Cogitare Enfermagem

ORIGINAL ARTICLE

SAFETY CULTURE IN HIGH COMPLEXITY SERVICES IN THE CONTEXT OF THE COVID-19 PANDEMIC

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ABSTRACT

Objective: to evaluate the patient safety culture in high complexity units of a teaching hospital in times of pandemic. Method: cross-sectional design, carried out in emergency and intensive care units in 2021. We used the self-administered instrument Hospital Survey on Patient Safety Culture with 103 professionals from the multi-professional team. Descriptive analyses and instrument consistency were performed. Results: the strongest areas for patient safety culture were the dimensions teamwork in the unit (79.5%) and expectations and actions of the supervisor/leadership to promote patient safety (73.6%). While the dimensions non-punitive response to error (37.9%) and internal transfers and shift change (31.8%) stood out in the weak areas. A predominance of adverse events underreporting was observed (53.5%). Conclusion: critical sectors, even during the pandemic, showed strengthened areas, although fear of punishment and problems regarding information transfers were highlighted by professionals.

DESCRIPTORS: Patient Safety; Organizational Culture; Critical Care; Interdisciplinary Research; COVID-19.

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INTRODUCTION

Patient safety (PS) is one of the pillars of quality care in health services, which is associated with the absence of harm from care and achievement of desired outcomes[1]. However, the technological advances and complexity of care in health care institutions are a concern within PS, since it is associated with a high rate of adverse events (AE) related to care[2].

In this context, the concerns related to PS have increased after the publication of the report To Err is Human: Building a Safer Health Care System, in 1999, which showed high rates of harm to patients associated with health care[3]. In Brazil, the guidelines for PS were intensified through the release, in 2013, of the National Program for Patient Safety, aiming to contribute to the qualification of care and promotion of patient[4] [5] safety.

The implementation and maintenance of strategies for PS permeates isolated actions, which require institutional and organizational involvement for good health practices. Patient Safety Culture (PSC) stands out as an important organizational and multidimensional component that reflects the commitment of an institution's professionals to promote safe attitudes and consequently reduce health incidents[7-8].

In this sense, PSC refers to a set of values, attitudes, perceptions, and skills, individual or collective, that determine the commitment and style towards health safety in an organization[8-9]. Thus, the assessment of the safety culture of an organizational system makes it possible to measure conditions that require attention by identifying factors that increase the risk of AEs, in addition to creating opportunities for improvement strategies for PS in healthcare institutions[7].

This study aims to contribute to the evaluation of PSC in high complexity units in times of pandemic. Since complexity is intrinsic to emergency and intensive care units due to the use of hard technology and the profile of critically ill patients, there may be predisposition to the occurrence of AE[10].

It is also noteworthy that the pandemic of COVID-19 impacted on rapid changes in health services with the reorganization of infrastructure and human resources to meet new demands for care. However, these changes may impact the organizational culture, as well as patient safety, which is the ability to ensure safe and effective care[11].

Therefore, identifying the current PSC in emergency care and intensive care units in a pandemic scenario enables the identification of strengths, in the process of improvement and weaknesses[10]. Given the above, the aim of this research was to evaluate the patient safety culture in high complexity units of a teaching hospital in times of pandemic.

METHOD

This is a descriptive, cross-sectional study, with quantitative approach, carried out in a teaching hospital located in the countryside of the state of Rio Grande do Sul. The hospital units, scenarios of the study, were two Intensive Care Units, one general and the other COVID-19 (General ICU and COVID-19 ICU), and two Emergency Care Units, one with care provided by the Brazilian Unified Health System (Sistema Único de Saúde -SUS) (Emergency Care Units- SUS) and the other by private and supplementary health system (Private Emergency Health Care Units- Insurance).

