



## ORIGINALES

### Differences between nursing and medical professionals regarding the surgical patient safety culture

Diferenças entre profissionais de enfermagem e medicina acerca da cultura de segurança do paciente cirúrgico

Diferencias entre los profesionales de enfermería y medicina respecto a la cultura de la seguridad del paciente quirúrgico

Josemar Batista<sup>1</sup>

Elaine Drehmer de Almeida Cruz<sup>1</sup>

Francine Taporosky Alpendre<sup>1</sup>

Danieli Parreira da Silva<sup>1</sup>

Marilise Borges Brandão<sup>2</sup>

Carmen Sílvia Gabriel<sup>3</sup>

<sup>1</sup> Federal University of Paraná, Curitiba – PR, Brazil. [josemar.batista@hotmail.com](mailto:josemar.batista@hotmail.com)

<sup>2</sup> Hospital Clinics of Federal University of Paraná, Curitiba – PR, Brazil

<sup>3</sup> University of São Paulo, Ribeirão Preto – SP, Brazil.

<https://doi.org/10.6018/eglobal.441571>

Received: 1/09/2020

Accepted: 21/12/2020

#### ABSTRACT:

**Objective:** To investigate whether the perception of the surgical patient safety culture differs between nursing and medical professionals working in a Brazilian public educational institution.

**Method:** Survey and cross-sectional study conducted in a hospital in southern Brazil. The Hospital Survey on Patient Safety Culture questionnaire was applied to 158 professionals between May and September 2017. The 12 dimensions were analyzed by descriptive, inferential statistics and internal consistency test. Dimensions with indexes  $\geq 75\%$  were considered strengthened.

**Results:** There was fragility in the safety culture, with a lower index in the dimension “Nonpunitive response to error”, with 23.9% and 13.9%, respectively, between nursing and medicine. More positive scores were considered by nursing in eight dimensions, with difference ( $p < 0.05$ ) in relation to medical professionals.

**Conclusion:** The safety culture differs between the two professional categories, with more positive responses by nursing; however, actions are necessary to strengthen the surgical patient safety in both professional groups.

**Keywords:** Organizational Culture; Nurse Practitioners; Physicians; Patient Safety; Health Services Research.

## RESUMO:

**Objetivo:** Investigar se a percepção da cultura de segurança do paciente cirúrgico difere entre profissionais de enfermagem e medicina atuantes em instituição pública de ensino brasileira.

**Método:** *Survey* e transversal conduzido em hospital da região sul do Brasil. Foi aplicado o questionário *Hospital Survey on Patient Safety Culture* a 158 profissionais entre maio e setembro de 2017. As 12 dimensões foram analisadas por estatística descritiva, inferencial e teste de consistência interna. Dimensões com índices  $\geq 75\%$  foram consideradas fortalecidas.

**Resultados:** Evidenciou-se fragilidade na cultura de segurança, com menor índice na dimensão "Resposta não punitiva ao erro", com 23,9% e 13,9%, respectivamente, entre enfermagem e medicina. Escores mais positivos foram considerados pela enfermagem em oito dimensões, com diferença ( $p < 0,05$ ) em relação aos profissionais médicos.

**Conclusão:** A cultura de segurança difere entre as duas categorias profissionais, com respostas mais positivas pela enfermagem; porém demanda ações promotoras para fortalecer a segurança do paciente cirúrgico em ambos os grupos profissionais.

**Palavras-chave:** Cultura Organizacional; Profissionais de Enfermagem; Médicos; Segurança do Paciente; Pesquisa sobre Serviços de Saúde.

## RESUMEN:

**Objetivo:** Investigar si la percepción de la cultura de la seguridad de los pacientes quirúrgicos difiere entre los profesionales de enfermería y medicina que trabajan en una institución educativa pública brasileña.

**Método:** *Survey*, estudio transversal realizado en un hospital en el sur de Brasil. El cuestionario *Hospital Survey on Patient Safety Culture* fue aplicado a 158 profesionales entre mayo y septiembre de 2017. Las 12 dimensiones se analizaron mediante estadísticas descriptivas e inferenciales y pruebas de coherencia interna. Las dimensiones con índices del 75% se consideraron reforzadas.

**Resultados:** Hubo fragilidad en la cultura de seguridad, con un índice más bajo en la dimensión "Respuesta no punitiva al error", con 23,9% y 13,9%, respectivamente, entre la enfermería y la medicina. Las puntuaciones más positivas fueron consideradas por la enfermería en ocho dimensiones, con diferencia ( $p < 0.05$ ) en relación con los profesionales médicos.

**Conclusión:** La cultura de seguridad difiere entre las dos categorías profesionales, con respuestas más positivas por la enfermería; sin embargo, son necesarias acciones para fortalecer la seguridad de los pacientes quirúrgicos en ambos grupos profesionales.

**Palabras clave:** Cultura Organizacional; Enfermeras Practicantes; Médicos; Seguridad del Paciente; Investigación sobre Servicios de Salud.

