Evaluation of patient safety culture in a private general hospital: a case study in Brazil

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Abstract

Purpose – The purpose is to assess the patient safety culture perceived by healthcare and administrative staff in a Brazilian hospital and examine whether education and experience are related to positive perceptions.

Design/methodology/approach – A descriptive–analytical case study was carried out at Ernesto Dornelles Hospital, a private Brazilian institution. The Brazilian version of the Hospital Survey on Patient Safety Culture was used to assess the perceptions of 618 participants, of whom 315 worked in healthcare assistance and 303 in administrative services. The main outcome was the percentage of positive responses, and the independent variables included the type of work, schooling and length of experience.

Findings – None of the twelve dimensions was strengthened. The percentage of positive responses was the highest for "Hospital management support for patient safety" (67.5%), and the lowest was for "Nonpunitive response to error" (29%). The healthcare staff had a slightly higher average than the administrative staff. The percentage of positive responses from professionals with undergraduate or graduate degrees was higher for the eight dimensions of safety culture. The length of hospital experience was not associated with any dimensions.

Originality/value – This study explored the influence of education and professional experience on the perception of patient safety in healthcare and administrative staff from a private institution. These approaches allow to know with greater depth and clarity factors that are related to the patient safety culture and, thus, have more consistent evidence to support interventions in specific needs.

Keywords Patient safety culture, Quality of patient care, Organizational culture

Paper type Case study

Introduction

Patient safety culture is a multidimensional concept defined as the product of values, attitudes, perceptions, competencies and standards of individual and group behavior that determine an administration's commitment, style and proficiency in managing patient safety (Nieva and Sorra, 2003).

Safety in healthcare organizations affects not just patients but healthcare providers and the clinical, economic and organizational aspects of the healthcare services provided. Patient safety culture is a core component of a high-quality system; therefore, strengthening it, especially in hospitals, is associated with favorable outcomes such as reduced infection and professional burnout (Fan *et al.*, 2016; Fujita *et al.*, 2019; Mossburg and Dennison Himmelfarb, 2018; Rajalatchumi *et al.*, 2018).

A little more than two decades ago, the Institute of Medicine (now the National Academy of Medicine) launched industry-wide discussions on patient safety with its 1999 report,

"To Err is Human: Building a Safer Health System." The report emphasized patient safety culture as a fundamental concern to avoid potential harm to patients during healthcare delivery (Kohn *et al.*, 2000). Although patient safety culture is not a new issue, it is still incipiently performed in health institutions, and medical errors remain a substantial threat (Ahmed *et al.*, 2019). Health systems still have a long way ahead to achieve an effective and positive safety culture (Farokhzadian *et al.*, 2018).

Although deficits in the performance of patient safety culture are frequent in many institutions, the levels of these parameters are not homogeneous worldwide. Studies have shown that developed countries, such as Norway, Sweden and the Netherlands, achieve mostly positive evaluations of the patient safety culture, with high scores in such dimensions as teamwork, safety climate, job satisfaction, leadership support and working conditions (Bondevik *et al.*, 2014, 2017; Smits *et al.*, 2018). However, in developing and emerging countries, the overall levels of patient safety are often low. Recent results show that Hungary, Peru, and Brazil have fragile dimensions for patient safety, with lower scores that involve communication, staff availability and punitive response to errors (Arrieta *et al.*, 2018; Galvão *et al.*, 2018; Granel *et al.*, 2019).

Research has also uncovered another potential factor related to patient safety levels: the type of institutional funding. Private health institutions are generally found to have more positive views about patient safety culture than public institutions (Al-Ahmadi, 2009). With public institutions already less likely to perform as well in the patient safety arena, the risk is compounded in underdeveloped or developing countries with precarious public financing of the health sector (Al-Ahmadi, 2009; Arrieta *et al.*, 2018).

Brazil is one of several nations facing the challenge of mitigating unsafe conduct in health institutions in the face of financial restrictions. It has a universal public health system that serves more than 200 million inhabitants and is continually striving to expand access and improve quality (Massuda *et al.*, 2018). However, despite Brazil having the largest economy in Latin and Central America, research reveals its hospitals have many deficits related to patient safety culture (Costa *et al.*, 2018; Andrade *et al.*, 2018). Given Brazil's pronounced social disparities and the copious evidence suggesting the public health sector has a less than robust devotion to the patient safety culture, it would be worthwhile to investigate whether the country's private health sector differs substantially and, if so, why.

Brazil has attempted to strengthen patient safety in Brazil in recent years; however, gaps still exist in the production of information that can integrate patient safety culture in the country's hospital practices. Understanding how health professionals and the entire staff deliver direct and indirect care could strengthen policies that improve the country's patient safety culture.

