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Association between work-related factors of the nursing team in patient's safety culture

Associação entre fatores laborais da equipe de enfermagem na cultura de segurança do paciente

Asociación entre factores laborales del equipo de enfermería en la cultura de seguridad del paciente

Abstract

Objective: to evaluate the patient's safety culture based on variables related to the work performed by the nursing team. **Method:** this is a cross-sectional study, carried out with nursing professionals from three different hospitals. The Hospital Survey on Patient Safety Culture Scale was used, aiming the data collection. **Results:** the dimension 3 (Organizational learning - continuous improvement) presented the highest percentage of positive response (58.2%), while dimension 12 (non-punitive responses to errors) presented the lowest percentage (19.2%). Some work variables were related to patient safety culture, such as providing direct patient care ($p<0.045$) and working time in the unit ($p<0.014$). **Conclusion:** patient safety culture can be influenced by work factors. Therefore, it is necessary to evaluate its characteristics in order to outline quality improvement models aimed at work processes in nursing

Descriptors: Patient safety; Nursing team; Research on health services; Quality of health care; Hospitals.

Resumo

Objetivo: avaliar a cultura de segurança do paciente em função de variáveis relacionadas ao trabalho exercido pela equipe de enfermagem. **Método:** estudo transversal, realizado com profissionais de enfermagem de três hospitais. Para a coleta de dados utilizou-se a escala *Hospital Survey on Patient Safety Culture*. **Resultados:** a dimensão 3 (Aprendizado organizacional – melhoria contínua) apresentou o maior percentual de respostas positivas (58,2%), enquanto a dimensão 12 (Respostas não punitivas ao erro) apresentou o menor percentual (19,2%). Algumas variáveis laborais apresentaram relação com a cultura de segurança do paciente, como prestar assistência direta ao paciente ($p<0,045$) e tempo de trabalho na unidade ($p<0,014$). **Conclusão:** a cultura de segurança do paciente pode ser influenciada por fatores laborais. Assim, é necessária a avaliação de suas características a fim de traçar modelos de melhoria da qualidade voltados aos processos de trabalho na enfermagem.

Descritores: Segurança do paciente; Equipe de enfermagem; Pesquisa sobre serviços de saúde; Qualidade da assistência à saúde; Hospitais.

Resumen

Objetivo: evaluar la cultura de seguridad del paciente a partir de variables relacionadas con el trabajo realizado por el equipo de enfermería. Método: estudio transversal, realizado con profesionales de enfermería de tres hospitales. Para la recolección de datos, se utilizó la escala *Hospital Survey on Patient Safety Culture*. Resultados: la dimensión 3 (Aprendizaje organizacional – mejora continua) tuvo el mayor porcentaje de respuestas positivas (58,2%), mientras que la dimensión 12 (Respuestas no punitivas al error) tuvo el menor porcentaje (19,2%). Algunas variables laborales se relacionaron con la cultura de seguridad del paciente, como la asistencia directa al paciente ($p<0,045$) y el tiempo de trabajo en la unidad ($p<0,014$). Conclusión: la cultura de seguridad del paciente puede ser influenciada por los factores laborales. Por lo tanto, es necesario evaluar sus características para delinear modelos de mejora de la calidad dirigidos a los procesos de trabajo en enfermería.

Descriptores: Seguridad del Paciente; Grupo de Enfermería; Investigación sobre Servicios de Salud; Calidad de la Atención de Salud; Hospitales.

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INTRODUCTION

Patient safety culture is an important, structural component of health services that favors the implementation of safe practices and the reductions of safety incidents[1]. In the context of healthcare, patient safety culture can be defined as the product of individual and group values, attitudes, competencies and patterns of behaviors, which determines the commitment, the style and administration proficiency on managing a healthy and safe organization[2].

Therefore, this mentioned culture can also be influenced by specific characteristics of health services, such as their complexity and level of care, in addition to factors that are specific to the professions, such as professional category, direct patient care, leadership roles and workload[3].

Talking about the international scenario, at the 74th World Health Assembly, held in 2021, the Global Patient Safety Action Plan for 2021-2030 was approved. The main objective of this action plan is to reduce avoidable harm in healthcare through the implementation of polices, strategies, and actions that guarantee safe care for the patient. This document leads us to the need for qualification of the assistance in health services through the training of professionals who work in these services[4]. Furthermore, advances in patient safety (PS) will be achieved through the assessment of safety culture, in order to support improvements in care and results for the patient, reducing errors and healthcare costs[5]. As we know, the periodic assessment of safety culture is required by healthcare institutions, especially in hospitals involved in accreditation programs[6].

In Brazil, the National Patient Safety Program (Programa Nacional de Segurança do Paciente, in Portuguese) was created through Ordinance No. 529/2013 of the Ministry of Health (MOH), due to the growing need to mitigate the risk of adverse events through the qualification of health care. The program aims to qualify patient care, evaluate assistance in accordance with established standards and protocols, disseminate knowledge about patient safety and implement permanent education[7].