## INTRODUCTION

The effectiveness of error prevention methods, knowledge of its occurrence and consequences corroborate the adoption of safer actions and decisions, especially in complex services such as the surgical context, which progressively require operational and logistic planning, advanced technologies and interdisciplinary teams<sup>(1)</sup>. These are inherent in the work process before possible repercussions on the provision of safe and quality care.

It is known that the culture of health organizations is dynamic and composed of multiple, complex and overlapping subgroups, with assumptions, values, beliefs and behaviors shared in a variable way<sup>(2)</sup>. This is positively constructed based on principles, management organization, public and institutional policies, among other individual and collective factors that make up certain care areas or professional categories. Due to the particular and singular nature, it is believed that the adoption of safe practices among nursing and medical professionals, to reduce the occurrence of surgical errors, is influenced by subcultures, which, if not aligned with the goals of organizational patient safety, or if the values and norms are different, preventing communication, learning or effective teamwork between professions, may hinder the

implementation and/or improvement of processes of continuous quality improvement<sup>(3)</sup>.

In the context of surgical patient care, the patient safety culture should be highlighted, understood as the values, attitudes, competencies and patterns of individual and collective behaviors, which determine the commitment, style and proficiency of management for a safe organization<sup>(4)</sup>. Despite the advances in patient safety after the publication of the report *To err is human: building a safer health system* by the Institute of Medicine in 1999, it is possible to observe that the health care system persists with a low degree of reliability, with the occurrence of avoidable adverse events. Thus, among the recommendations for advances to occur, it is important to establish a systemic approach to understand better the nature of events, prioritizing the culture of safety from leadership<sup>(5)</sup>. In this sense, researchers, managers and practice professionals need to value it due to its positive influence on perioperative results<sup>(6)</sup>.

In this sense, understanding the perceptions of nursing and medical team professionals in the surgical area is an important issue for health organizations, since they are at the forefront of care and often experience problems in the execution or resulting from care. Moreover, this knowledge allows knowing how these categories understand and assimilate the safety actions performed and systematized by management, in addition to providing subsidies to list strategies in team coordination and hospital management for positive construction in the dimensions of the surgical patient safety culture, and according to the specific demands of the nursing and medical team. Thus, the question is: Are there differences in the perception of culture between the nursing and medical teams about the surgical patient safety?

The aim of this research was to investigate whether the perception of the culture of surgical patient safety differs between nursing and medical professionals working in a Brazilian public educational institution.

## METHOD

Cross-sectional survey conducted in five surgical hospitalization units and a surgical center of a federal teaching hospital in Paraná between May and September 2017. The hospital under study is the third largest university hospital in Brazil and performs, on average, 840 surgeries/month. The choice for these units was because they assisted adult patients and represented approximately 40% of the total surgical procedures of the hospital.

The target population consisted of 248 professionals who were working in the operating room and/or surgical units (general and digestive tract surgery, neurosurgery, orthopedics, plastic surgery and liver transplantation). The selection of participants was characterized by intentional non-probabilistic sampling, anchored in the recommendation of the Agency for Healthcare Research and Quality (AHRQ) that establishes a minimum sample of 50% for populations below 500 individuals<sup>(7)</sup>.

Inclusion criteria were: surgeons, anesthesiologists, resident physicians in surgery and anesthesiology, nurses, nursing assistants and technicians working in the units surveyed, with a minimum workload of 20 hours per week and predominantly care activity. Participants whose questionnaires had less than 50% of the questions

answered or contained only answers to the socio-labor profile and/or with the same answer in all dimensions were excluded from the analysis<sup>(7)</sup>. Thus, 166 professionals agreed to participate in the research, and after applying the criteria, eight participants were considered ineligible and 158 constituted the participants.

The health professionals were approached in the work environment, in a room previously designated by the heads of the units, in the morning, evening and night shifts. Those who agreed to participate received, in a sealed envelope, the Informed Consent Form and the printed and self-administered questionnaire, called Hospital Survey on Patient Safety Culture (HSOPSC). Optionally, the ad hoc completion of the tablet instrument loaded on the QuickTapSurvey application platform was provided. The HSOPSC is validated for use in Brazil<sup>(8)</sup>, is available for application in different countries<sup>(9)</sup>, and contains 42 questions, distributed in 12 dimensions, written positively and negatively and answered in a degree of agreement by the five-point Likert scale<sup>(7,8)</sup>.

The answers were stored in a Microsoft Office Excel® spreadsheet by double typing, checking and correction of inconsistencies; the participants were grouped into the professional categories nursing and medicine. After the recategorization of the answers in positive (strongly agree/agree or always/often), neutral (neither agree nor disagree or sometimes), and negative (strongly disagree/disagree or never/rarely), and the reversal of the reverse items, the percentages of positive responses were calculated. Dimensions with scores  $\geq 75\%$  of positive responses were classified as strengthened areas for the patient safety culture, between  $\geq 74\%$  and  $\leq 51\%$  neutral areas and negative areas when indexes  $\leq 50\%$ <sup>(7)</sup>.