In addition to the limited evidence regarding the Brazilian private health system, there are knowledge gaps about healthcare professionals' perceptions of the patient safety culture by other professionals. Evidence from different contexts with better socioeconomic levels shows differences in perceptions of patient safety culture perceived between those directly versus indirectly responsible for patient care (Zhong *et al.*, 2019), confirming the relevance of investigating this distinction in less developed nations.

In recognition of the importance of this issue, this study sought to answer the following research questions: How is the patient safety culture perceived by healthcare and administrative staff in a Brazilian private hospital? Are education level and professional experience related to people's perceptions of this subject? The study's purpose was to assess the patient safety culture perceived by healthcare and administrative staff in a Brazilian private hospital and examine whether education and experience were related to the perceptions. This study hypothesized that the perception of patient safety culture would differ depending on whether someone was involved in providing healthcare directly or indirectly, their level of education, and their professional experience. The study further

hypothesized that the perceived level of patient safety culture would be higher than that reported for public institutions.

Methods

Design and participants

The researchers conducted this descriptive–analytical case study at Ernesto Dornelles Hospital, a private general institution in Porto Alegre, Brazil. Its institutional policy included the stated objective of consolidating patient safety culture. At the time of the research, the hospital had 320 beds and 1,714 employees responsible for direct or indirect patient care.

A stratified random sample was calculated to ensure the representativeness of professional categories. The sample size considered a prevalence of 60% of the outcome of interest (Wagner *et al.*, 2013), with a 95% confidence level, a margin of error of 4%, a minimum difference of 10% between direct and indirect healthcare assistance groups, a power of 80%, and significance level of 5%. Of the 618 hospital professionals who ultimately participated in the study, 315 worked in healthcare assistance and 303 in administrative services. The former were considered to have direct contact with hospitalized patients and included doctors, nurses, physiotherapists, nutritionists, psychologists, social workers and nursing technicians.

Instrument and data collection

One strategy to enhance the patient safety culture is developing and validating measures that promote it at the individual and institutional levels. One of the most widely used instruments is the Hospital Survey on Patient Safety Culture (HSOPSC) (Waterson *et al.*, 2019). The Agency for Healthcare Research and Quality developed the original version of the HSOPSC, which comprised twelve dimensions addressing such topics as teamwork, expectations, actions to promote patient safety, continuous improvement, management support, nonpunitive response to error and general perceptions of patient safety (AHRQ, 2018; Sorra and Nieva, 2004). Overall, it seeks to obtain respondents' general perceptions and specific perceptions of each dimension relative to an institution's patient safety culture. Moreover, the HSOPSC also enables researchers to examine correlations between the respondents' responses and variables of interest, such as level of education, duration of professional experience and workload. This can expand the understanding of the perception of safety in professional subgroups.

The HSOPSC has been translated and validated for use in several countries, including Brazil, where it is considered an important tool for assessing the patient safety culture because of the scarcity of other validated means and the fragility involved in patient safety in the country's hospitals (Costa *et al.*, 2018; Reis *et al.*, 2012). This study used the Brazilian (Portuguese) version of HSOPSC (Reis *et al.*, 2012) to assess the perception of healthcare and administrative staff regarding the patient safety culture; that version has been found to have strong validity (Reis *et al.*, 2016). The respondents answered most of the items using a five-point Likert scale. Three of the HSOPSC items were related to the hospital and seven to the work unit within the hospital; two were outcome measures. The scale's internal consistency was measured using Cronbach's alpha coefficient, which indicated a value of 0.876 for its 42 items.

The researchers administered the Brazilian version of the HSOPSC between April 1, 2017, and May 31, 2017. A research assistant presented the objectives of the study, identified the participants who met the inclusion criteria, and presented the questionnaire to the participants. The researchers excluded questionnaires that had the same answer for all items, less than 50% of the questions filled out, or did not have at least one complete section.

Statistical analysis
The primary outcome was the perceptions of the patient safety culture based on the survey responses, which were calculated using the following formula: percentage of positive responses from dimension X = [number of positive responses to the item in the assessed dimension/total number of valid responses to items in the assessed dimension] $\times$ 100.

When respondents answered with 4 or 5 for a positively worded sentence or 1 or 2 for a negatively worded sentence, the response was considered positive. The percentage of positive responses represented the positive perception of the patient safety culture and identified areas of strength and weakness. Dimensions with a percentage of positive responses >75% were considered strong, and those with a percentage of positive responses <50% were considered weak.

IBM SPSS Statistics for Windows, Version 22.0 (Armonk, NY: IBM Corp.), was used to perform descriptive analysis, frequency calculation, and inferential analysis, using Pearson's chi-squared test to verify the association between the percentage of positive responses and schooling and length of experience in the hospital. Pearson's correlation test was applied to the following variables: length of experience in the profession and the percentage of positive responses in the HSOPSC. The significance level adopted in the analysis was 5%.