The sample of this study was composed of professionals from the multidisciplinary health team working in the units of interest of the study. The sample was selected by

convenience through non-probabilistic means, and the professionals were invited to participate spontaneously until completing 50% of the total number of professionals in these sectors, as recommended in the collection instrument[12]. Inclusion criteria were professionals who had been working in the sector for at least one month, who helped/direct contact with the patient and had a workload of 20 hours a week or more. Professionals on vacation, on sick leave, and those who filled out the instrument incorrectly were excluded.

Data collection occurred in August and September 2021. Individuals who met the inclusion criteria were approached at their workplace and invited to participate in the study. They were given an envelope containing the data collection instrument to answer individually and anonymously. To maintain anonymity, each subject returned the completed instrument, inside the self-sealed envelope and without identification, to the researcher in charge after a period of three days from the date of delivery of the instrument.

We used the self-administered instrument Hospital Survey on Patient Safety Culture (HSOPSC), developed, and made available since 2004 by the Agency for Health Research and Quality (AHRQ), later translated and validated for the Brazilian hospital context by Reis[12]. The objective of this questionnaire is to measure the safety culture among professionals in the hospital environment, whose result influences the patient's therapy; demographic and professional information are also collected[13].

The HSOPSC consists of nine sections (distributed from A to I), which are subdivided into 42 items and addresses 12 dimensions, where the first seven questions are directly related to the PSC, being them: (a) Teamwork in the unit; (b) Expectations and actions of the supervisor/leadership to promote PS; (c) Organizational learning - continuous improvement; (d) Feedback and communication about errors; (e) Staffing; (f) Non-punitive response to error; (g) Support from hospital management for PS; (h) Teamwork between hospital units; (i) Internal transfers and shifts; (j) Overall perception of PS; (k) Frequency of communicated events; (l) Openness to communication. The instrument also includes two items in which it is possible to assign a Patient Safety Score and to report the Number of adverse events reported in the last 12 months[13].

The items are analyzed using a Likert Scale of five points, whose categorization is the degree of agreement for the 12 dimensions, being: one for totally disagree/never; two for disagree/very strongly disagree; three for neither agree nor disagree/sometimes; four for agree/almost always agree; and five for totally agree/always agree. In the reverse questions in which the participant disagrees with the negatively formulated item, he/she will be expressing his/her opinion in a positive way, with an inversion in the order of the score attributed[9]. To calculate the dimensions, the answers were grouped into positive (totally/always agree; agree/almost always), neutral (neither agree nor disagree/sometimes), and negative (totally disagree/never; to disagree/rarely)[12].

The evaluation of safety culture followed the AHRQ recommendations, to calculate the percentage of positive responses for each dimension, obtained through the number of positive responses of the items of the evaluated dimension divided by the total number of valid responses (positive, neutral, and negative) of the dimension under analysis. The percentage of positive answers represents a relation with the PSC, since strong areas are considered: dimensions with positive percentages above 75%; neutral areas - in improvement process - with positive scores between 50 and 75% and weak areas with positive percentages below 50%[12].

To evaluate the reliability and consistency of the data produced by the instrument, Cronbach's Alpha was applied, with values ranging from zero to one, and a score above 0.60[12-14] was considered satisfactory by the validation of the HSOPSC instrument.

For data analysis, they were entered into a spreadsheet in Microsoft Excel format, double-typed entry to check for typing errors, and then transferred to the JASP statistical software. The sections related to the number of events reported and the concept assigned to the institution, in relation to PS, were presented with their absolute and relative frequencies (%).

The study was approved by the Research Ethics Committee (CEP-Comitê de Ética em Pesquisa) under opinion number 4,912,776.

RESULTS

One hundred and ten instruments were applied in the General ICU, COVID ICU, SUS Emergency Care and Private Emergency Health Care Insurance units. Of these, seven were excluded from the study, three for not meeting the inclusion criteria such as direct patient care, two for not having worked in this institution for a shorter time and two for incorrectly filling out the survey instrument.