The data were processed with the help of the software Statistical Package for the Social Sciences, version 20.0, and statistical advice. Quantitative variables were described by mean and standard deviation, and qualitative variables by absolute and relative frequencies. Categorical variables were compared using the Chi-square test, with significance value of  $p < 0.05$ . To allow the comparison of the internal consistency of the HSOPSC<sup>(8)</sup>, Cronbach's Alpha coefficient was used and considered satisfactory when  $\geq 0.8$ <sup>(10)</sup>.

The research met the institution's standards and Resolution n. 466/12 of the National Health Council, and is part of the project "Evaluation of the safety culture and occurrence of adverse surgical events in Brazilian hospitals" approved by the Institutional Research Ethics Committee under the opinion n. 1.990.760. The anonymity and confidentiality of the respondents were ensured.

## RESULTS

The participants were 158 professionals, 86 (54.4%) from nursing and 72 (45.6%) from medicine, with mean age and time of professional activity, in years, 43.0 (standard deviation of 12.3) and 18.0 (standard deviation of 12.2), respectively. Demographic and labor characteristics are presented in Table 1.

**Table 1.** Distribution of demographic and labor variables of the nursing and medical staff working in the perioperative care of a public Brazilian educational institution (n=158). Curitiba, PR, Brazil, 2017

<b>Variables</b>	<b>n (%)</b>
<b>Sex</b>	
Female	91 (57.6)
Male	67 (42.4)
<b>Position/ Function</b>	
Physician of the clinical staff/medical assistant	41 (26.0)
Resident physician/physician in training	31 (19.6)
Nurse	15 (9.5)
Nursing Assistant/Technician	71 (44.9)
<b>Schooling</b>	
Complete secondary education (high school)	26 (16.5)
Incomplete higher education	12 (7.6)
Complete higher education	35 (22.2)
Post-graduation (specialization/masters/doctorate)	84 (53.1)
Unanswered	01(0.6)
<b>Time working in the hospital (in years)</b>	
≤ 5	65 (41.1)
6-15	29 (18.4)
16-20	10 (6.3)
≥ 21	54 (34.2)
<b>Time working in the unit (in years)</b>	
≤ 5	86 (54.4)
6-15	21 (13.3)
16-20	11 (7.0)
≥ 21	40 (25.3)
<b>Weekly workload (in hours)</b>	
20-39	111 (70.3)
40-79	34 (21.5)
≥ 80	13 (8.2)

Figure 1 shows the percentage of positive responses from the 12 dimensions of safety culture; none was considered strengthened ( $\geq 75\%$  of positive responses).

**Figure 1.** Distribution of positive and negative responses to the dimensions of the safety culture of professionals working in the perioperative care of a public Brazilian educational institution (n = 158). Curitiba, PR, Brazil, 2017