Results
Among the 618 participants, 50.9% were healthcare workers, and 69.1% were women. The mean age of the sample was 38.1 $\pm$ 10.4. Overall, 41.3% of the health professionals had a graduate or postgraduate degree, whereas only 15.2% of the administrative staff had one. The majority of the healthcare and administrative staff had one to five years of hospital and professional experience (Table 1).

For the two types of staff, the percentage of positive responses was the highest for the items "Hospital management support for patient safety," "Teamwork within units" and "Supervisor/manager expectations and actions promoting patient safety." The lowest percentage of positive responses was for the item "Nonpunitive response to error" (29%). The healthcare staff had a slightly higher average positive response than administrative staff (Table 2).

The percentage of positive responses from professionals with undergraduate or graduate degrees was higher in eight dimensions. Professionals without a graduate degree had higher response rates in four dimensions: "Frequency of event reporting," "Teamwork within units," "Staffing" and "Hospital handoffs and transitions." We found an association between educational level and seven dimensions: "Teamwork within units" ($p < 0.001$), "Supervisor/ manager expectations and actions promoting patient safety" ($p < 0.001$), "Organizational learning–continuous improvement" ($p = 0.002$), "Communication openness" ($p = 0.001$), "Frequency of event reporting" ($p = 0.003$), "Hospital handoffs and transitions" ($p < 0.001$) and "Nonpunitive response to error" ($p = 0.011$) (Table 3). Although participants with up to five years of hospital experience had higher percentages of positive responses in all dimensions, the length of experience in the hospital was not associated with any dimension of safety culture (Table 4).

There was a weak but a significant linear correlation between the years of professional experience and the dimension "Organizational learning–continuous improvement" ($r = 0.083$; $p = 0.047$). There was no correlation verified between professional experience and the other dimensions of the HSOPSC ($p > 0.05$) (Table 5) .

Discussion
In general, research assessing patient safety culture has included only those healthcare providers, mainly physicians and nurses, who deliver care directly to patients

Variable	Healthcare staff (*n* = 315)		Administrative staff (*n* = 303)		Total (*n* = 618)	
	n	%	*n*	%	*n*	%
Sex						
Male	93	29.5	75	24.8	168	27.2
Female	218	69.2	209	69.0	427	69.1
Not informed	4	1.3	19	6.3	23	3.7
Schooling						
No Bachelor's Degree	181	57.4	250	82.5	431	69.74
Bachelor's Degree or Post-graduation Degree	130	41.3	46	15.2	176	28.47
Not informed	4	41.3	7	2.3	11	1.77
Length of experience in the hospital						
Less than one year	31	9.8	36	11.9	67	10.84
1–5 years	152	48.2	131	43.2	283	47.79
6–10 years	70	22.2	64	21.1	134	21.68
11–20 years	30	9.5	38	12.5	68	11
More than 21 years	32	10.3	30	9.9	62	10.03
Not informed	0	0	4	1.3	4	0.64
Years of work in the current hospital sector						
Less than one year	51	16.2	50	16.5	101	16.34
1–5 years	157	49.8	145	47.9	302	48.86
6–10 years	53	16.8	54	17.8	107	17.31
11–20 years	30	9.5	28	9.2	58	9.38
More than 21 years	22	7	21	6.9	43	6.95
Not informed	2	0.6	5	1.7	7	1.113
Hour of work per week						
Less than 20h/week	14	4.4	10	3.3	24	3.88
20–39h/week	169	53.6	50	16.5	219	35.43
40–59h/week	108	34.3	221	72.9	329	53.23
60h/week or more	16	5.1	11	3.6	27	4.36
Not informed	8	2.5	11	3.6	19	3.07

Table 1.
Characteristics of the participants

Dimension	Healthcare staff (*n* = 315)	Administrative staff (*n* = 303)	Total (*n* = 618)
1. Teamwork within units	68.2	58.9	63.6
2. Supervisor/manager expectations and actions promoting patient safety	66.7	60.4	63.6
3. Management support for patient safety	57.3	57.9	57.6
4. Organizational learning – continuous improvement	69.0	65.9	67.5
5. Overall patient-safety perceptions	48.8	49.7	49.2
6. Feedback and communication about error	49.1	50.7	49.9
7. Communication openness	48.7	48.8	48.7
8. Frequency of events reported	53.2	55.8	54.5
9. Teamwork across units	34.8	39.0	36.8
10. Staffing	45.9	42.4	44.2
11. Handoffs and transitions	32.9	32.2	32.6
12. Non-punitive response to errors	27.1	30.9	29.0

Table 2.
Distribution of the percentages of positive responses among the healthcare and administrative staff