Thus, 103 health professionals participated in the study, 28 in the General ICU, 26 in the COVID ICU, 29 in the SUS Emergency Care and 20 in the Private Emergency Health Care Insurance units. The sample was predominantly female (n=86; 83.5%) and with a mean age of 32.9 years, ranging from 20 to 39 years (n=76; 73.8%). Regarding the professional category, it was observed that the majority, (n=85; 82.6%) belonged to the nursing team. As for the time of work in the area/unit, more than half of the sample (n=54; 52.4%) had worked for less than a year. As for weekly working hours, 56 (54.4%) participants reported working 20 to 39 hours a week in the institution (Table 1).

Table 1 - Sociodemographic and professional characteristics of the sample in the four units under study in this research (n=103). Santa Cruz do Sul, RS, Brazil, 2021]

Variables	n	%
Gender		
Female	86	83.5
Male	16	15.5
Age		
20 to 29 years old	38	36.9
30 to 39 years old	38	36.9
40 to 49 years old	22	21.4
50 to 59 years old	2	1.9
Position/Function		
Nurse	39	37.9
Nursing Auxiliary/ Technician	46	44.7
Physician	11	10.7
Physiotherapist	7	6.8
Time of work in the area/unit		
Less than 1 year	54	52.4
1 to 5 years	31	30.1
6 to 10 years	12	11.7
11 to 15 years	2	1.9
21 or more	1	1

Working hours per week in the hospital		
20 to 39 hours per week	56	54.4
40 to 59 hours per week	42	40.8
60 to 79 hours per week	2	1.9

Source: Authors(2021)

The overall Cronbach's Alpha index (α) for the 12 dimensions of the HSOPSC instrument was 0.89, which gives the instruments high reliability. A range of 0.30 to 0.90 was observed among the dimensions, with the Adequacy of Professionals (0.30) and Openness to communication (0.45) having the lowest values. Support from hospital management (0.73) and Frequency of events reported (0.90) had higher values, being considered satisfactory (Table 2).

Table 2 - Distribution of Cronbach's alpha of the HSOPSC dimensions in the four units under study. Santa Cruz do Sul, RS, Brazil, 2021

Dimensions	**α**
1 - Teamwork within the units	0.73
2 - Expectations and actions to promote supervisor/leadership safety	0.73
3 - Organizational learning - continuous improvement	0.54
4 - Support from the hospital management for patient safety	0.73
5 - General perception of patient safety	0.52
6 - Feedback of information and communication about errors	0.60
7- Openness for communication	0.45
8 - Frequency of notified events	0.90
9 - Team work among hospital units	0.68
10 - Adequacy of professionals	0.30
11 - Change of shifts and internal transfers	0.66
12 - Non-punitive response to error	0.50

α: *Alpha* de *Cronbach*
Source: Authors(2021)

Figure 1 shows the percentage of negative, neutral, and positive answers for each of the 12 PSC dimensions evaluated in the four research units. It can be observed that the dimensions with the most positive responses were Teamwork in the unit (79.5%) and Expectations and actions of the supervisor/leadership for the promotion of patient safety (73.6%). Analyzing the dimensions with the highest neutrality, we can highlight Feedback and communication about errors (31.1%) and Teamwork among hospital units (29.2%). As for the negatively evaluated dimensions, we have: Frequency of events reported (40.5%) and Non-punitive response to error (39.6%).

