

Patient safety culture in an intensive care unit: the perspective of the nursing team*

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ABSTRACT

A survey was conducted with the goal of identifying and comparing the dimensions of patient safety culture from the perspective of nursing workers in two intensive care units. The Hospital Survey on Patient Safety Culture was applied between April and June 2011. It was answered by 86 workers, who were 83.49% of the nursing workers in the two intensive care units. The dimensions with the highest positive evaluations were teamwork within the units (62.8%), supervisors'/managers' expectations and actions for safety promotion (49%) and organizational learning (46,1%). The dimensions with the lowest assessments were management support for safety (13.6%), nonpunitive responses to errors (17.5%) and general perception of safety (25.9%). The results indicate that safety culture must be developed at the study sites, with special attention to the dimensions with lower safety culture evaluations.

Descriptors: Patient Safety; Culture; Intensive Care Units; Nursing.

INTRODUCTION

Patient safety has been a focus of health organizations when improving service quality. In response to the recommendations of the Institute of Medicine (an NGO in the United States) for improvement of patient safety in 2000⁽¹⁾, patient safety became an important worldwide health policy; it is seen as a paradigm, practice and movement uniting various communities as they move toward a common goal⁽²⁾.

Various strategies aiming for patient safety have been implemented in order to reduce errors in health care⁽³⁻⁴⁾. However, it is recognized that the main barrier to safe practice is not lack of data, knowledge or experience among workers, but the fact that many health organizations have fragile cultures that reinforce

negative behaviors. These cultures hamper high-quality and effective care that is efficient and profitable. The cultures of health organizations are unable to adapt to satisfy needs and overcome limitations and offer stimulating and safe work environments⁽⁵⁾.

The development of patient safety culture was one of the measures recommended by the Institute of Medicine to help health institutions promote safety⁽¹⁾. Safety culture in an organization is the values shared among members about what is important, beliefs about how things work in the organization, and interactions with work facilities, structures and organizational systems, which together produce behavior standards that promote safety⁽⁶⁾.

There are emerging trends that correlate patient safety culture to positive results for patients, such as decreases in readmission and mortality rates, patient satisfaction and pressure ulcers. When it comes to patient safety culture in intensive care units (ICUs), mortality and family satisfaction present even higher correlations⁽⁷⁾. Moreover, positive safety culture can also be related to a lower rate of adverse events⁽⁸⁾.

In this sense, safety culture in healthcare environments contributes to quality and patient safety. The main elements of safety culture involve effective leadership, teamwork, learning from mistakes and establishment of an environment of trust⁽⁹⁾. However, most health organizations have outdated hierarchical structures that inhibit communication, compromise full participation and harm teamwork⁽⁵⁾.

In this context, assessing patient safety culture is the first step toward improving patient safety in health organizations. It enables: a clear view of patient safety aspects that require urgent attention; identification of strong and weak points in safety culture; detection of patient safety problems in the units; and comparative evaluation of their scores against scores from other institutions⁽¹⁰⁾.

Various instruments have been developed to assess safety culture⁽¹¹⁾. They usually employ quantitative questionnaires based on a combination of various dimensions of patient safety culture. The most frequent dimensions are: the commitment of leadership to safety; trust-based, open communication; organizational learning; nonpunitive approaches to adverse event reports; teamwork; and shared beliefs about the importance of safety⁽¹²⁾.

Given the importance of assessing patient safety culture, the present study applied the Hospital Survey on Patient Safety Culture (HSOPSC), an assessment instrument for safety culture created by the Agency for Healthcare Research and Quality of the United States⁽¹³⁾. This instrument was utilized with the objective of identifying and comparing dimensions of patient safety culture in the eyes of nursing workers in two adult ICUs.

METHOD

A quantitative cross-sectional survey study conducted in two adult ICUs of public hospitals in southern Brazil from April to June 2011. The Brazilian standards for research on human subjects were adopted. The project was approved by the human research ethics committees of both institutions under protocol numbers 59/10 of 10/25/2010 and 1.111 of 11/29/2010.

Convenience sampling was used to select the participants. The study's population consisted of 109 nursing workers. The inclusion criterion was at least six months of employment in the ICUs where the study was conducted. Of the 109 professionals, five were excluded from the study because they were away from work during the data collection period and one refused to participate in the study. Therefore, 103 participants received the forms, and 97 returned them.