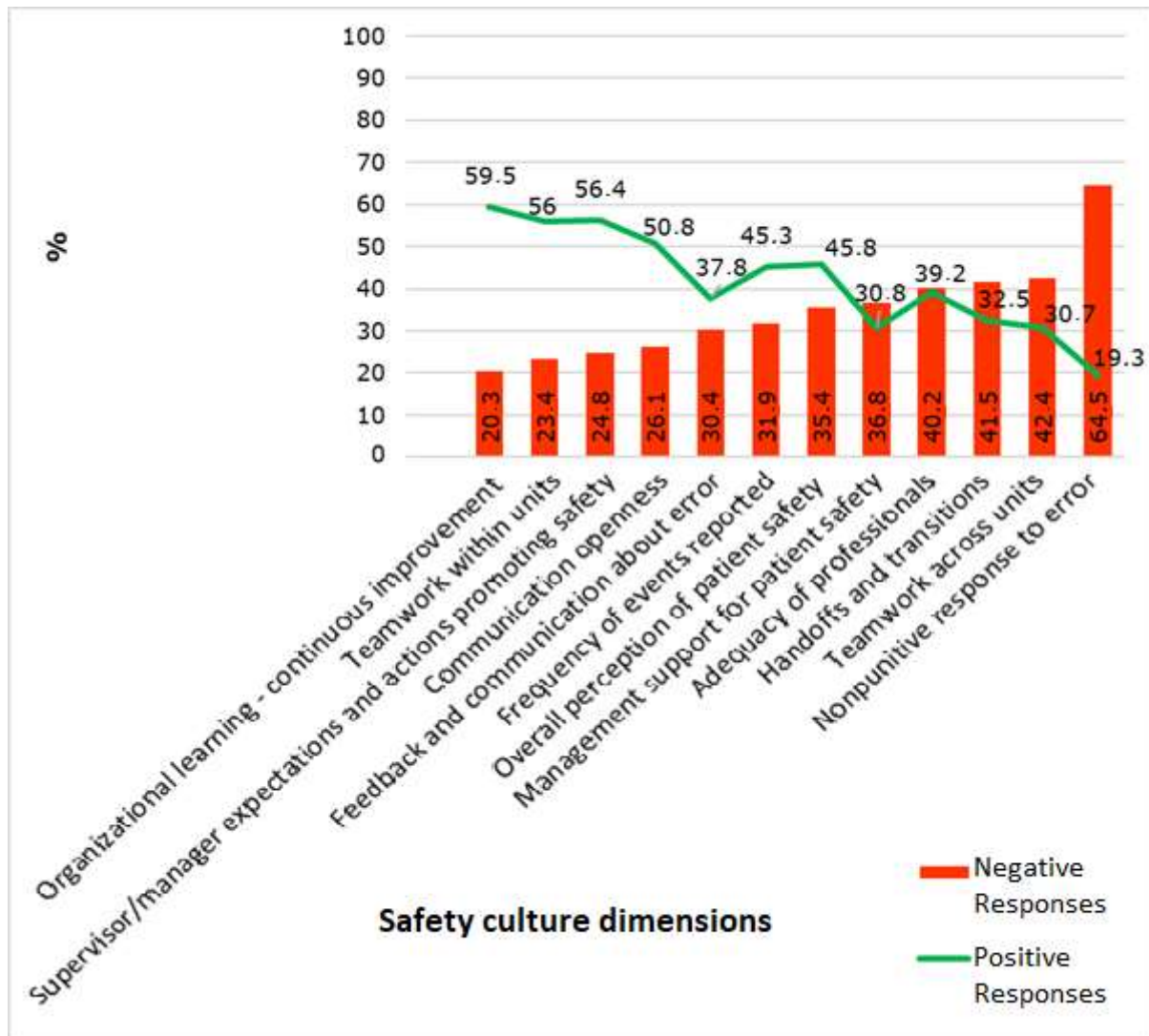


Table 2 shows the distribution of the percentage of responses of the teams regarding the dimensions of the safety culture. There were significant differences between the studied groups (medical and nursing category), with nursing presenting higher positive scores in eight dimensions ( $p < 0.05$ ). Overall Cronbach's Alpha was 0.89.

**Table 2.** Distribution of the percentage of responses and Cronbach's alpha of the dimensions of the safety culture of the nursing and medical staff working in the perioperative care of a public Brazilian educational institution (n = 158). Curitiba, PR, Brazil, 2017

Dimension/ Cronbach's Alpha ( $\alpha$ )	Team	Percentage of answers (%)			p-value*
		Negative	Neutral	Positive	
Organizational learning - continuous improvement ( $\alpha = 0.59$ )	Nursing	20.1	16.9	63.0	0.124
	Medical	20.5	24.2	55.3	
Teamwork within units ( $\alpha = 0.75$ )	Nursing	21.5	20.0	58.5	0.330
	Medical	25.8	21.3	53.0	

Supervisor/manager expectations and actions promoting safety ( $\alpha = 0.70$ )	Nursing	25.1	16.9	58.0	0.384
	Medical	24.3	21.2	54.5	
Communication openness ( $\alpha = 0.55$ )	Nursing	26.5	19.8	53.7	0.173
	Medical	25.6	27.0	47.4	
Feedback and communication about error ( $\alpha = 0.76$ )	Nursing	29.3	25.4	45.3	<b>&lt;0.001</b>
	Medical	31.6	39.5	28.8	
Frequency of events reported ( $\alpha = 0.82$ )	Nursing	20.9	22.8	56.3	<b>&lt;0.001</b>
	Medical	44.9	22.7	32.4	
Overall perception of patient safety ( $\alpha = 0.46$ )	Nursing	36.2	14.8	49.0	<b>0.017</b>
	Medical	34.4	23.6	42.0	
Management support for patient safety ( $\alpha = 0.70$ )	Nursing	34.1	29.8	36.1	<b>0.026</b>
	Medical	39.8	35.6	24.5	
Adequacy of professionals ( $\alpha = 0.26$ )	Nursing	43.8	16.2	39.9	<b>0.009</b>
	Medical	35.9	25.8	38.3	
Handoffs and transitions ( $\alpha = 0.74$ )	Nursing	38.8	19.4	41.8	<b>&lt;0.001</b>
	Medical	44.7	33.8	21.5	
Teamwork across units ( $\alpha = 0.74$ )	Nursing	37.0	24.5	38.5	<b>&lt;0.001</b>
	Medical	48.8	29.6	21.6	
Nonpunitive response to error ( $\alpha = 0.10$ )	Nursing	59.0	17.1	23.9	<b>0.012</b>
	Medical	70.8	15.3	13.9	

\* Chi-square test

The health team evaluated the patient safety score between excellent/very good (65.2%;n=103), and 54.4% (n=86) reported not having reported any adverse event in the past 12 months. There was a prevalence of nursing professionals who attributed higher safety score and reported not having reported an adverse event as shown in Table 3.