The nursing team plays a fundamental role in evaluating, reporting and measuring adverse events related to health care, as they work directly in patient care, and represent the largest percentage of workers in health services in most cases[8]. Thus, it is important to know the perception of the nursing team regarding the PS culture, as it allows identifying areas that need improvements, and directs future interventions, which leads the institution to draw up a plan with real goals to be achieved[9]. Therefore, the guiding question of the study was: which work factors of the nursing team are related to patient safety culture?

Considering the Brazilian context, two validated instruments are available to evaluate PS culture: the Hospital Survey on Patient Safety Culture (HSOPSC) and the Safety Attitudes Questionnaire (SAQ). The SAQ, created in 2006 and validated in 2012 in Brazil, consists of an instrument with 41 items that have the objective of measuring the perception of a safety climate considering only six domains: safety climate, teamwork climate, job satisfaction, perception of management, working conditions and stress recognition[10]. Although both of the instruments are reliable, the HSOPSC was chosen for this study because it addresses issues that SAQ does not address[11].

An Arabic study evaluated predictors of PS culture using the HSOPSC instrument, identifying a moderate level culture, which indicates a positive perception. Areas of strength were “Non-punitive response to errors” and “Teamwork within units”. On the other hand, the areas that indicated needs for improvement were “Supervisor/manager expectations” and actions promoting patient safety and open communication”. The authors reinforce that strengthening PS practices and culture is essential to improve the overall performance of

hospitals and the quality of services. Assessing PS culture is the first step to identify areas that need improvement, which will contribute to achieving clinical results, such as reducing rates of hospital infection, pressure injuries, falls, length of stay and hospitalization[6].

Since the implementation of the Brazilian Patient Safety Program (PNSP, in Portuguese) in Brazil, the assessment of PS culture has been recognized as a requirement of good practices for PS. However, like many other actions, its effective implementation remains problematic[12]. Thus, the objective of this study is to evaluate the patient safety culture based on work-related variables that was carried out by the nursing team.

METHOD

This is a cross-sectional study developed with nursing professionals from three hospitals in Minas Gerais (BR) that provide services through Brazil's Unified Health System SUS (Sistema Único de Saúde, in Portuguese), privately and through an agreement. The guidelines for observational studies (*Strengthening the Reporting of Observational Studies in Epidemiology* – STROBE)[13] were used to guide the presentation of data.

Hospital A is a philanthropic hospital and provides general assistance, from outpatient services to highly complex procedures. Hospital B is a public hospital, and also provides general assistance and has comprehensive services for patients with respiratory pathologies on an outpatient basis. Hospital C is a public hospital and provides assistance in infectious diseases and in healthcare dermatology.

The study population was consisted of 1540 nursing professionals from the three institutions previously mentioned. The proportional stratified sampling technique was used in order to maintain the representativeness of the population, as there were three hospitals with different characteristics and three professional categories. For this purpose, the proportion estimation method was used for finite populations with proportional allocation by professional category (nursing assistants, nursing technicians and nurses) and by hospital (A, B and C). To define the sample size, the significance level of 5% and margin error of 5% alpha or type 1 error[14] were considered as parameters . In total, 303 nursing professionals were selected and drawn to participate in the study.

Nursing professionals with a workload equal to or greater than 20 hours per week and a minimum professional experience at the institution of six months were invited. Those who were on vacation or on any leave during the data collection were excluded.

The data collection was carried out between January and September 2018. A personal and professional characterization instrument was used with the following variables: gender; age; marital status; professional category; educational level; date of admission to the institution; job title; presence and amount of employment in other institutions; and work shift. The five work-related variables investigated were: leadership role; direct patient assistance; weekly workload; work area/unit and working time in the unit. The other instrument used was the HSOPSC scale.

The HSOPSC scale has a variation of five degrees of perception, and the results are evaluated based on the performance of each item and dimension[16-17]. The instrument includes work-related variables and PS culture and covers nine sessions, with 42 items structured into 12 dimensions: D1 - Teamwork within the units; D2 - Expectations regarding your supervisor/boss and actions promoting patient safety; D3 - Organizational learning and continuous improvement; D4 - Management support for patient safety; D5 - General perception of patient safety; D6 -Feedback and communication about error; D7 - Open communication; D8 – Number of events reported; D9 – Teamwork across units; D10 – Professional suitability; D11 - Shift or

shift change/transfers and D12 - Non-punitive responses to errors[15-17]. The HSOPSC also includes two questions that are evaluated separately: overall PS score (zero to 10) and number of adverse events reported in the last 12 months[15-17].

