the results evidence that the four hospitals presented only one strong dimension, i.e., the organizational learning/continuous improvement dimension. The hospitals that obtained a higher number of dimensions with potential for safety were A (five), followed by C (four), D (four), and B (three). Finally, the hospital that presented the most significant number of weak dimensions for safety was hospital B (eight), followed by C (seven), D (seven), and A (six).

These data reported are consistent with a comparative research study[19] carried out in the University Hospital of Rio de Janeiro (Brazil) and in Porto (Portugal), which verified that only one dimension was considered strong for safety in the Portuguese Hospital, and none in the Brazilian Hospital. Among the dimensions considered weak for safety, the Brazilian Hospital obtained a higher number (eight) than the Portuguese Hospital (five).

Another study carried out in a teaching hospital of Curitiba-PR did not identify any strong dimension for safety; four dimensions were considered as potential and eight as weak[20]. According to the literature, such evidence reinforces the need to invest in creating and improving strategies directed to patient safety processes[12].

According to Nursing workers' point of view, the comparison among the institutions researched presents the general overview of the Safety Culture, providing concrete tools to manage safety in hospital institutions.

Study limitations

Regarding the limitation of this study, the non-random sample can be pointed out as an intervening factor. However, considering that the state of Paraná has seven public teaching hospitals and that this study covered four of

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them, the reality verified may indeed reflect the state of the PSC in public institutions, according to Nursing teams' point of view.

CONCLUSION

Four of the patient safety culture dimensions showed statistically significant differences. Of these, Frequency of events notified and Openness for communication were considered with potential for safety in two hospitals, and as weak in the other two.

The only dimension considered strong for patient safety in all the hospitals was Organizational learning/Continuous improvement. The results show the weakness of the PSC in Nursing teams, and this can undoubtedly impair assistance quality.

The results enable to assert that the comparison performed between the institutions shows the general overview of how the Safety Culture is perceived according to the Nursing workers' point of view, which is undoubtedly an important evidence base to (re)plan safety actions in the public hospital care of the state.

The comparison itself is also a possible contribution of the study, in the sense that the practice/culture of applying benchmarking across public services (something still uncommon) is encouraged.

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