**Table 3.** Distribution of the assigned safety score and notification of adverse events by the nursing and medical staff working in the perioperative care of a public Brazilian educational institution (n = 158). Curitiba, PR, Brazil, 2017

Variable	Nursing (n=86)		Medicine (n=72)	
	n	%	n	%
<b>Safety score</b>				
Excellent/ Very good	61	70.9	42	58.3
Regular	22	25.6	28	38.9
Bad / Very Bad	3	3.5	2	2.8
<b>Reported Events</b>				
No event	55	64.0	31	43.0
Between 1 and 2 events	13	15.1	29	40.3
Between 3 and 5 events	10	11.6	10	13.9
$\geq 6$ events	7	8.1	2	2.8
Ignored	1	1.2	-	-

## DISCUSSION

The results of this research allowed knowing and understanding that the perception of patient safety culture differs between nursing and medical teams, initially justified by the execution of interdependent activities with skills, knowledge, preparation and use of equipment and tools/work processes different between categories<sup>(1)</sup> and, secondly, by the basic education and continuing education offered to the various actors involved in surgical care, in a different way, about patient safety and correlated concepts<sup>(11-12)</sup>. It should be noted that work characteristics of the health team, such as time of experience and position/function<sup>(13,14)</sup> associated with the particularities of each unit, concerning organizational structure and practices, influence human behavior and affect the construction of subcultures<sup>(15)</sup>.

It is clear that the predictive aspects of safety culture promotion are challenges in the current scenarios and, thus, investigating the factors that influence them is the theme to be better explored, especially in the dimensions in which nursing presented, significantly, a higher percentage of positive responses compared to medicine. This finding is consistent with the study conducted in three hospitals in China, analyzing 492 and 325 surveys of nursing and medical professionals, respectively. This identified significant differences favorable to nursing for the dimensions “Frequency of events reported” and “Handoffs and transitions”<sup>(16)</sup>. More developed perceptions and attitudes of safety among nurses were also reported in a study developed in six hospitals in Romania<sup>(17)</sup>, which related this category to several aspects related to patient safety<sup>(16)</sup>.

In the units investigated, a factor that can justify the more positive perception of the nursing team in relation to the safety culture is the greater representation of this category in the management of the units, by the nature of the work, in professional categories, under the nurse’s leadership. Compared to the medical team, it is inferable that this characteristic has promoted better scores of positive responses in dimensions related to management, communication and team cooperation. Moreover, the support, attitudes and actions of managers/supervisors in relation to the safety culture contribute to the general perception of patient safety<sup>(18)</sup>, besides favoring the communication of failures arising from the surgical process, facilitating learning and improving the care offered, with a view to avoiding the recurrence of errors.

On the other hand, the literature points out that there is animosity in the work relationships between the nursing and medical teams, often due to the distance among theory, technique and values shared by each professional group. The knowledge, practices and values of physicians and nurses are immeasurable among themselves, a factor that directly affects health actions and practices<sup>(19)</sup> in the same way that possibly influences the collective and positive construction of dimensions of safety culture related to communication and teamwork. Fragmented interpersonal relationships are conditions that favor conflicts between subgroups and influence collaboration between teams. In this study, the dimension “Teamwork across units” was weakened and with the potential for improvement, especially among physicians. Although without statistical significance, a research in European hospitals showed favorable differences to nursing in this dimension, with approximately 75% of positive responses<sup>(16)</sup>.



It is known that the mutual cooperation of professionals is rooted in the knowledge, skills and clarity of the team regarding the responsibilities of the individual and other team members, supported by effective, timely, accurate and problem-solving communication before unexpected surgical challenges<sup>(20)</sup>. Historically, physicians organize their practices and clinical decisions based on structured dialogue and with highly specialized discourse restricted to the professional class<sup>(19)</sup>. Thus, it is believed that this circumstance leads to more vertical-oriented communication lines that impute in unsafe care, hinder the notification of health incidents and facilitate the discontinuity of the transition of care across teams and departments. Failures in the consolidation of interpersonal relationships seem to be related to difficulties in consolidating the patient safety culture and proactively affect it <sup>(21)</sup>.

Considering the environment of surgical patient care, excellence in communication contributes to preventing error and coping with safety problems, implying a change in behaviors and the construction of values from the perspective of quality care. These multifaceted factors partially explain the low scores of positive responses of the medical team and the most favorable results among nursing professionals in the dimension "Organizational Learning – continuous improvement", given the greater freedom to report safety problems and learn through their own mistakes. The communication openness to reporting errors is capable of affecting positive results, from the perspective of learning, without considerable negligence of the problems on the part of supervisors/managers, and with imminent mutual support among professionals in favor of safe care.