The answers obtained for the 12 HSOPSC dimensions were grouped into three categories: positive responses (agree, strongly agree, always agree and almost always agree), negative responses (strongly disagree, disagree, never agree, rarely agree) and neutral responses (neither agree nor disagree, sometimes agree)[15-17].

According to the guidelines from the Agency for Healthcare Research and Quality, the strong areas are those that have 75% of positive answers to questions formulated positively (I completely agree, or I agree) or those that have 75% of negative answers to questions formulated negatively (I totally disagree, or I disagree). Similarly, fragile areas are those that obtain 50 % or less positive responses[15] to positive questions.

The data were processed and analyzed using the Statistical Package for the Social Sciences (SPSS), 21.0 Windows version. The Shapiro-Wilk test was applied to measure the normality of variables, with those with normal distribution being presented as mean and standard deviation, and the others as median and interquartile range. To test possible differences between the dimensions of the HSOPSC and the five work-related variables (Perform leadership role; direct patient assistance; weekly workload; work area/unit and time of experience) the Kruskal-Wallis and Mann-Whitney tests were used, with Bonferroni correction (significant p-value must be less than 0.05 divided by the number of categories of the variable).

The present study was approved by the Research Ethics Committee of the proposing institution and co-participants, under opinion nº 1.785.549, CAAE nº 60925516.6.0000.5545. All nursing professionals that were participating in the study signed the Free and Informed Consent Form (FICF) in accordance with Resolution nº 466/12 of the National Health Council (NHC).

RESULTS

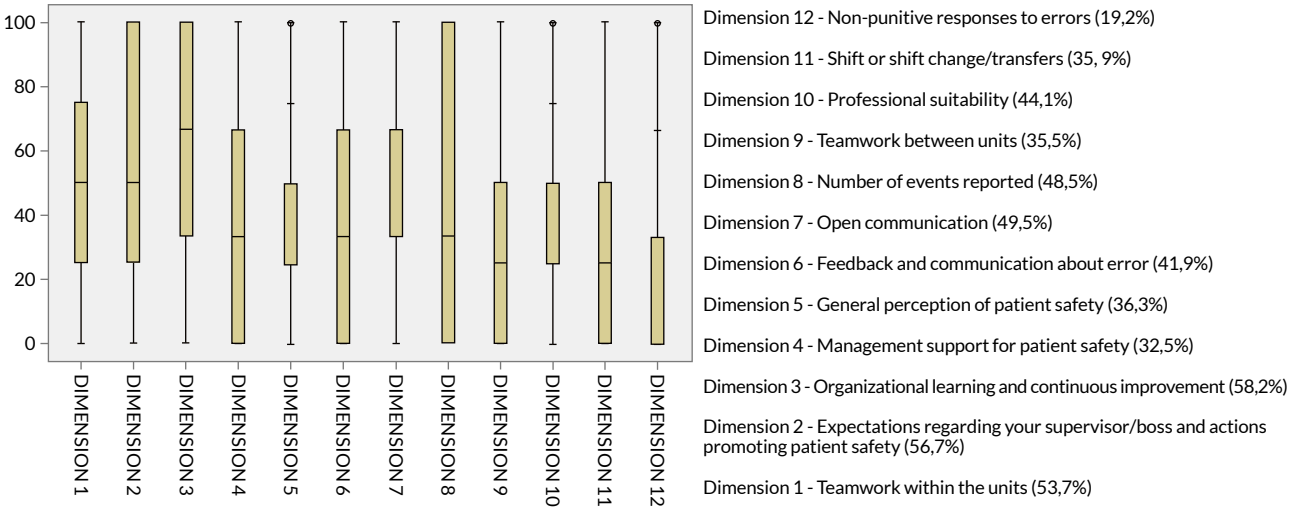
The sample was consisted of 303 nursing professionals, with a predominance of females (86.3%). The average age was 40 years (±10.4). There was a prevalence of participants with incomplete higher education (68.7%) and that are married (46.5%).

The majority of professionals were nursing technicians (63.2%), followed by nurses (24.7%) and nursing assistants (12%). In relation to weekly working hours, there was a prevalence of professionals working between 40 and 59 hours per week. Regarding work time in institutions, the majority had worked for one to five years (45.4%). The majority of professionals (88.8%) provided direct patient care, worked on day shifts (72.6%), had no other employment relationship (71.7%) and did not hold a leadership role (82.3%).

Among the HSOPSC dimensions, nine of them were considered fragile and in need of improvements (D4 - Management support for patient safety; D5 - General perception of patient safety; D8 – Number of events reported; D9 - Teamwork across units; D10 - Professional suitability; D11 - Shift or Shift change/transfers; and D12 - Non-punitive responses to errors). The most critical dimension was D12, with a percentage of 19.2% of positive responses, followed by dimension D4, with 32.5%. There was no dimension with a percentage equal to or greater than 75%, therefore none of the twelve dimensions were considered strengthened for the PS culture.