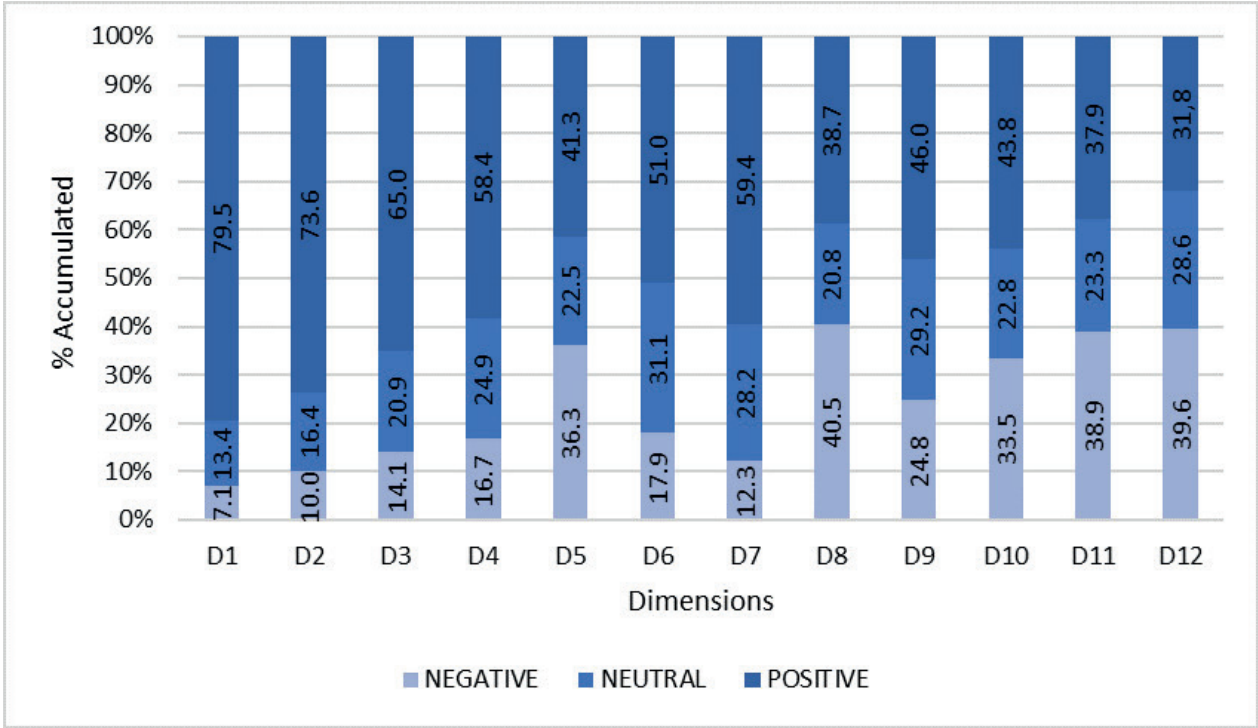

Figure 1 - Percentage of negative, neutral, and positive responses to the twelve dimensions* of the translated version of the Hospital Survey on Patient Safety Culture in the four study units. Santa Cruz do Sul, RS, Brazil, 2021

*D1: Teamwork in the unit; D2: Expectations and actions of the supervisor/leadership to promote patient safety; D3: Organizational learning - continuous improvement; D4: Support from hospital management for patient safety; D5: Overall perception of patient safety; D6: Feedback and communication about errors; D7: Openness for communication; D8: Frequency of events communicated; D9: Teamwork between hospital units; D10: Staffing; D11: Internal transfers and shift over; D12: Non-punitive response to error.

Source: Authors (2021)

In the individual evaluation of the units, we can highlight that the dimensions evaluated in the general ICU as strong areas within the PSC were Teamwork in the unit (76.8%) and Expectations and actions of the supervisor/leadership for the promotion of SP (80.4%). Areas in improvement - those with a percentage of positive responses between 50% and 75% - identified in this unit were: Organizational learning - continuous improvement (61.9%) and Openness for communication (54.8%). The weakest areas - dimensions with the lowest percentage of positive answers - in this unit are Non-punitive response to error (29.8%) and Internal transfers and shifts (31.5%).

In the COVID ICU, strong dimensions were observed as Teamwork in the unit (94.1%), Support from hospital management for PS (78.2%) and Expectations and actions of the supervisor/leadership to promote PS (77.9%). Dimensions in improvement process evidenced Organizational learning - continuous improvement (73.1%) and openness for communication (67.4%). The dimensions Non-punitive response to error (37.5%) and Internal transfers and shift change (44.6%) were the weakest areas in this unit.