Data collection consisted of applying the HSOPSC, an instrument that was transculturally adapted and validated for Brazilian Portuguese in 2013. Since the chosen instrument was still in process of validation, the authors decided to use the version translated into Portuguese⁽¹⁵⁾, which was pretested by five professionals. Comparison of the study's version and the version that was submitted for adaptation and validation⁽¹⁴⁾ found no differences in language that would compromise comprehension of the instrument, which could have the result of affecting the assessment conducted by the professional.

The HSOPSC has been available in the public domain since 2004, and it has been widely employed due to its favorable psychometric properties⁽¹⁶⁾, which are evidenced by its reliability and validity attributes.

The instrument contains 42 questions grouped under 12 dimensions: teamwork within units; supervisor/manager expectations and actions promoting patient safety; organizational learning, continuous improvement; feedback and communication about errors; communication openness; staffing; nonpunitive response to errors; management support for patient safety; teamwork across units; handoffs and transitions; overall perceptions of patient safety; and frequency of events reported.

Each of the 12 dimensions of the HSOPSC includes three or four items scored according to a five-point Likert scale, with response categories in terms of agreement (nine responses) or frequency (three responses). The score for each dimension is expressed as a percentage of positive responses, obtained by calculating the combined scores of the two highest response categories for each dimension. Higher percentage values indicate positive attitudes in relation to patient safety culture⁽¹⁷⁾.

After signing the free and informed consent form, participants learned about the study's objectives. Then the completed surveys were put in a ballot box separately, with no identification except for the HSOPSC's demographic data.

Sociodemographic data were analyzed through descriptive statistics, with frequency rates calculated, both absolute and percentage, for each category of nursing workers.

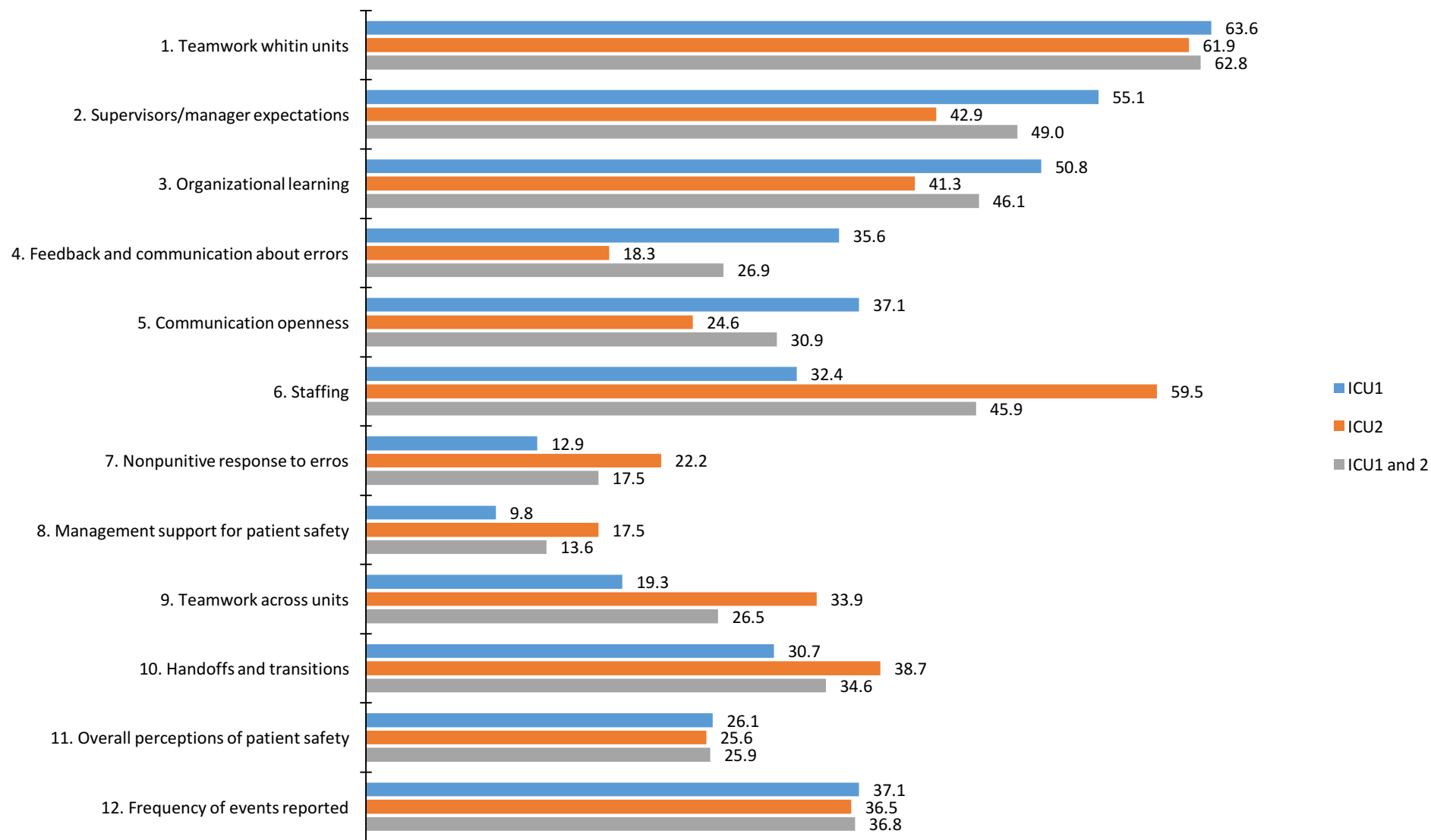
For analysis and interpretation of results, the AHRQ guidelines were employed⁽¹⁷⁾. Some of these guidelines were the combination of the two highest response categories ("strongly agree/agree" and "most of the time/always") for items described positively, and the two lowest response categories ("strongly disagree/disagree" and "never/rarely") for items written negatively or reversed. Then the percentage for each item was calculated. The highest percentage values indicate positive attitudes regarding patient safety culture. Areas of strength for patient safety are defined by the AHRQ for items and dimensions in which over 75% of interviewees responded with "strongly agree/agree" and "most of the time/always" for items described positively, or with "strongly disagree/disagree" and "never/rarely" for items written negatively.