The three dimensions with the highest Percentage of Positive Responses (PPR), between 50 and 75%, were: D1 - Teamwork within the units; D2 - Expectations regarding your supervisor/boss and actions promoting patient safety; and D3 - Organizational learning and continuous improvement (Figure 1)

Figure 1 – Box-plot graphic with the distribution of scores for each dimension of the Hospital Survey on Patient Safety Culture (HSOPSC) scale. Divinópolis, MG, Brazil, 2018.



Source: Own preparation (2023)

When comparing PRP of the HSOPSC dimensions with the "professional category" variable (nurse, technician and assistant) there was a significant difference for the scores of dimensions D5 (p=0,030) and D11 (p=0,006). Nurses obtained median scores of 50.0% positive responses in dimensions D5 and D11, while the median for nursing technicians/aides was 25.0%, which may indicate a better general perception of patient safety and shift handover or shift/transfer by nurses in relation to other team members.

Regarding the notification of adverse events in the last 12 months, only 37.7% of nurses did not present notifications reports, while among nursing technicians and assistants this percentage was 75.0% (p<0,001).

Furthermore, the number of adverse events reported in the last 12 months had a significant difference with the work-related variable "Perform leadership role" (p<0,001).

Among nursing professionals who did not perform a leadership role, 74.4% did not report events in the last 12 months, while among those who performed a leadership role, 35.6% submitted between one and two reports, and 20.0% presented three to five reports per year.

When analyzing the relationship between the HSOPSC dimensions and the five work variables researched, all of them showed a statistically significant relationship with at least one HSOPSC dimension. It is noteworthy that dimensions D3, D5 and D9 did not show a statistically significant relationship with any of the work variables (Table 1).

Table 1 – Comparison of each dimension of the Hospital Survey on Patient Safety Culture (HSOPSC) scale with the work variables. Divinópolis, MG, Brazil, 2018 (n=303).

Work-related variables		Dimensions of the *Hospital Survey on Patient Safety Culture* (HSOPSC) scale											
		D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12
Perform leadership role*	Yes	75 (25;75)	50 (25;100)	58 (33;100)	33 (0;67)	25 (25;50)	67 (33;67)	50 (33;67)	67 (25;100)	25 (0;75)	50 (25;75)	25 (0;50)	0 (0;33)
	No	50 (25;75)	50 (25;100)	67 (33;100)	33 (0;67)	25 (25;50)	33 (0;67)	67 (33;100)	33 (0;100)	25 (0;50)	50 (25;50)	25 (0;50)	0 (0;33)
	p-value‡	0,366	0,930	0,318	0,808	0,309	0,225	0,269	0,087	0,745	**0,034**	0,872	0,993
Provides direct care to the patient*	Yes	50 (25;75)	50 (25;100)	67 (33;100)	33 (0;67)	25 (25;50)	33 (0;67)	33 (33;67)	33 (0;100)	25 (0;50)	50 (25;50)	25 (0;50)	0 (0;33)
	No	50 (25;81)	50 (50;100)	67 (33;100)	33 (0;67)	29 (25;50)	50 (0;100)	67 (25;75)	50 (0;100)	29 (19;75)	50 (25;50)	25 (0;54)	33 (0;33)
	p-value	0,937	0,144	0,359	0,928	0,612	0,201	0,717	0,765	0,240	0,466	0,655	**0,045**
Weekly working hours*	Up to 39 hours	50 (25;75)	50 (25;75)	67 (33;100)	0 (0;37)	25 (25;50)	33 (0;67)	67 (33;75)	33 (0;100)	25 (0;50)	50 (25;50)	25 (0;50)	0 (0;33)
	40 hours or more	75 (33;75)	50 (25;100)	67 (33;100)	33 (0;67)	25 (25;50)	33 (0;67)	33 (33;67)	67 (0;100)	25 (0;50)	50 (25;50)	25 (0;75)	0 (0;33)
	p-value‡	**<0,001**	0,542	0,189	**<0,001**	0,303	**0,033**	0,488	**0,105**	0,712	0,729	0,229	0,625
Work Area/ Unit*	Hospitalization	50 (25;75)	50 (25;75)	67 (33;100)	33 (0;67)	25 (25;50)	33 (0;67)	33 (33;67)	33 (0;100)	25 (0;50)	50 (25;50)	25 (0;71)	0 (0;33)
	Emergency	75 (25;81)	50 (25;81)	67 (33;100)	33 (0;67)	25 (25;50)	33 (0;67)	67 (33;67)	67 (0;100)	25 (0;50)	50 (25;67)	25 (0;50)	17 (0;33)
	Surgical Center	50 (25;75)	50 (50;81)	100 (33;100)	33 (0;75)	25 (0;56)	33 (33;67)	50 (33;67)	100 (0;100)	25 (0;75)	50 (25;50)	25 (0;50)	0 (0;33)
	Intensive Care	75 (25;100)	75 (50;100)	67 (33;100)	33 (0;67)	33 (25;50)	50 (0;67)	67 (33;100)	33 (0;100)	50 (25;75)	50 (25;50)	25 (25;50)	0 (0;33)
	Others	50 (25;75)	50 (25;100)	67 (33;100)	33 (0;67)	25 (25;50)	67 (33;100)	50 (0;100)	67 (0;100)	25 (0;50)	50 (25;50)	25 (0;62)	0 (0;33)
	p-value†	0,301	0,498	0,265	0,723	0,887	0,216	0,158	**0,026**	0,495	0,885	0,783	0,072
Time of experience*	Up to 5 years	50 (25;75)	75 (33;100)	67 (33;100)	33 (0;67)	25 (25;50)	33 (33;67)	67 (33;100)	67 (0;100)	25 (0;50)	50 (25;50)	25 (0;67)	0 (0;33)
	6 to 10 years	50 (25;75)	50 (25;75)	67 (33;100)	0 (0;33)	25 (25;50)	33 (0;67)	50 (0;67)	33 (0;100)	25 (0;50)	50 (25;50)	25 (0;50)	0 (0;33)
	More than 10 years	50 (25;75)	50 (25;75)	67 (33;100)	33 (0;67)	25 (25;50)	33 (0;67)	33 (0;67)	33 (0;100)	25 (0;54)	33 (25;50)	25 (0;50)	0 (0;33)
	p-value†	0,193	**0,014**	0,702	0,107	0,448	0,077	**0,013**	0,280	0,167	0,084	0,905	0,802