The dimension Teamwork in the unit (76.8%) was scored as the strongest area in the SUS Emergency Care unit. Regarding areas in improvement, in this sector, Support from hospital management to PS (56.3%) and Organizational learning - continuous improvement (55.2%) were the ones that stood out. The weak areas with the lowest percentages were Non-punitive response to error (25.3%) and Internal transfers and shifts (29.9%).

The Private Emergency Health Care Insurance units did not reach the percentage

of strong area in any dimension. However, it is worth noting that of the 12 dimensions, eight are in the process of improvement, especially: Organizational learning - continuous improvement (73.7%), Teamwork in the unit (68.4%) and Expectations and actions of the supervisor/leadership for the promotion of SP (67.1%). In relation to the weak areas identified in this unit, non-punitive response to error (36.9%) and Frequency of events reported (49.1%) were mentioned. Table 3 shows the percentage of positive responses for each dimension by study unit and the percentage of overall positive responses in the four sectors.

Table 3 - Categorization of the percentage of positive answers for each dimension (n=12) by study unit (General ICU, COVID ICU, SUS Emergency Care units and Emergency Health Care Insurance units). Santa Cruz do Sul, RS, Brazil, 2021

Dimensions	General ICU (%)	Covid ICU (%)	SUS Emergency Care (%)	Private Emergency Health Care Insurance (%)	General (%)
Teamwork in the unit	76.8	94.1	76.8	68.4	79.5
Expectations and actions of the supervisor/ leadership for the promotion of patient safety	80.4	77.9	67.3	67.1	73.6
Organizational learning - continuous improvement	61.9	73.1	55.2	73.7	65
Support from hospital management for patient safety	45.2	78.2	56.3	53.5	58.4
General perception of patient safety	38	50	31.6	49.2	41.3
Feedback and communication about errors	49.3	59.9	38.4	60	51
Openness to communication	54.8	67.4	54.1	63.3	59.4
Frequency of communicated events	36.9	50.7	48.7	49.1	38.7
Teamwork between hospital units	39.3	57.4	38.8	51.4	46
Staffing	34.8	54.2	34.0	57.9	43.8
Internal transfers and shifts	31.5	44.6	29.9	49.3	37.9
Non-punitive response to error	29.8	37.5	25.3	36.9	31.8

Source: Authors (2021)

It was noted that the general safety score given by the four units was mainly Very Good (n= 50; 51%) and Regular (n= 40; 40.8%). When analyzed individually, it is possible to infer that the General ICU, ICU COVID and Private Emergency Health Care Insurance units had mostly a "Very Good" patient safety score, 48.1%, 66.7% and 57.9%, respectively. In the SUS PA unit, the predominance for patient safety score was "Regular" (52.9%), as represented in Figure 2.