Areas with potential for improvement are identified as items or dimensions with percentages of positive responses below 50%, while neutral areas are those in which the percentages of positive responses are below 75% and above 50%.

Assessment percentages for safety culture were calculated for each of the ICUs and globally, and are presented in charts. The two-proportion z-test was employed to test for the presence of significant differences among the percentages of positive responses for the dimensions of safety culture between both ICUs. Pearson's correlation coefficient (r) was employed to verify the existence of correlations among dimensions, adopting the following criteria: <0.3 (weak correlation); >0.3 and <0.5 (moderate correlation) and >0.5 (strong correlation).

RESULTS

Chart 1 presents the patient safety culture dimension evaluation for ICU1 and ICU2 and for both ICUs. Scores represent the percentage of positive responses obtained for each dimension. The calculation of mean positive scores of the 12 dimensions resulted in 34.7% in general, 34.2% for ICU1 and 35.2% for ICU2. In general (ICU1 and ICU2), the dimensions with the highest percentages were: teamwork within units (62.8%); supervisor/manager expectations and actions promoting patient safety (49.1%); organizational learning, continuous improvement (46.1%). The dimensions with the lowest percentages were: management support for patient safety (13.6%), nonpunitive response to errors (17.4%); and overall perceptions of safety (25.9%).



z-test for differences between ICU1 and ICU2 insignificant (p-value=10%) for all dimensions, except 4 (p=0.456) and 6 (p=0.271).

Chart 1: Percentage scores for patient safety culture domains of two intensive care units in southern Brazil, 2011.

Chart 1 also shows the results of z-tests to assess differences between positive response percentages from both ICUs. There were no significant differences between the two ICUs for p-value = 10%, except for dimensions 6 and 4.

The degree of patient safety, as assessed by the nursing professional category and in general, is presented in Chart 2. Most workers (77.7%) rated safety as “very good/acceptable.” Nursing technicians and assistants presented better assessments (“good/acceptable” - 81.7% and 85.6%, respectively) than nurses (“acceptable/weak” - 78.9%).