Resistance to open dissemination and communication represents an important barrier to progress in the prevention of damage caused by unintentional errors<sup>(16)</sup>. Nevertheless, for being fragile, the punitive culture is considered as an influential factor, since it imposes fear to the communication of errors. These, if not recognized and faced, influence neutrality before the construction of the strengthened institutional culture. Related to this, the dimension "Nonpunitive responses to error" stands out as the most fragile in the present research, corroborating a systematic review in an analysis of 31 articles, reporting 21 countries<sup>(9)</sup>. The punitive culture, strongly perceived by health professionals in hospital organizational structures, subjects workers to the omission of errors, especially in the present study, for the medical team that presented scores of approximately 14% of positive responses, below the one reported among Romanian physicians (59.1%)<sup>(17)</sup>. However, the low internal consistency of this dimension should be highlighted, and the results should be analyzed carefully, since the deconstruction of the perception of punitive culture takes place gradually.

Regarding the degree of patient safety attributed by the professionals, there was a prevalence of scores between excellent and very good (65.2%;n=103). This result was above that found in a cross-sectional study conducted with 518 professionals from four hospitals in Ethiopia, which identified that approximately 38% of the interviewees classified the degree of patient safety as excellent/very good<sup>(22)</sup>. Also in this item, the findings presented here show that medicine attributed a lower safety score when compared to nursing. Brazilian researchers point out that some professional categories, such as physicians, overestimate this assessment because they do not know the safety process in its entirety, and are often on the margins of the analysis of indicators and management of notifications<sup>(23)</sup>.

Concerning the frequency of adverse events reported, the proportion of professionals who had never reported an adverse event was higher among nursing. Another study corroborates this result, presenting a higher number of notifications among the medical category when compared to nursing<sup>(18)</sup>. In this sense, despite having a more positive perception of patient safety in the institution, nursing does not express, in notifications, the importance mentioned, requiring a better investigation of this aspect in subsequent studies.

This research presents, in general, an important gap in relation to the frequency in the notification of adverse events among the professional categories investigated, a fundamental element for the dimensioning of the problem in the institution. As an important strategy for sensitizing the practice of notification, researchers highlight that positive perception should be shaped in academic education, in the light of teachings that theorize about the importance of reporting incidents, and value the fact that professionals are subject to errors. Education/training is among the most important individual organizational factors for improvements related to safety attitudes<sup>(24)</sup>.

Also in this context, the education of health professionals is considered one of the challenges to improve patient safety, as well as leadership training and patient and family involvement. Therefore, there is need for integrating care between teams and the various institutions of the health system as an important element in favor of improving safety and the culture of organizations<sup>(25)</sup>. In this sense, understanding the main causes and determinants, as well as the impact of these subcultures on the surgical process and health outcomes, should be valued<sup>(12)</sup>. Bringing health professionals, especially physicians, closer to patient safety programs, as well as boosting the safety culture through the adoption of a methodology of continuous improvement, should be considered as important actions with a view to favoring the progressive evolution of culture dimensions<sup>(26)</sup>, enhancing better indicators, highlighting the risks and conditions of the work process, distinct among professional categories working in the surgical environment.

The limitations of this research refer to its performance in a single hospital context and to the low internal consistency in the dimensions analyzed, with emphasis on the dimension "Nonpunitive responses to error". In this investigation, the general internal consistency was satisfactory ( $\alpha=0.89$ ) and in the dimensions, ranged from 0.10 to 0.82. It is possible to observe in the validation study of this questionnaire for use in Brazil that Cronbach's alpha ranged from 0.20 to 0.91 between dimensions<sup>(8)</sup>, while in another investigation in Chinese hospitals, it ranged from 0.31 to 0.87<sup>(18)</sup>. The extension of the questionnaire, a possible factor of refusal to participate, is added to the limitations.

Considering that the HSOPSC is self-administered and that the non-evaluation, previously, of the equivalence of concepts in patient safety among professional categories may have interfered the understanding of the questions/items, it becomes another limiting factor of the research as established by researchers<sup>(11)</sup>. Thus, the results deserve caution in generalization and can be better explored in subsequent studies, with other research design, aimed at complementing and exploring the subcultures unveiled in the present research.

## CONCLUSION

The dimensions of the patient safety culture are perceived by medical and nursing professionals with different characteristics and areas that require improvement, with priority for the dimension related to the nonpunitive response to error, which demonstrated greater fragility. Despite the differences in perceptions between the teams, professionals expose fragility in the safety culture, demanding institutional actions for its strengthening.

By measuring the patient safety culture of nursing and medical professionals working in perioperative care, it was possible to identify the demands of each category, whose results potentially contribute to decision-making in favor of promoting safe and quality surgical care. Medical professionals exhibited a more negative perception in all aspects evaluated. There was a significant difference between the categories in the perception of the safety culture in eight dimensions and, although nursing assigns a better overall evaluation on patient safety, physicians reported the highest frequency of reported adverse events.

There is need to list actions to promote the construction of a safety culture, which proved to be fragile in both professional categories, to evaluate the basic safety actions in the contribution of safe and quality surgical care, and to evolve in the strengthening of a fair and nonpunitive culture before errors.