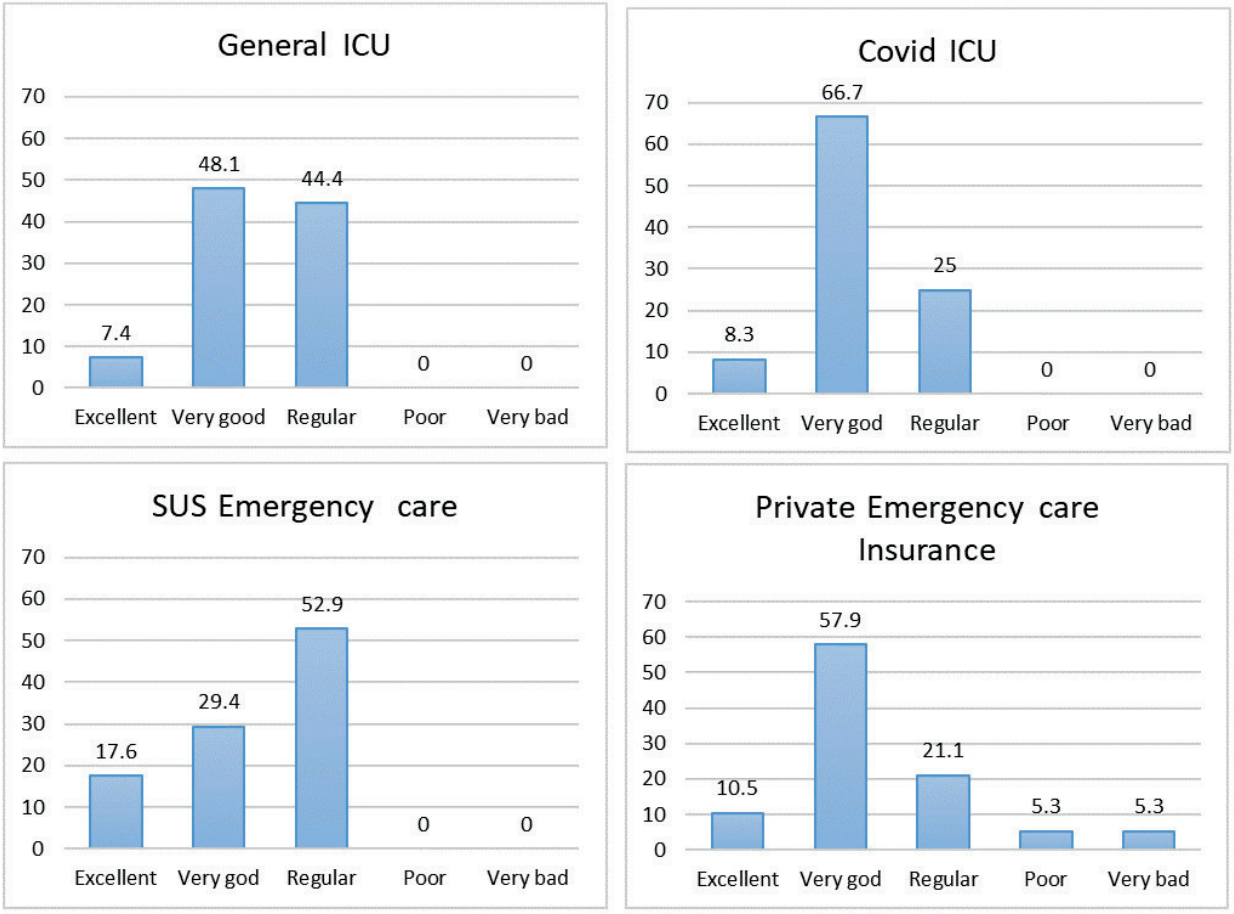

Figure 2 - Patient safety score assigned by the four units, General ICU, Covid ICU, PA-SUS and Private Emergency Health Care Insurance units. Santa Cruz do Sul, RS, Brazil, 2021

Source: Authors (2021)

Regarding AE notifications in the last 12 months, the units under study identified that most (n= 53; 53.5%) had not made any notification. When analyzing the units (Table 4), the General ICU, COVID ICU and Private Emergency Health Care Insurance have the same data, with more than half of the professionals at these sites not having reported any AE in the last year.

Table 4 - Demonstration of the number of adverse event notifications made in the last 12 months, reported by study unit. Santa Cruz do Sul, RS, Brazil, 2021

Units	None		1 to 5		6 to10		11 to 20		20 or more	
	n	%	n	%	n	%	n	%	n	%
General ICU	13	50	8	30.8	3	11.5	2	7.7	0	0
ICU COVID	16	64	6	24	1	4	1	4	1	4
Emergency Care SUS	12	41.4	11	37.9	3	10.3	1	3.4	2	6.9
Emergency Health Care insurance	12	63.2	3	15.8	1	5.3	3	15.8	0	0

Source: Authors (2021)

DISCUSSION

During the PSC study, the demographic and professional profile of the multi-professional team present in the high complexity sectors was investigated. Analyzing the data, there was a predominance of the nursing team, female and aged between 20 to 39 years. This occurrence is observed in other Brazilian studies, in which there is a prevalence of nursing professionals (82.8%) and (50%) with mean age of 34 years and 39 years, and of the female gender (79.90%) and (73%), respectively[15-16]. These data represent the profile of professionals present in health institutions, with emphasis on nursing because it is a prevalent profession in patient care, as well as female gender and the profile of young adults still predominant in health services.