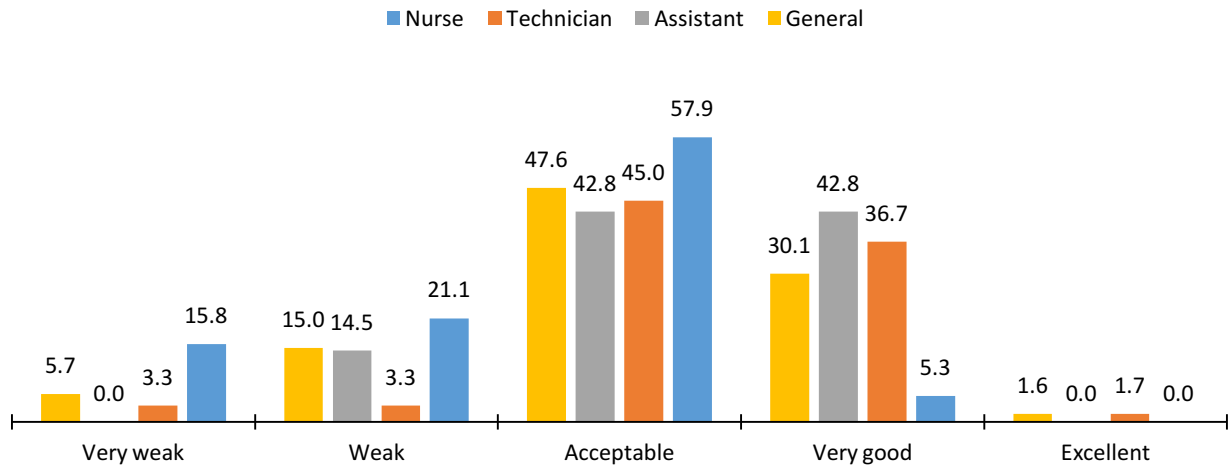


Chart 2: Assessment of the degree of patient safety by nursing professional category and in general for two intensive care units in southern Brazil, 2011.

Responses referring to the number of events reported to immediate superiors in the last 12 months, according to various nursing categories and globally, are presented in Chart 3. The results demonstrate that few events were reported, seeing as how most responses were none (30.2%) and between one and two events (37.2%). Regarding professional category, nurses reported events more frequently, since 79% reported between one and five events, while technicians, for the most part (76.9%), reported two events at most. However, 42.8% of assistants reported between 11 and 20 events.

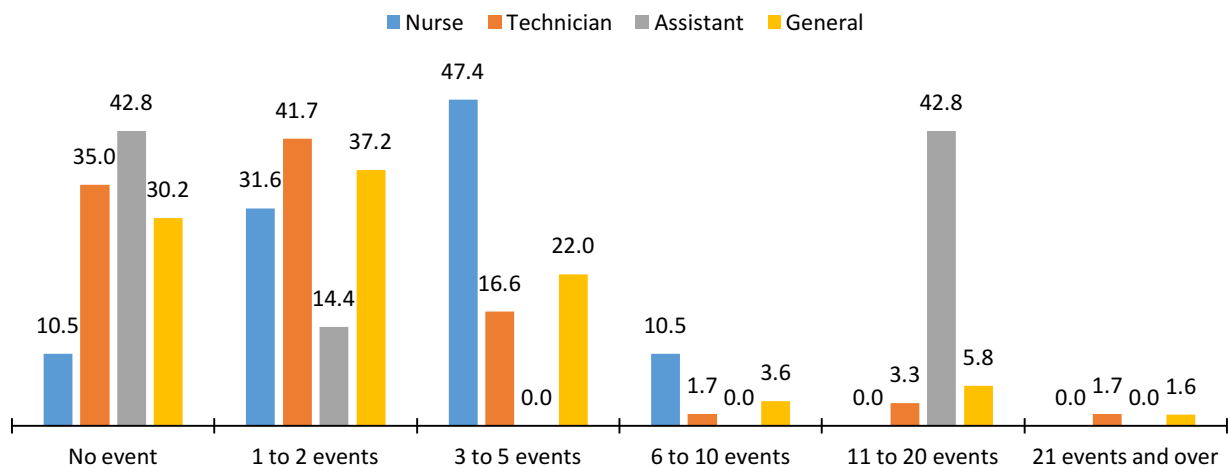


Chart 3: Number of events reported to immediate superiors in the last 12 months by nursing professional category and in general for two intensive care units in southern Brazil, 2011.

Table 1 shows the results for correlations among the dimensions degree of patient safety, number of events reported in the past 12 months, and the items for dimensions general perception of patient safety (A10R, A15, A17R, A18) and frequency of reported events (D1, D2, D3).

Table 1: Correlations among dimensions degree of patient safety, number of events reported, general perception of patient safety, and frequency of reported events for two intensive care units in southern Brazil, 2011.