*Percentage of positive responses presented as Median (25 Percentile; 75 Percentile); †*Mann-Whitney test;* ‡*Kruskall-Wallis* test with *Bonferroni* correction; D1- Teamwork within the units; D2- Expectations regarding your supervisor/boss and actions promoting patient safety; D3- Organizational learning and continuous improvement; D4- Management support for patient safety; D5- General perception of patient safety; D6- Feedback and communication about error; D7- Open communication; D8- Number of events reported; D9- Teamwork across units; D10- Professional suitability; D11- Shift or shift change/transfers and D12- Non-punitive responses to errors.

Source: Own elaboration (2023)

There was a significant difference between the work-related variable "Perform leadership role" and dimension D10 (p=0,034). The average PRP core was 42.0% among those who did not exercise leadership and 50,7% (±23,4%) among those who did it.

When comparing the PRP of the HSOPSC dimensions in relation to the work-related variable "provides direct care to the patient", there was a significant difference only for dimension D12 (p=0,045). The median score was 33,3% of positive responses among those who did not provide direct assistance, and there was no percentage of positive responses for those who provided direct assistance.

The work-related variable "weekly working hours" had a significant difference for dimensions D1 (p<0,001), D4 (<0,001) and D6 (p=0,033). Higher PRP medians were observed for dimensions D1, D4 and D6 among nursing professionals who worked 40 hours or more per week when compared to those who worked up to 39 hours (Table 1).

There was a statistically significant difference in PRP for D8 dimension scores (p=0,026) in relation to the work-related variable "work area/unit". Nursing professionals who work in hospitalization units and in the Intensive Care Unit (ICU) had median scores of 33.3% (p25:0,0%; p75:100,0%) of positive responses, while for those who worked in the Surgical Center (SC) 100,0% (p25: 0,0%; p75: 100,0%) of the responses were positive. In other words, it is suggested that SC nursing professionals are better aware of the importance of reporting adverse events, regardless of whether there is any harm to the patient or not.

For the work-related variable "time of experience" there was a significant difference for dimensions D2 (p=0,014) and D7 (p=0,013). The difference in dimension D2 was between the lengths of service: up to five years, six to ten years and more than ten years (p= 0,007). Nursing professionals with up to five years of experience had a median of 75.0% positive responses in dimension D2, and of 50.0% for those who had worked between six and ten years and for more than ten years, which indicates that professionals who had worked in the unit for less time had reported better "expectations about their supervisor/boss and better actions promoting patient safety" than those who had worked for more than six years.

Regarding dimension D7, there was a significant difference between "time of experience" of up to five years and ten years or more (p=0.013). Nursing professionals who had worked in the unit for up to five tears had a median of 66.7% positive responses, while for professionals who had worked for ten years or more this percentage was 33.3%. This indicates that professionals who had worked for a shorter time reported better "Openness Communication" than those who had worked for a longer time.

DISCUSSION

Nurses had a better general perception of PS in dimensions D5 and D11 when compared to other team members. However, a national study pointed out these two dimensions as weak in the perception of all nursing professionals (nurses, technicians and nursing assistants), with no differences in the perception by professional category. It is noteworthy that the shift change is an important moment, as it allows communication between team members, in addition to systematizing care and ensuring continuity of the care aimed and PS. Therefore, the general perception of PS assessed as a critical area is justified due to the vulnerability in the effectiveness of error prevention process and protocols in hospital institutions[3].