It is noteworthy that the length of time working in the unit differs from the studies found, such as that produced by Arboit[17], which showed a performance of one to five years in the unit, and another in which 43% of professionals had a performance of one to five years[6]. It can be inferred that due to the health panorama at the time of data collection, influenced by the pandemic of COVID-19, may have reflected in the result found, since health institutions sought to reorganize their services to meet the emerging need as through new professional hiring[11].

The weekly workload of 20 to 39 hours in the institution is like another study with the same professional profile, where 67.2% had this time interval[18]. Moreover, this workload reflects the average workday of the prevalent professionals in this study. It is known that the nursing team has, in its great majority, 36 hours of work per week. It is noteworthy that the workload performed can influence attitudes and safe care, since work overload and occupational stress predispose to results that are not consistent with PS[6].

The variability and reliability of the study, analyzed by means of Cronbach's Alpha obtained levels like other studies with variability between 0.45 to 0.91[9] and 0.08 to 0.84[19]. In the validation study of the instrument for the Brazilian version, the reliability value was found to be approximately 0.52 to 0.91. The variation between dimensions is expected, since the AHRQ highlights that it may be associated with population characteristics and variability of responses from participants[20].

The dimensions identified as strengthened within the PSC exert a positive effect on the processes of improvements in the PS, since it presents potential for development of professionals for safe attitudes[7]. From the perspective of strong areas observed in this study, the dimension Teamwork in the unit stands out, evidenced in three of the sectors, this being characterized as support among employees in a respectful and teamwork[7] manner.

Recent research in a high complexity hospital evaluated this dimension around improvement with a moderate percentage of 71%[6]. On the other hand, in research conducted in a hospital group in Taiwan with the objective of evaluating the PSC and well-being of employees during the COVID-19 pandemic, it was observed that the dimension Teamwork in the unit, was better evaluated from the pandemic point of view. This was explained by the fact that the context of the pandemic with a situation of chaos in most health services, contributed to the reorganization of teams and mutual support to meet the growing demand in institutions[21]. This dimension is reinforced as indispensable for a positive PSC, because there is a strengthening of the work through the exchange of skills and knowledge in favor of a safe and high-quality care[22].

Leadership is essential for the institutional development of strategies aimed at PS, by encouraging the team to have a critical look at health actions[22]. From this perspective, the dimension Expectations and actions of the supervisor/leadership stood out as strengthened in this study with a percentage above 75% in two units. This dimension refers to the perception by the teams of their manager as the provider of safe attitudes related to care.

To strengthen a positive PSC, managers need to establish communication with the teams to involve them in goals for promoting safety, in addition to managing incidents and planning actions, based on the perceptions of the care team, for quality in health[19]. In this sense, proper leadership is seen as that which can drive a safe practice environment[23].

The evaluation of the domain Non-punitive response to error found in this research resembles other studies as a weak area within safety culture. This is reinforced by Brazilian (36.1% and 25%)[8-9] and international (17%, 38% and 33%)[24-25] studies in which there is a lower positive percentage among the dimensions indicating the fragility of this dimension in global institutions.

The perception of punishment associated with the error hinders its identification and root cause, since the professional feels discouraged to report the incident[7]. The importance of the transition from a punitive culture, in which responsibility is attributed to the professional, to a culture of organizational learning in which the processes involved in the incident are analyzed to improve them. The change in culture can influence the reduction of AE underreporting, enable feedback on errors and allow discussion about preventive actions for new events[22].