(Burström *et al.*, 2014; Huang *et al.*, 2018; Okuyama *et al.*, 2018). Hannah *et al.* (2008) was one of the first studies to expand this assessment to other healthcare professionals; they compared the perceptions of patient safety between nursing and administrative staff. The present study

| Dimension | % of positive answers | | |
	Bachelor's or post-graduate degree	No Bachelor's degree	p-value
1. Teamwork within units	79.3	57	<0.001
2. Supervisor/manager expectations and actions promoting patient safety	71.3	60.8	<0.001
3. Management support for patient safety	59.5	56.7	0.313
4. Organizational learning–continuous improvement	73.7	64.3	0.002
5. Overall patient-safety perceptions	47.2	49.1	0.459
6. Feedback and communication about error	50.5	49.4	0.759
7. Communication openness	56	45.3	0.001
8. Frequency of events reported	45.7	57.0	0.003
9. Teamwork across units	35.9	37.1	0.829
10. Staffing	41.6	44.9	0.191
11. Handoffs and transitions	25.3	35.5	<0.001
12. Non-punitive response to errors	33.7	26.7	0.011

Table 3.
Association between level of education and the average percentages of positive responses from the dimensions of patient safety culture

| Dimension | % of positive answers | | |
	Up to 5 years of work in the hospital	More than 5 years of work in the hospital	p-value
1. Teamwork within units	63.2	62.9	0.624
2. Supervisor/manager expectations and actions promoting patient safety	64.1	63.1	0.467
3. Management support for patient safety	58.4	55.8	0.639
4. Organizational learning – continuous improvement	67.2	66.4	0.553
5. Overall patient-safety perceptions	49.1	47.5	0.958
6. Feedback and communication about error	50.3	48.0	0.525
7. Communication openness	49.2	46.9	0.302
8. Frequency of events reported	54.7	53.1	0.159
9. Teamwork across units	37.6	35.1	0.327
10. Staffing	45.7	41	0.801
11. Handoffs and transitions	35.5	28	0.553
12. Non-punitive response to errors	29	28.2	0.861

Table 4.
Association between length of experience and the average percentage of positive responses from the dimensions of patient safety culture

was unique as it advanced the comparisons even further by including a representative sample of all the professional categories involved in the institution's direct and indirect care. This researchers reasoned that in the target institution, as well as in most hospitals, all professionals' actions could conceivably lead to deviations in the quality of patient care delivered.

Hannah *et al.* (2008) identified significant differences between nursing and administrative staff's perceptions of patient safety culture. In contrast, this study found only a slightly higher percentage of positive responses among healthcare staff. In addition, the highest percentages were for the same dimensions for both the healthcare and administrative staff. This similarity was attributed to the hospital's organization-wide emphasis on the safety culture for all hospital employees. The result appeared to be related to the hospital's institutional policies, which expanded its training on patient safety beyond direct healthcare professionals to administrative staff, security, secretaries, cleaning staff and others indirectly related to care.

Although the hospital's institutional policy prioritized patient safety, according to the dimensions of the HSOPSC, the results revealed a weakened patient safety culture for all employees, regardless of whether they provided direct or indirect patient care. In general, none of the twelve dimensions were considered strong, and seven were considered fragile.

The dimensions with the highest percentages of positive responses under 75% (that is, the fragile dimensions) were "Teamwork within units," "Supervisor/manager expectations and actions promoting patient safety," and "Hospital management support for patient safety." These findings are consistent with the systematic review by Okuyama et al. (2018) that identified those dimensions as having the highest percentage of positive responses in studies that applied HSOPSC to physicians and nurses worldwide. The current study found that even in other professional categories, including administrative staff, teamwork between units and the other dimensions were best evaluated in terms of safety culture. However, the relative weakness of those dimensions should be considered a warning about the weakness of the safety culture in general.

The current study's findings are consistent with the predominance of research showing fragile patient safety cultures. Reis et al.'s (2018) systematic review analyzed 33 studies using HSOPSC worldwide, with the exception of Latin America. They found that in many cases, the only strong dimensions for patient safety culture were "Teamwork within units," "Organizational learning–continuous improvement," "Communication openness," and "Supervisor/manager expectations and actions promoting safety." The others were identified as weak, with the most critical ones being "Nonpunitive response to error" (positive responses 3.5–47%), "Staffing" (positive responses 14–45%), "Hospital handoffs and transitions" (positive responses 24.6–49.7%), and "Teamwork within units" (24.6–44%).

In this study, the most fragile dimensions, from the lowest percentages of positive responses, were "Nonpunitive response to error," "Hospital handoffs and transitions," and "Teamwork within units." This indicates that these dimensions represent significant challenges to be overcome in Brazil for both healthcare and administrative teams.