The data reinforce the importance of nursing and medical leadership/coordination to strengthen the patient safety culture sensitive to the needs of the categories, as well as the inclusion of the theme in the training of health professionals, and the need to deepen work and interprofessional education to exert positive changes in the beliefs, values and behaviors adopted in the surgical area for the progressive construction of safe care practices.

## REFERENCES

1. Gholinejad M, Loeve AJ, Dankelman J. Surgical process modelling strategies: which method to choose for determining workflow?. *Minimally Invasive Therapy & Allied Technologies* [Internet]. 2019 [acceso em 23 mar 2020]; 28(2):91-104. Disponível em: <https://doi.org/10.1080/13645706.2019.1591457>
2. Mannion R, Davies H. Understanding organizational culture for healthcare quality improvement. *BMJ* [Internet]. 2018 [acceso em 23 mar. 2010]; 363: k4907. Disponível em: <https://doi.org/10.1136/bmj.k4907>
3. Danielsson M, Nilsen P, Rutberg H, Carljord S. *The professional culture among physicians in Sweden: potential implications for patient safety. BMC Health Serv Res* [Internet]. 2018 [acceso em 23 mar. 2020]; 18(1): 543-551. Disponível em: <https://doi.org/10.1186/s12913-018-3328-y>
4. World Health Organization - WHO. *The Conceptual Framework for the International Classification for Patient Safety* [Internet]. Geneva: WHO; 2009 [acceso em 3 nov. 2018]. Disponível em: [http://www.who.int/patientsafety/taxonomy/icps\\_full\\_report.pdf](http://www.who.int/patientsafety/taxonomy/icps_full_report.pdf)
5. National Patient Safety Foundation. *Free from Harm: Accelerating Patient Safety Improvement Fifteen Years after To Err Is Human* [Internet]. Boston, MA: National Patient Safety Foundation, 2015 [acceso em 13 abr. 2020]. Disponível em:

<http://www.ihl.org/resources/Pages/Publications/Free-from-Harm-Accelerating-Patient-Safety-Improvement.aspx>

6. Smiley K, Ofori L, Spangler C, Acquah-Arhin R, Deh D, Enos J, et al. Safety culture and perioperative quality at the Volta river authority hospital in Akosombo, Ghana. *World J Sur* [Internet]. 2019 [acesso em 3 jul. 2019];43(1):16-23. Disponível em: <https://doi.org/10.1007/s00268-018-4763-y>

7. Sorra J, Gray L, Streagle S, Famolaro T, Yount N, Behm J. AHRQ hospital survey on patient safety culture: user's guide. [Internet] Rockville, MD: AHRQ; 2016 [acesso em 20 abr. 2019]. Disponível em: <https://www.ahrq.gov/sites/default/files/wysiwyg/professionals/quality-patient-safety/patientsafetyculture/hospital/userguide/hospcult.pdf>

8. Reis CT, Laguardia J, Vasconcelos AGG, Martins M. Reliability and validity of the Brazilian version of the Hospital Survey on Patient Safety Culture (HSOPSC): a pilot study. *Cad Saúde Pública* [Internet]. 2016 [acesso em 23 mar. 2020]; 32(11):e00115614. Disponível em: <https://doi.org/10.1590/0102-311x00115614>

9. Reis CT, Paiva SG, Sousa P. The patient safety culture: a systematic review by characteristics of Hospital Survey on Patient Safety Culture dimensions. *Int J Qual Health Care* [Internet]. 2018 [acesso em 23 mar. 2020];30(9):660-677. Disponível em: <https://doi.org/10.1093/intqhc/mzy080>

10. Hair JF, Black WC, Babin BJ, Anderson RE, Tathan RL. Análise multivariada de dados. 6. ed. Porto Alegre: Bookman; 2009.

11. Zhu J. Measurement equivalence of patient safety climate in Chinese hospitals: can we compare across physicians and nurses? *Int J Qual Health C* [Internet]. 2019 [acesso em 1 abr. 2020]; 31(6):411-418. Disponível em: <https://doi.org/10.1093/intqhc/mzy132>

12. Panda N, Haynes AB. Studying Organizational Culture in Surgery. In: Dimick J, Lubitz C. *Health Services Research. Success in Academic Surgery* [Internet]. 2020 [acesso em 1 abr. 2020]; 2:97-102. Disponível em: [https://doi.org/10.1007/978-3-030-28357-5\\_9](https://doi.org/10.1007/978-3-030-28357-5_9)

13. Gambashidze N, Hammer A, Wagner A, Rieger MA, Brösterhaus M, Van Vegten A, et al. Influence of Gender, Profession, and Managerial Function on Clinicians' Perceptions of Patient Safety Culture: A Cross-National Cross-Sectional Study. *J Patient Saf* [Internet]. 2019 [acesso em 12 abr. 2020]; 00(00):1-8. Disponível em: <https://doi.org/10.1097/PTS.0000000000000585>