In a cross-sectional study in six Romanian hospitals, the nursing team in dimension D5, very close to the medical category, identified a PRP of 80.9%, which was 76.9% of positive responses. Although there is no distinction in the nursing category (higher and technical level) in the Romanian study, as in the present study, the authors state that the specific issues of each professional category must be addressed to provide safe care[18].

The D10 dimension was considered fragile for the PS culture, with the item "We have enough professionals (regardless of employment) to handle the workload" that presented the lowest PRP compared to the other dimensions of the scale. This item on the HSOPSC scale received only 7.0% positive responses, which reveals an excessive workload, indicating the need for improvements in staffing.

It is important to emphasize the importance of evaluating personnel sizing by managers of health institutions, as a deficient workforce generates omissions of care and, consequently, greater risk to PS[19]. The excessive workload, inadequate staffing, and exhausting working hours can lead to dissatisfaction with working conditions and consequently impact the fragility of this dimension[11].

Regarding the number of adverse events reported in the last 12 months, it was observed that professionals who held a leadership role also reported more adverse events than those who did not. In this sense, leadership is an important component for PS, and leaders must encourage open communication based on learning from mistakes when incidents occur, to counteract the culture of blame, as it favors the participation of all professionals in issues aiming to security. It is believed that a non-punitive culture is strongly associated with the reporting of adverse events by nursing professionals who did not exercise a leadership role[11]. It is pertinent to reflect that the percentage of leaders in the nursing team was lower than the percentage of nurses in the sample of this stud. This infers that nurses do not recognize their role as leaders of nursing teams. In this sense, it is noteworthy that patient safety culture and practices are strongly influenced by leadership behaviors and effective communication. Nurses who understand and adhere to the attitude of team leaders are able to strengthen the institution's organizational culture and promote greater professional adherence to safer clinical practices[20].

The increasing commitment to identifying and reducing errors in professional practices and overcoming the communication of an incident are important actions to be developed by the institutional management, with the support of other professionals. Communicative leadership, which has a non-punitive stance and which provides personal improvement for professionals, even when facing a scenario involving an error, must promote the development of behavior and attitudes that reinforce the PS culture. These are competencies that must be assumed by institutional managers to improve incident reporting[11].

The work-related variable "Provides direct care to the patient" showed a statistical difference with dimension D12. Nursing professionals who did not provide direct assistance reported higher PRP. A study that was carried out in China presented a similar finding: the nursing team that did not provide a direct care to the patient gave a better score to PS[21]. The Chinese study pointed out that, although indirect care professionals often demonstrate better acceptance of culture of the non-punitive response to errors, it is believed that they are not always able to successfully transmit this perception to other team members, which reinforces the relevance of continuing education actions and development of innovative and, consequently, more effective strategies to achieve this purpose[21].

It is extremely important for the nursing team to identify problems in working processes. Therefore, failure to identify errors and fails to analyze outcomes can have a negative impact on patients care and can contribute to an increase in the incidence of adverse events. Furthermore, a non-punitive culture favors the reporting of incidents and improves the organization learning. The process of identifying errors is not an activity to be carried out only by nurses: other professionals can carry out identification and notification, as underreporting can prevent improvements in the strategies inherent to patient care, making assistance weakened[11].

On the other hand, in a study carried out in Egypt, significantly higher results were identified for four dimensions of PS culture, in which professionals who interacted directly with patients had

a better perception regarding PS culture and the non-punitive response to errors, suggesting that it is related to direct patient care. In this study, a better perception of PS was identified by nurses when related to nursing technicians and pharmacists[22].

Nursing professionals with more working hours per week presented better evaluations in dimensions D1, D4 and D6. This result differs from the study carried out in Vietnam, where weekly working hours did not influence these dimensions. However, the study identified seven dimensions as strong areas for PS culture, including dimensions D1, D4 and D6[23]. A Japanese study showed that professionals had lower PRP in eight dimensions of the HSOPSC scale, including these same dimensions, as they had an increase in working hours, night shifts and a reduction in days off[24].

Excessive working hours is a factor related to a negative perception of the PS culture for the professionals, as it can lead to risky situations such as distractions and lack of attention. A study carried out in Egypt revealed that professionals who worked 12 hours or more per day were more likely to make errors related to healthcare when compared to those who worked less than 12 hours per day[25]. Furthermore, the long period of work compromises the quality of care provided and is associated with increased mental and physical fatigue[11]. Therefore, excessive working hours is a factor that hinders the development of actions that promote PS.