It is observed in this study that the negative perception of professionals in the dimension Non-punitive response to error may be related to how long they have been working in the units. In this context, recently hired professionals may be underreported due to lack of knowledge or fear of reporting incidents with the idea that there will be repercussions in their professional history.

In the dimension Internal transfers and changeover, the professionals in this study showed concern related to patient transfer between units of the institution, as well as the exchange of information within the same unit. The changeover is considered a crucial step in patient care because it is at this moment that relevant information is passed on for continuity of care. Communication failures, such as loss of information, can have a negative impact on the continuity of care and PS[7]. It is considered that this data may reflect the establishment of new teams during the reorganization of services in the pandemic COVID-19, since the unpreparedness in communication and work overload on these teams may influence the loss of information.

To ensure safe care, the adoption of communication strategies is recommended, through standardized instruments that help professionals during the exchange of information and ensure the continuity of care[26]. Efficient communication enables preventing the occurrence of errors resulting from health care, which is the objective of PSC[2].

Organizational learning - continuous improvement characterized as the ability to learn from mistakes was perceived in this study with potential for improvement within the PS[27]. A study conducted in an accredited hospital, evidenced this dimension as strengthened within the PSC in the institution, with a positive percentage of 77%[9].

The learning culture allows for continuous analysis of the mechanisms that predispose to failures and manage actions to prevent incidents. In this context, the focus is on the problem that generated the error and not on the professional who identified it, strengthening their participation in the processes of improvements for safety[6], [27].

The overall perception of SP was evidenced as weakened within PSC. However, 51% of respondents attribute the PS score to the institution of Very Good. It is understood that professionals recognize a favorable safety climate when analyzed in a single and direct way by assigning a single judgment value. Differently when evaluated in a multifactorial way - through items that analyze safety in daily life - present in the evaluation of the dimension general perception of PS[19].

Regarding the number of notifications, it was observed that most professionals had not made any AE notification in the last year. This data is in line with the research conducted

in an accredited hospital of high complexity in which 89% of participants had not notified any event in 12 months[6].

In this sense, the main causes evidenced regarding underreporting include work overload, lack of knowledge on how to notify, forgetfulness, devaluation of AEs through lack of implementation of learning from the error, and especially the existence of a punitive culture present in the institution[3, 19]. It is necessary to encourage the identification of errors and their notification, because from this, there will be the possibility of generating changes in the patient safety scenario and ensure quality in health care.

It was noticed that the context of the pandemic influenced the professional profile, regarding the time of work in the units, when observed in other studies. Therefore, we can think that the weakened and strengthened dimensions found in this research may be influenced by this characterization, since young professionals may be unaware of aspects related to the organizational culture focused on PS in the institution.

Limitations of the study were observed about the scarcity of literature on the topic of PSC in COVID-19. It is suggested that future studies be conducted to compare differences or similarities in PSC from the perspective of the pandemic COVID-19 and outside of it.

CONCLUSION

When describing the PSC present in high complexity units in a pandemic period, it was evident that the critical sectors, even during the pandemic, presented strengthened areas for PSC, such as the dimensions Teamwork and Leadership Expectations and Actions. When we highlight these areas, it is suggested that the institution can use them as catalysts for improvements within the PSC.

From the point of view of weakened areas, the fear of punishment associated with the incident and problems regarding information transfers were highlighted by the professionals in this moment of COVID-19. In this context, the assessment of weaknesses in the current PSC may subsidize actions and strategies for the PS, since the identification of these areas will guide managers for the organizational dissemination of the safety culture. In addition, the study also contributed to the understanding of the influence of the professional profile in the PSC in the pandemic context and the importance of continuing education in PS.

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Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work - Haas LE, Gaedke MA, Santos JAM; Drafting the work or revising it critically for important intellectual content - Haas LE, Gaedke MA, Santos JAM; Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved - Haas LE, Gaedke MA. All authors approved the final version of the text.

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