	Degree of patient safety	Number of events	A10R	A15	A17R	A18R	D1	D2	D3
Degree of patient safety	1								
Number of events	0.023	1							
A10R	0.290	-0.083	1						
A15	0.388	-0.086	0.205	1					
A17R	-0.513	0.150	-0.320	-0.541	1				
A18R	0.498	0.026	0.256	0.343	-0.429	1			
D1	0.456	0.087	0.003	0.356	-0.205	0.484	1		
D2	0.389	0.106	0.091	0.261	-0.199	0.488	0.838	1	
D3	0.314	0.122	0.179	0.271	-0.204	0.391	0.651	0.742	1

Key:

- A10R – It is just by chance that more serious mistakes don't happen around here;
- A15 - Patient safety is never sacrificed to get more work done;
- A17R - We have patient safety problems in this unit;
- A18R - Our procedures and systems are good at preventing errors from happening;
- D1 - When a mistake is made, but it is identified and corrected before affecting the patient, how often is this reported?;
- D2 - When a mistake is made, but has no potential to harm the patient, how often is this reported?;
- D3 - When a mistake is made that could harm the patient, but does not, how often is this reported?

These results showed moderate and negative correlation between the item “we have patient safety problems in this unit” (A17R) and the degree of patient safety ($r=-0.513$). Positive and moderate-to-low correlation was observed between the item “our procedures and systems are good at preventing errors from happening” (A18) and the degree of patient safety ($r=0.498$). The item D1 also demonstrated positive and moderate-to-low correlation with the assessment of safety degree ($r=0.456$). There were moderate-to-strong and positive correlations between the items for the dimension frequency of reported events (D1 and D2, $r=0.838$; D1 and D3, $r=0.651$; D2 and D3, $r=.742$).

DISCUSSION

The present study revealed a fragile safety culture in most dimensions. The percentage mean of 34.83% found for positive responses for the 12 dimensions contrasted with other studies conducted in ICUs, which found percentages of 62%⁽¹⁷⁾ and 55.24%⁽¹⁸⁾. The scores in the present study were also lower than those in a study conducted in Brazilian neonatal intensive care units, which found a percentage of 42.58%⁽¹⁹⁾.

This assessment shows the need for changes in various aspects of patient safety culture in the researched institutions. Such aspects can be prioritized according to the dimensions with the lowest scores.

The dimension hospital management support for patient safety obtained a lower percentage of positive evaluations (13.6%), showing that most professionals noticed that the administration did not provide a work environment that favored safety. Other studies have presented similar results, with 22% in Brazil⁽¹⁹⁾

and 26.3% in Norway⁽¹⁸⁾. From another perspective, a study by the AHRQ⁽¹⁷⁾ presented a percentage of 63% of positive responses for this item.

In the last several decades, hospital managers have seen increases in responsibilities for care quality and safety, making new structures of administration, education and quality assessment necessary. However, these measures are not sufficient to achieve the desired improvement. Many managers are finding that this challenge requires a new level of collaboration with the organization's health team, with shared efforts to improve care⁽²⁰⁾.

Leaders can directly influence quality and safety when they establish goals and strategies for care improvement; support and promote a culture of quality improvement; develop leadership; manage resistance; and plan resources for quality⁽²¹⁾.

Currently, one of the biggest challenges for patient safety is the assimilation by health institution administrators of the multifactorial nature of errors and adverse events, and the susceptibility of health professionals to errors when processes are complex and badly planned⁽²²⁾.

Non-punitive responses to errors, also with low percentage of positive evaluations in the present study (17.5%), demonstrates that there still prevails among workers a fear of having their errors used against them. This reinforces the importance of promoting an open, nonthreatening environment for error reporting in health care. This fair and balanced approach contributes to a higher level of event reporting, adherence to better safety practices, and, consequently, a decrease in errors⁽²³⁾.

The 31% evaluation for the dimension communication openness shows the importance of changes that promote an environment in which it is possible to speak freely about aspects that may negatively affect patients, and report errors and adverse events without fear of punishment.

The present study also found, through the dimension frequency of events reported and data on the number of events reported to administration, a low rate of error reports among workers. It became clear that when workers have the tendency to report errors, they report errors ranging from the most simple, corrected before they happen, to errors that actually occur. This aspect was demonstrated by the strong correlation among study variables aimed at this assessment.

The dimension feedback and communication about error, whose evaluation was 27.1%, highlights the need for workers to be aware of errors and adverse events that have been reported and for which measures have been taken. Awareness of risk situations through knowledge of what happens at the institution could support adequate care management focused on error prevention and establishment of a safety culture⁽²⁴⁾.

During the present study, initiatives for patient safety were incipient in Brazil, and error and adverse event reporting was not a formal practice at healthcare institutions, which could explain the low percentages of positive responses for these dimensions.