Regarding the perception of positive responses to PS related to the working unit, there was a statistical difference only in D8 dimension. According to the results, SC professionals reported better awareness of the importance of reporting adverse events when compared to those who worked in inpatient units. This different perception may be related to the implementation of the World Health Organization (WHO) safe surgery checklist in the SC, which favors adjustments in the work process and consequent dissemination of the relevance of notification when adverse events occurs in relation to the development of prevention strategies for future incidents[26].

The work-related variable "time of experience" influenced the PRP. It was noted that nursing professionals who had less work time reported better perceptions related to PS in dimensions D2 and D7. This data corroborates the findings of a Brazilian study that demonstrated that PRP tended to be higher among professionals who had less time working in the hospital than among those who had more experience[27].

Although the association between the variable "time of experience" and the number of adverse event notifications was not evidenced in this study, a study conducted in Eastern Europe showed that professionals with more than ten years of experience carried out a greater number of notifications of adverse events[19]. An investigation conducted in China found a positive relationship between longer work experience and PS practices[26], while in Iran it was found that years of work experience did not influence the assessment of PS by the nursing team[27]. The divergence between such results can be attributed to the profile of the research, which differs in terms of the tools used for evaluation and the sample size.

It is important to remember that, although this is a multicenter study involving three regional reference hospitals, caution should be taken when extrapolating conclusions to other hospital services. The different realities, both national and international, require specific and individualized assessments and interventions, and it is important to research in the different contexts of health services.

CONCLUSION

The results of this study demonstrated that D3 dimension - Organizational learning and continuous improvement, was the one that presented the highest PRP. However, this finding highlighted the need to replace the punitive error culture with a learning culture, in a way that nursing professionals are encouraged to report incidents without fear of blame and

repression. Nurses presented better evaluations for important aspects of PS culture, such as shift handover, reporting of adverse events and general perception of PS. The work unit also showed differences in relation to this culture, a result that also reaffirms the importance of this assessment in different scenarios. Finally, the working hours performed by nursing professionals also influenced PS culture, as it showed that professionals with more working hours had better perceptions in important aspects, such as teamwork within the units, management support for PS and return of information and communication about errors.

It is noted that PS culture can be influenced by factors associated with work, therefore it is necessary to evaluate these characteristics according to the health service. However, the study's limitation is the sample composed of only nursing professionals, which restricts the validity of the data when considering the institutional safety culture. Therefore, future research with the entire multidisciplinary team is suggested, as well as qualitative studies that allow investigating the perception of other PS interfaces and different factors in the local context.

The expectation is that the results and the discussion of this investigation will help hospitals in strengthening the PS culture and improving the service provided by improving the assistance offered by the nursing team and intervention on work issues that can be changed.

REFERENCES

1. Andrade LEL, Lopes JM, Filho MCMS, Júnior RFV, Farias LPC, Santos CCM, Gama ZAS. Patient safety culture in three Brazilian hospitals with different types of management. Ciênc Saúde Colet. 2018;23(1):161-72. DOI: 10.1590/1413-81232018231.24392015

2. Lopez ECMS, Cruz EDA, Alpendre FT, Batista J. Culture of patient safety in surgical units of teaching hospitals. REME Rev Min Enferm. 2020;24:e1298. DOI: 10.5935/1415-2762.20200027

3. Sanchis DZ, Haddad MCFL, Girotto E, Silva AMR. Patient safety culture: perception of nursing professionals in high complexity institutions. Rev Bras Enferm. 2020;73(5):e20190174. DOI: 10.1590/0034-7167-2019-0174

4. World Health Organization (WHO). Global Patient Safety Action Plan 2021-2030: towards eliminating avoidable harm in health care. Geneva: WHO. 2021. Disponível em: https://apps.who.int/iris/rest/bitstreams/1360307/retrieve

5. Ismail A, Khalid SNM. Patient safety culture and its determinants among healthcare professionals at a cluster hospital in Malaysia: a cross-sectional study. BMJ Open. 2022;12(8):e060546. DOI: 10.1136/bmjopen-2021-060546

6. Mrayyan MT. Predictors and outcomes of patient safety culture: a cross-sectional comparative study. BMJ Open Qual. 2022 Jul;11(3):e001889. DOI: 10.1136/bmjoq-2022-001889

7. Behrens R. Patient safety approached from the rights of users. Rev Bioét. 2019;27(2): 253-60. DOI: 10.1590/1983-80422019272307

8. Alanazi FK, Lapkin S, Molloy L, Sim J. The impact of safety culture, quality of care, missed care and nurse staffing on patient falls: A multisource association study. J Clin Nurs. 2023;32(19-20):7260-72. DOI: 10.1111/jocn.16792.