Of particular concern is the dimension "Nonpunitive response to error"; not only did this dimension receive the lowest percentage of positive responses in the hospital evaluated, but it also received the lowest percentage in other studies carried out in developing countries (Alqattan et al., 2018; Arrieta et al., 2018). Reis et al. (2018) found that many hospitals seemed to exhibit a punitive culture since a nonpunitive response was considered a weakened dimension in 70% of the studies. In the current study, the percentage of positive responses for this dimension was less than the minimum limit identified in Okuyama et al.'s (2018)

Dimension	Years of experience in the profession	
	r	p-value
1. Teamwork within units	0.070	0.095
2. Supervisor/manager expectations and actions promoting patient safety	0.006	0.881
3. Management support for patient safety	0.067	0.108
4. Organizational learning – continuous improvement	0.083	0.047
5. Overall patient-safety perceptions	−0.029	0.494
6. Feedback and communication about error	0.004	0.931
7. Communication openness	0.067	0.110
8. Frequency of events reported	−0.006	0.892
9. Teamwork across units	0.016	0.707
10. Staffing	−0.052	0.215
11. Handoffs and transitions	−0.023	0.580
12. Non-punitive response to errors	−0.031	0.461

Table 5.
Correlation between the average percentage of positive responses and the dimensions of patient safety culture and working time in the current profession

systematic review, which revealed weakness in this area. Thus, the investigated hospital was not the only one where the punitive culture is a matter of concern; the same is true in the country as a whole, where a punitive culture generally prevails. Even in developed countries, strategies for improving the patient safety culture often fail to improve scores in the "nonpunitive response to error" dimension in institutions there is a history of a punitive culture (Hellings *et al.*, 2010).

The persistence of a punitive culture in healthcare is no doubt related in part to the political environment. Like most Latin American countries, Brazil has been governed by authoritarian regimes for many decades in recent history, with only the barest patina of democratic principles at the political and institutional levels (Pastana, 2009). This is reflected in the healthcare sector, which maintains hierarchical and dominant relationships among professional categories and between health professionals and patients (Castel *et al.*, 2015). These power relations foster the myth that punitive responses are the most appropriate way to handle errors; however, their main effect is to discourage incident reporting, which makes it difficult to analyze causes and prevent recurrences.

In contrast, other countries understand that the punitive approach does not lead to greater patient safety. It is necessary to change people's ways of coping with errors in health services, emphasizing that although individuals might have been most directly responsible for an error, the system is also frequently at fault (Boysen, 2013). Danielsson *et al.* (2019) found that in all Swedish hospitals, the highest-rated dimension in the patient safety culture was the nonpunitive response to error, possibly as a reflex of the precepts in Swedish society. This indicates that the punitive response to errors is a paradigm that can be changed by Brazil and similar nations, although this will likely require profound changes in the countries' power and hierarchy relationships and social culture. In the patient safety culture, such changes are necessary among healthcare teams and administrative teams as well.

Although other studies have found an association between length of experience and perceptions of the safety culture, this study did not. It did find a weak correlation between years of professional experience and one other HSOPSC dimension: "Organizational learning–continuous improvement." However, corroborating Bodur and Filiz (2009), this study found a higher percentage of positive responses among the hospital's professionals with less experience. Possible reasons might be that as professionals gain professional experience, they gain more confidence that patient safety is not a severe problem and become more concerned with maintaining positive professional relationships (teamwork) and job security at the institution. Although there was no statistically significant association, the lower percentages of positive responses from professionals with longer experience suggest the need to heavily promote safety among more experienced professionals, in addition to reining in the punitive culture.

This study also hypothesized that the perceived level of patient safety culture would be higher than that reported for public institutions. However, we did not find this to be true. Galvão *et al.* (2018) and Okuyama *et al.* (2019) both conducted studies at Brazilian public hospitals. They found positive response rates similar to those found in this study. Like this study, those two studies also reported that the "nonpunitive response to error" dimension was the weakest dimension. Other studies have also found no difference in perceptions of the safety culture in public and private hospitals in countries with economic development status similar to Brazil (Chegini *et al.*, 2020).

In contrast, studies in other Latin American countries (Arrieta *et al.*, 2018) and Europe (Gurková *et al.*, 2020) have found stronger perceptions of patient safety culture perceived in private institutions than in public institutions. This suggests that perceptions of patient safety conditions are not determined solely by a country's cultural or political history or level of economic development. It highlights the importance of implementing solid institutional policies that achieve patient safety through education and prevention rather than punishment.

The private hospital where this case study was carried out improved its institutional policies on patient safety after evaluating its results. The changes included focusing on teams as indicators of patient safety perceptions and expanding the involvement of professionals with less education in patient safety training.

This study had limitations related to generalization. The HSOPSC was administered in a single hospital, leading to a local and temporal diagnosis. Another limitation was that it did not adjust for confounders, which was not done because the study did not seek causal inferences between perceptions of patient safety and the explanatory variables. We suggest that cohort studies, especially multicentric ones, should be carried out in the future to estimate such relationships. Nevertheless, this study's methods were innovative, as its stratified random sample extended the HSOPSC assessment beyond the usual target population (doctors, nurses and other direct-care professionals) to include respondents not directly involved in patient care. In addition, results such as the weak "nonpunitive response to error" dimension and the absence of significant perception differences between the public and private sector allowed the discussion and redefinition of institutional policies. Thus, other healthcare institutions with similar contexts might benefit from this study's findings.