This situation can also influence worker perception regarding patient safety. Although the present study showed a good evaluation of the degree of safety (77.7% - "very good/acceptable"), it also showed low positive evaluation for the dimension general perception of patient safety (25.9%). A study of neonatal ICUs

in Brazil⁽¹⁹⁾ also demonstrated similar results, with degree of safety getting a “very good /acceptable” assessment from 83% of workers. The dimension general perception of patient safety had 36% of positive responses.

In the present study, the moderate and negative correlation found between the items “we have patient safety problems in this unit” (A17R) and the degree of patient safety ($r=0.513$) means that workers who most agree that there are patient safety problems also present the worst evaluations for degree of safety. If workers positively perceive procedures and systems for error prevention, their assessment of patient safety degree will be positive, and vice-versa.

Still regarding the assessment of safety degree, it was shown that when workers tend to report errors that occur, but are noticed and corrected before affecting patients, they report a better perception of the degree of safety. On the contrary, if they report errors less, the assessments for degree of safety are worse.

Although there are variations in safety culture among institutions or even among units within a single institution, the particularities of work and the characteristics of the intensive care environment can indicate similarities.

In fact, similarities were observed between the assessments of workers in both ICUs, especially concerning teamwork, general perception of safety, and frequency of events reported, among others. However, differences between the ICUs were statistically significant for two dimensions, staffing, and feedback and communication about error. This information points to the need for ICU1, in comparison to ICU2, to prioritize increases in personnel, because the items with the lowest scores for this dimension were “we have enough staff to handle the workload” (20%) and “we work in crisis mode, trying to do too much too quickly” (16%). As for ICU2, the priority is the implementation of changes in communication processes, especially concerning errors, because of the low percentage of positive responses for items “we are informed about errors that happen in this unit” (14%) and “in this unit, we discuss ways to prevent errors from happening again” (19%).

Personnel numbers have been intensely discussed as an important indicator for patient safety. Research conducted in ICUs of two Brazilian hospitals⁽²⁵⁾ demonstrated that patients who received care from overworked nursing workers presented more than two times the chances of suffering at least one adverse event. It also showed complications attributable to nursing work overload, increased hospitalization length, and risk of patient mortality.

Most dimensions assessed in ICU1 and ICU2 did not present results that were consistent with a safety culture, according to the 75% limit established by the AHRQ⁽¹⁷⁾. Despite that fact, some items with favorable perceptions were identified, such as teamwork and managers’/supervisors’ expectations.

In the dimension teamwork within units, the most highlighted item, with 92% of positive responses, was “when a lot of work needs to be done quickly, we work together, as a team to get the work done.” In the dimension supervisor/managers expectations, the most highlighted reversed items were “whenever pressure builds, my supervisor/manager want us to work faster, even if it means taking using shortcuts”

(65%) and “my supervisor/manager gives serious consideration to staff suggestions to improve patient safety” (58%).

Reinforcing the importance of the present study, the literature emphasizes that teamwork is effective in and crucial to providing ideal care to patients, and that leadership is vital in guiding how ICU team members must interact, coordinate among themselves⁽⁴⁾, and safely carry out activities.

CONCLUSION

The present study enabled a general assessment of safety as perceived by nursing workers in two ICUs. The results indicate that safety culture still needs to be better developed in these workplaces, seeing as how all dimensions need improvement. However, management support for safety, reporting of errors, general perception of safety, and nonpunitive responses to errors should receive more attention. In this regard, the results point to the need for future strategies for permanent education that improves assessment results for these dimensions, and that also inspires new research.

Analysis of correlations among the various dimensions showed an innovative interpretation, generally not observed in the traditional analysis of the instrument, which considers strong and weak points of the institutions.

The results are a useful diagnostic tool to help the managers of these institutions to develop effective strategies for improvement of healthcare quality in order to guarantee patient safety. They can be used as reference for future studies assessing the results of interventions based on these results. It represents a cultural singularity that must be taken into consideration when instruments for measuring safety culture are applied to various types of culture.

The authors wish to recognize certain limitations of the study. The instrument employed for assessment of safety culture has not been validated for Brazil, as it was just translated and applied to the study sites, which could compromise its reliability and internal consistency. Another limitation was the exclusive inclusion of nursing workers. These results may not reflect patient safety culture from the perspective of other health workers. More research is necessary that employs the validated instrument with various health workers, hospital units and institutions.

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