14. Chi YC, Huang CH, Lee YC, Wu HH. Critical demographic variables on affecting patient safety culture from medical staffs' viewpoints. *Engineering Letters* [Internet]. 2019 [acesso em 21 mar. 2020];27(2):328-335. Disponível em: <https://pure.ncue.edu.tw/en/publications/critical-demographic-variables-on-affecting-patient-safety-cultur>

15. Okuyama JHH, Galvao TF, Silva MT. Healthcare Professional's Perception of Patient Safety Measured by the Hospital Survey on Patient Safety Culture: A Systematic Review and Meta-Analysis. *ScientificWorldJournal* [Internet]. 2018 [acesso em 21 mar. 2020]; 2018: 9156301. Disponível em: <https://doi.org/10.1155/2018/9156301>

16. Tereanu C, Sampietro G, Sarnataro F, Siscanu D, Palaria R, Savin V, et al. Survey on Patient Safety Culture in the Republic of Moldova: a baseline study in three healthcare settings. *Clujul medical* [Internet]. 2018 [acesso em 22 fev. 2020];91(1):65-74. Disponível em: <https://doi.org/10.15386/cjmed-869>

17. Tereanu C, Ghelase MS, Sampietro G, Furtunescu FL, Dragoescu A, Molnar A, et al. Measuring Patient Safety Culture in Romania Using the Hospital Survey on Patient

- Safety Culture (HSOPSC). *Curr Health Sci J* [Internet]. 2017 [acceso em 12 fev. 2020]; 43(1); 31-40. Disponível em: <https://www.chsjournal.org/article/43/1/5/>
18. Wang M, Tao H. How Does Patient Safety Culture in the Surgical Departments Compare to the Rest of the County Hospitals in Xiaogan City of China? *Int J Environ Res Public Health* [Internet]. 2017 [acceso em 12 fev.2020]; 14(10): 1123. Disponível em: <https://doi.org/10.3390/ijerph14101123>
19. Gonçalves LAP, Mendonça ALO, Camargo Júnior KR. The interaction between doctors and nurses in the context of a hospital ward. *Ciênc. saúde coletiva* [Internet]. 2019 [acceso em 22 fev. 2020]; 24(3), 683-692. Disponível em: <https://doi.org/10.1590/1413-81232018243.32162016>
20. Topping B, Gittell JH, Laursen M, Rasmussen BS, Sorensen EE. Communication and relationship dynamics in surgical teams in the operating room: an ethnographic study. *BMC Health Serv Res* [Internet]. 2019 [acceso em 21 mar. 2020]; 19:528. Disponível em: <https://doi.org/10.1186/s12913-019-4362-0>
21. Migowski ER, Oliveira Júnior N, Riegel F, Migowski SA. Interpersonal relationships and safety culture in Brazilian health care organisations. *J Nurs Manag* [Internet]. 2018 [acceso em 22 fev. 2020];26(7):851-857. Disponível em: <https://doi.org/10.1111/jonm.12615>
22. Kumbi M, Hussen A, Lette A, Nuriye S, Morka G. Patient Safety Culture and Associated Factors Among Health Care Providers in Bale Zone Hospitals, Southeast Ethiopia: An Institutional Based Cross-Sectional Study. *Drug Healthc Patient Saf* [Internet]. 2020 [acceso em 13 abr. 2020];12: 1–14. Disponível em: <https://doi.org/10.2147/DHPS.S198146>
23. Notaro KAM, Corrêa AR, Tomazoni A, Rocha PK, Manzo BF. Safety culture of multidisciplinary teams from neonatal intensive care units of public hospitals. *Rev. Latino-Am. Enfermagem* [Internet]. 2019 [acceso em 13 abr. 2020]; 27:e3167. Disponível em: <https://doi.org/10.1590/1518-8345.2849.3167>
24. Tirgar A, Hosseinabadi MD, Ahmadi O, Sadeghi M, Jafarpoor H, Samaei SE. Safety Attitude and Its Predictor Individual and Organizational Variables among Nurses: a Cross-Sectional Study. *IJOH* [Internet]. 2018 [acceso em 22 fev. 2020];10(1):12-8. Disponível em: <http://ijoh.tums.ac.ir/index.php/ijoh/article/view/319>
25. Gandhi TJ, Kaplan GS, Leape L, Berwick DM, Edgman-Levitan S, Edmondson A, et al. Transforming concepts in patient safety: a progress report. *BMJ Qual Saf* [Internet]. 2018 [acceso em 22 fev. 2020];27(12):1019-1026. Disponível em: <https://doi.org/doi:10.1136/bmjqs-2017-007756>
26. Yu B, Wen CF, Lo HL, Liao HH, Wang PC. Improvements in patient safety culture: a national Taiwanese survey, 2009-16. *Int J Qual Health Care* [Internet]. 2020 [acceso em 21 mar. 2020]; pii: mzz099. Disponível em: <https://doi.org/10.1093/intqhc/mzz099>

ISSN 1695-6141

© COPYRIGHT Servicio de Publicaciones - Universidad de Murcia