Implications of research
The present study achieved its goal of expanding assessments of the perception of patient safety culture to include not just doctors and nurses but other professionals indirectly related to patient care. It also verified how the work sector and level of education influence perceptions of an institution's safety culture, which has been insufficiently studied. Expanding these approaches enabled us to know with greater depth and clarity the factors related to the patient safety culture, providing more consistent evidence to support specific interventions.

Additionally, because it was carried out in a private hospital, the study's findings help foster discussions about the broader political and social factors related to patient safety culture. Informed by the study's findings showing levels of patient safety culture similar to those of the public sector, the hospital where the study was conducted stepped up its efforts to assess employees' perceptions of patient safety culture systematically. At the hospital level, these actions could reduce future patients' risk of healthcare-related harm.

It is estimated that the impact of the study extends to other institutions with similar contexts by stimulating the systematic investigation of the perception of all professionals, as well as those involved in direct care, and the inclusion of results as indicators for the definition of strategic actions taken in the institution.

Conclusion
In general, this study found that the healthcare and administrative staff of one private hospital in Brazil perceived a weak patient safety culture. Especially concerning was their perception of a strong punitive culture. Multiple dimensions were associated with education level but not experience level. However, professionals with up to five years of work experience in the institution had higher percentages of positive responses for most dimensions. These discrepancies suggest that hospitals should monitor the perceptions of patient safety among the education and experience subgroups and emphasize training for the most susceptible groups.

This study presents lessons from two main perspectives: one, the relevance of in-depth investigations of perceptions of patient safety culture depending on education level and work sector; and two, dispelling the myth that private institutions have more vigorous patient safety cultures than public institutions.

Improving institutions' patient safety culture remains a challenge that demands effective mobilization from everyone involved, including those directly and indirectly providing healthcare. Particular emphasis should be placed on addressing those dimensions that are fragile in most public and private institutions in developing countries, such as the nonpunitive response to errors. This study's results should stimulate new in-depth investigations, and the findings' strategic indicators should inform institutions seeking to improve their patient safety culture.

References

Agency for Healthcare Research and Quality Hospital Survey on Patient Safety Culture (2018), available at: https://www.ahrq.gov/sops/quality-patient-safety/patientsafetyculture/hospital/index.html (accessed 5 October 2020).

Ahmed, Z., Saada, M., Jones, A.M. and Al-Hamid, A.M. (2019), "Medical errors: Healthcare professionals' perspective at a tertiary hospital in Kuwait", *PloS One*, Vol. 14 No. 5, p. e0217023, doi: 10.1371/journal.pone.0217023.

Al-Ahmadi, T.A. (2009), "Measuring patient safety culture in Riyadh's hospitals: a comparison between public and private hospitals", *Journal of The Egyptian Public Health Association*, Vol. 84 Nos 5-6, pp. 479-500.

Alqattan, H., Cleland, J. and Morrison, Z. (2018), "An evaluation of patient safety culture in a secondary care setting in Kuwait", *The Journal of Taibah University Medical Sciences*, Vol. 13 No. 3, pp. 272-280, doi: 10.1016/j.jtumed.2018.02.002.

Andrade, L.E.L., Lopes, J.M., Souza-Filho, M.C.M., Farias, L.P.C., Santos, C.C.M. and Gama, Z.A.S. (2018), "Patient safety culture in three Brazilian hospitals with different types of management", *Ciencia and Saude Coletiva*, Vol. 23 No. 1, pp. 161-172, doi: 10.1590/1413-81232018231.24392015.

Arrieta, A., Suárez, G. and Hakim, G. (2018), "Assessment of patient safety culture in private and public hospitals in Peru", *International Journal for Quality in Health Care*, Vol. 30 No. 3, pp. 186-191, doi: 10.1093/intqhc/mzx165.

Bodur, S. and Filiz, E. (2009), "A survey on patient safety culture in primary healthcare services in Turkey", *International Journal for Quality in Health Care*, Vol. 21 No. 5, pp. 348-355, doi: 10.1093/intqhc/mzp035.

Bondevik, T.G., Hofoss, D., Hansen, E.H. and Deilkas, E.C.T. (2014), "Patient safety culture in Norwegian primary care: a study in out-of-hours casualty clinics and GP practices", *Scandinavian Journal of Primary Care*, Vol. 32 No. 3, pp. 132-138, doi: 10.3109/02813432.2014.962791.