9. Paiva ICC, Almeida LM, Santos KCT, Mesquita MVCO, Silva MPM, Souza CFQ, Barbosa HSC. Cultura de segurança do paciente: percepção da equipe de enfermagem da linha cardiológica. Rev Enferm Digit Cuid Promoção Saúde. 2020;5(2):72-79. DOI: 10.5935/2446-5682.20200015

10. Carvalho REFL, Cassiani SHB. Cross-cultural adaptation of the Safety Attitudes Questionnaire – Short Form 2006 for Brazil. Rev Latino-Am Enfermagem. 2012;20(3):575-82. Disponível em: https://www.scielo.br/j/rlae/a/fF6MjHxDxsc7VJhhRpWdRsy/?format=pdf&lang=en

11. Prieto MMN, Fonseca REP, Zem-Mascarenhas SH. Assessment of patient safety culture in Brazilian hospitals through HSOPSC: a scoping review. Rev Bras Enferm. 2021;74(6):e20201315. DOI: 10.1590/0034-7167-2020-1315

12. Andrade LEL, Saturno-Hernández PJ, Melo LOM, Gama ZAS. Improvements in Patient Safety Structures and Culture following Implementation of a National Public Program: An Observational Study in Three Brazilian Hospitals. Port J Public Health. 2022;40:81-90. Disponível em: https://karger.com/pjp/article-pdf/40/2/81/3737552/000525147.pdf

13. Von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzche PC, Vandenbroucke JP. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. PLoS Med. 2007;4(10):e296. DOI: 10.1371/journal.pmed.0040296

14. Félix RS, Filippin NT. Cultura de segurança do paciente em uma maternidade. Rev Enferm. UFSM. 2020;10:e73. DOI: 10.5902/2179769240280

15. Agency for Healthcare Research and Quality (AHRQ). Surveys on Patient Safety Culture Research. Reference List. Content last reviewed April 2017. Rockville (MD): AHRQ; 2017. Disponível em: https://www.ahrq.gov/sops/surveys/hospital/index.html

16. Reis CT, Laguardia J, Martins M. Translation and cross-cultural adaptation of the Brazilian version of the Hospital Survey on Patient Safety Culture: initial stage. Cad Saúde Pública. 2013;28(11):2199-210. DOI: 10.1590/S0102-311X2012001100019

17. 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. 2016;32(11):e00115614. DOI: 10.1590/0102-311x00115614

18. 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 Med. 2018;91(1):65-74. Disponível em: https://medpharmareports.com/index.php/mpr/article/view/869

19. Imam A, Obiesie S, Gathara D, Aluvaala J, Maina M, English M. Missed nursing care in acute care hospital settings in low-income and middle-income countries: a systematic review. Hum Resour Health. 2023 Mar 14;21(1):19. doi: 10.1186/s12960-023-00807-7.

20. Haskins HEM, Roets L. Nurse leadership: Sustaining a culture of safety. Health SA. 2022;25(27):2009. DOI: 10.4102/hsag.v27i0.2009.

21. Hao HS, Gao H, Li T, Zhang D. Assessment and comparison of patient safety culture among health-care providers in Shenzhen hospitals. Risk Manag Health Policy. 2020;13:1543-52. Disponível em: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7494381/pdf/rmhp-13-1543.pdf

22. El-Sherbiny NA, Ibrahim EH, Abdel-Wahed WY. Assessment of patient safety culture among paramedical personnel at general and district hospitals, Fayoum Governorate, Egypt. J Egypt Public Health Assoc. 2020;95(4):1-8. DOI: 10.1186/s42506-019-0031-8

23. Tran LH, Pham QT, Nguyen DH, Tran TNH, Bui TTH. Assessment of Patient Safety Culture in Public General Hospital in Capital City of Vietnam. Health Serv Insights. 2021;14:1-6. Disponível em: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8327014/

24. Hayashi R, Fujita S, Iida S, Nagai Y, Shimamori Y, Hasegawa T. Relationship of patient safety culture with factors influencing working environment such as working hours, the number of night shifts, and the number of days off among healthcare workers in Japan: a cross-sectional study. BMC Health Serv Res. 2020;20(310). DOI: 10.1186/s12913-020-05114-8

25. Abd-Elkader SM, Abd-Elmegeed MI, Abed FA. The Relationship between Twelve Hour Shift and Patient Safety at Cairo University Hospitals. Med J of Cairo Univ. [Internet]. 2019;87(7):4753-58. Disponível em: https://mjcu.journals.ekb.eg/article_85087_1cca208c39921db07b2f25bc3117bb80.pdf

26. Costa CC, Dibai DB, Silva EFM, Firmo WCA, Rêgo AS, Rabêlo PPC, Araújo FMM, Felipe IMA. Construction and validation of a checklist for operating room as a patient safety device. Cogitare Enferm. 2021;26:e71752. DOI: 10.5380/ce.v26i0.71752

27. Bohomol E, Melo EF. Patient safety culture in surgicenters: perception of nursing team. Rev SOBECC. 2019;24(3):132-8. DOI: 10.1590/1983-1447.2019.20180198

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