Bondevik, T.G., Hofoss, D., Husebø, B.S. and Deilkas, E.C.T. (2017), "Patient safety culture in Norwegian nursing homes", *BMC Health Services Research*, Vol. 17 No. 424, doi: 10.1186/s12913-017-2387-9.

Boyse, P.G. (2013), "Just culture: a foundation for balanced accountability and patient safety", *The Ochsner Journal*, Vol. 13 No. 3, pp. 400-406.

Burström, L., Letterstal, A., Engström, M.L., Berglund, A. and Enlund, M. (2014), "The patient safety culture as perceived by staff at two different emergency departments before and after introducing a flow-oriented working model with team triage and lean principles: a repeated cross-sectional study", *BMC Health Services Research*, Vol. 14 No. 1, doi: 10.1186/1472-6963-14-296.

Castel, E.S., Ginsburg, L.R., Zaheer, S. and Tamim, H. (2015), "Understanding nurses' and physicians' fear of repercussions for reporting errors: clinician characteristics, organization demographics, or leadership factors?", *BMC Health Services Research*, Vol. 15 No. 326, doi: 10.1186/s12913-015-0987-9.

Chegini, Z., Janati, A., Afkhami, M., Behjat, M. and Islam, S.M.S. (2020), "A comparative study on patient safety culture among emergency nurses in the public and private hospitals of Tabriz, Iran", *Nursing Open*, Vol. 7 No. 3, pp. 768-775, doi: 10.1002/nop2.449.

Costa, D.B., Ramos, D., Gabriel, C.S. and Bernardes, A. (2018), "Patient safety culture: evaluation by nursing professionals", *Texto & Contexto Enfermagem*, Vol. 27 No. 3, p. e2670016, doi: 10.1590/0104-070720180002670016.

Danielsson, M., Nilsen, P., Rutberg, H. and Årestedt, K. (2019), "A national study of patient safety culture in hospitals in Sweden", *Jounal of Patient Safety*, Vol. 15 No. 4, pp. 328-333, doi: 10.1097/PTS.0000000000000369.

Fan, C.J., Pawlik, T.M., Daniels, T., Vernon, N., Banks, K., Westby, P., Wick, E.C., Sexton, J.B. and Makary, M.A. (2016), "Association of safety culture with surgical site infection outcomes", *Journal of the American College of Surgeons*, Vol. 222 No. 2, pp. 122-128, doi: 10.1016/j.jamcollsurg.2015.11.008.

Farokhzadian, J., Nayeri, N.D. and Borhani, F. (2018), "The long way ahead to achieve an effective patient safety culture: challenges perceived by nurses", *BMC Health Services Research*, Vol. 22 No. 1, p. 654, doi: 10.1186/s12913-018-3467-1.

Fujita, S., Wu, Y., Iida, S., Nagai, Y., Shimamori, Y. and Hasegawa, T. (2019), "Patient safety management systems, activities and work environments related to hospital-level patient safety culture: a cross-sectional study", *Medicine (Baltimore)*, Vol. 98 No. 50, p. e18352, doi: 10.1097/MD.0000000000018352.

Galvao, T.F., Lopes, M.C.C., Oliva, C.C.C., Araujo, M.E.A. and Silva, M.T. (2018), "Patient safety culture in a university hospital", *Revista Latino-Americana de Enfermagem*, Vol. 26, p. e3014, doi: 10.1590/1518-8345.2257.3014.

Granel, N., Manresa-Domíngueza, J.M., Barth, A., Papp, K. and Tumayo-Bernabeu, M.D. (2019), "Patient safety culture in Hungarian hospitals", *International Journal of Health Care Quality Assurance*, Vol. 32 No. 2, pp. 412-424, doi: 10.1108/IJHCQA-02-2018-0048.

Gurková, E., Kalánková, D., Kurucová, R. and Žiaková, K. (2020), "Assessment of patient safety climate by nurses in Slovak Public and private hospitals", *Journal of Nursing Management*, Vol. 28 No. 7, pp. 1644-1652, doi: 10.1111/jonm.13120.

Hannah, K.L., Schade, C.P., Lomely, D.R., Ruddick, P. and Bellamy, G.R.K. (2008), "Hospital administrative staff vs. nursing staff responses to the AHRQ hospital survey on patient safety culture", in Henriksen, M., Battles, J.B. and Keyes, M.A. (Eds), Agency for Healthcare Research and Quality (US), Rockville (MD).

Hellings, J., Schrooten, W., Klazinga, N.S. and Vleugels, A. (2010), "Improving patient safety culture", *International Journal of Health Care Quality Assurance*, Vol. 23 No. 5, pp. 489-506, doi: 10.1108/09526861011050529.

Huang, C.H., Wu, H.H., Chou, C.Y., Dai, H. and Lee, C. (2018), "The perceptions of physicians and nurses regarding the establishment of patient safety in a regional teaching hospital in Taiwan", *Iranian Journal of Public Health*, Vol. 47 No. 6, pp. 852-860.

Kohn, L.T., Corrigan, J.M. and Donaldson, M.S. (2000), *To Err Is Human: Building a Safer Health System*, National Academies Press (US), WA, DC.

Massuda, A., Hone, T., Leles, F.A.G., Castro, M.C. and Atun, R. (2018), "The Brazilian health system at crossroads: progress, crisis and resilience", *BMC Global Health*, Vol. 3 No. 4, p. e000829, doi: 10.1136/bmjgh-2018-000829.

Mossburg, S.E. and Dennison Himmelfarb, C. (2018), "The association between professional burnout and engagement with patient safety culture and outcomes: a systematic review", *Journal of Patient Safety*, Vol. 25, doi: 10.1097/PTS.0000000000000519.

Nieva, V.F. and Sorra, J. (2003), "Safety culture assessment: a tool for improving patient safety in healthcare organizations", *Quality and Safety in Health Care*, Vol. 12, pp. 17-23.

Okuyama, J.H.H., Galvao, T.F. and Silva, M.T. (2018), "Healthcare professional's perception of patient safety measured by the hospital survey on patient safety culture: a systematic review and meta-analysis", *Scientific World Journal*, No. 9156301, doi: 10.1155/2018/9156301.

Okuyama, J.H.H., Galvao, T.F., Crozatti, M.T.L. and Silva, M.T. (2019), "Health professionals' perception of patient safety culture in a university hospital in São Paulo: a cross-sectional study applying the Hospital Survey on Patient Safety Culture", *Sao Paulo Medical Journal*, Vol. 137 No. 3, pp. 216-222, doi: 10.1590/1516-3180.2018.0430140319.

Pastana, D. (2009), "Authoritarian penal justice and the consolidation of a punitive state in Brazil", *Revista de Sociologia e Política*, Vol. 17 No. 32, pp. 121-138, doi: 10.1590/S0104-44782009000100008.

Rajalatchumi, A.R., Ravikumar, T.S., Muruganandham, K., Thulasingam, T., Selvaraj, K., Reddy, M.M. and Jayaraman, B. (2018), "Perception of patient safety culture among health-care providers in a tertiary care hospital, South India", *Journal of Natural Science, Biology and Medicine*, Vol. 9, pp. 14-18, doi: 10.4103/jnsbm.JNSBM_86_17.

Reis, C.T., Laguardia, J. and Martins, M. (2012), "Translation and cross-cultural adaptation of the Brazilian version of the hospital survey on patient safety culture: initial stage", *Cadernos de Saúde Pública*, Vol. 28 No. 11, pp. 2199-2210. doi: 10.1590/S0102-311X2012001100019.

Reis, C.T., Laguardia, J., Vasconcelos, A.G.G. and Martins, M. (2016), "Reliability and validity of the Brazilian version of the hospital survey on patient safety culture (HSOPSC): a pilot study", *Cadernos de Saude Publica*, Vol. 32 No. 11, p. e00115614, doi: 10.1590/0102-311x00115614.

Reis, C.T., Paiva, S.G. and Sousa, P. (2018), "The patient safety culture: a systematic review by characteristics of hospital survey on patient safety culture dimensions", *International Journal for Quality in Health Care*, Vol. 30 No. 9, pp. 660-677, doi: 10.1093/intqhc/mzy171.

Smits, M., Keizer, E., Giesen, P., Deilkas, E.C.T., Hofoss, D. and Bondevik, G.T. (2018), "Patient safety culture in out-of-hours primary care services in The Netherlands: a cross-sectional survey", *Scandinavian Journal of Primary Health Care*, Vol. 36 No. 1, pp. 28-35, doi: 10.1080/02813432.2018.1426150.

Sorra, J. and Nieva, V. (2004), *Hospital Survey on Patient Safety Culture*, Agency for Healthcare Research and Quality (US), Rockville.

Wagner, C., Smiths, M., Sorra, J. and Huang, C.C. (2013), "Assessing patient safety culture in hospitals across countries", *International Journal for Quality in Health Care*, Vol. 25 No. 3, pp. 213-221, doi: 10.1093/intqhc/mzt024.

Waterson, P., Carman, E.M. and Manser, T. (2019), "Hospital Survey on Patient Safety Culture (HSPSC): a systematic review of the psychometric properties of 62 international studies", *BMJ Open*, Vol. 9, p. e026896, doi: 10.1136/bmjopen-2018-026896.

Zhong, X., Song, Y., Dennis, C., Slovensky, D.J., Wei, L.Y., Chen, J. and Ji, J. (2019), "Patient safety culture in Peking University Cancer Hospital in China: baseline assessment and comparative analysis for quality improvement", *BMC Health Services Research*, Vol. 19 No. 1008, doi: 10.1186/s12913-019-4837-z.

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