Objective: The Hospital Survey on Patient Safety Culture (HSPSC) was designed to assess staff views on patient safety and has been translated and validated into several languages and settings. This study developed a Latin American Spanish version of the HSPSC for use in perioperative settings and examines its psychometric properties.

Methods: After translation and adjustments, a web-based questionnaire was administered to all health care personnel at operating room in a public university-affiliated hospital in Popayán, Colombia. Descriptive statistics, internal reliability, confirmatory and exploratory factor analysis, and inter-correlations among survey composites were calculated.

Results: Confirmatory factor analysis showed inadequate model fit for the original 12-factor structure of the HSPSC. Rather, a 9-factor, 36-item instrument showed acceptable factor loadings, internal consistency, and psychometric properties. Five factors were formed with minor changes. Adjusted factors emerged, like “staffing and work pressure” and “supervisor/manager expectations and actions promoting patient safety,” “organizational learning—continuous improvement,” and “hospital management support for safety,” as well as “repeated errors and perception of safety.” Internal consistency for each remaining composite met or exceeded a Cronbach α value of 0.60.

Conclusions: Psychometric analyses provided overall support for 9 of the 12 initial factors of patient safety culture. Our findings suggest that more validation studies need to be conducted before applying safety dimensions from the original HSPSC to perioperative settings only. By providing this initial tool, we hope to stimulate further studies and the patient safety research agenda in this part of the world.

Key Words: safety management, organizational culture, patient safety

The safety culture of an organization is the product of individual and group values, attitudes, perceptions, competencies, and behavioral patterns that determine the commitment to the style and proficiency of an organization’s health and safety management. Patient safety is an essential component of healthcare quality; however, even with continuous alertness, health care providers face many challenges in today’s healthcare environment in trying to keep patient management in a safe way. Studying patient safety-related topics can provide feedback to the healthcare systems with the possibility of implementing improvement measures based on the identification of specific problems at different areas.

The climate of patient safety can be measured as a surrogate and analyzed at different levels of the healthcare system. Culture assessments can be used to identify areas for improvement, get a baseline, and raise awareness about patient safety; secondly, to evaluate patient safety interventions or programs and track change over time; thirdly, to conduct internal and external benchmarking; and finally, to fulfill directives or regulatory requirements, such as accreditation standards. Interest in safety culture measurement in healthcare organizations has grown in parallel with the increased focus on improving patient safety. To transform culture, it is important to first measure and analyze it. Culture assessment tools create awareness and provide an understanding to develop an action plan to improve patient safety, more importantly in countries with limited resources.

A study involving 58 hospitals from five Latin American countries found an estimated prevalence of adverse events in 10.5% of the cases. Six percent of these events were associated with the patient’s death and more than 28% caused disability. Almost 60% of the total group of adverse events was judged to be “avoidable.” In that sense, working on prevention and encouraging a strong patient safety culture are fundamental to promote and support quality of care among health professionals.

Considering the inherent risks due to the logistic challenges and invasiveness of the procedures performed, operating rooms (ORs) are particularly challenging for patient safety. Unsafe surgery causes 7 million of complications, resulting in 1 million of deaths globally each year. Several campaigns and interventions to improve patient safety in surgery have been introduced, including additional checks to confirm procedures, perioperative checklists, communication strategies, and new policies to govern the OR. Nevertheless, collecting data on medical errors during surgery is difficult because (near) misses are often underreported or considered unavoidable complications. By using a valid and reliable measurement instrument, culture data can serve as a benchmark for hospitals to assess their performance in advancing the patient safety agenda. The Institute of Medicine states that if a safety culture exists where adverse events can be reported without people being blamed, they have the opportunity to learn from their mistakes and it is possible to make improvements to prevent future human and system errors and, thus, promote patient safety.

The Hospital Survey on Patient Safety Culture (HSPSC) by the Agency for Healthcare Research and Quality (AHRQ) consists of 42 questions and measures 12 dimensions. It is widely used, translated, and validated in a broad range of countries and languages. After translating a questionnaire into another language and applying it in a different setting, it is important to check its validity and reliability. Cross-country comparisons are possible, only if the psychometric properties of the new versions of the HSPSC are comparable with the original structure. The purpose of this study
was to evaluate psychometric properties of a Latin American Spanish version of the HSPSC to propose a validated tool for its use in perioperative settings.

METHODS

Design and Study Population

A cross-sectional study was carried out in 2017 at the OR of the Hospital Universitario San José, a main third-tier public university-affiliated hospital in the city of Popayán, the capital city of the department of Cauca with 270,000 inhabitants in 2010. This hospital performs 11,000 surgical procedures per year, primarily in general surgery, orthopedics, gynecology/obstetrics, and plastic surgery. All medical and nonmedical healthcare providers and OR personnel involved in the perioperative process were included. In all, 84 medical doctors participated (56%) including specialists (n = 51), residents (n = 22), and general practitioners (n = 11). In addition, 28 nurses and nursing assistants (19%), 12 surgical assistants (8%), 9 pharmacy personnel (6%), 7 administrative services (4.7%), 7 cleaning personnel (4.7%), and 3 x-ray technicians (2%). In total, we recruited 150 participants.

After development process, the HSPSC-LA was adapted to a computerized web-based response method arranged that every question had to be answered. Each member of the OR was invited to voluntarily participate in the study and fill out the web-based questionnaire, allowing for confidentiality and anonymity. The questionnaire did not ask for any personal identification data during the survey (neither name nor identification details) and allowed access only once per each link access. The research protocol was approved by the ethics committee of the hospital (Approval Act 004, 16-03-2016). In addition, the questionnaire asked for direct consent from the participants. Incentives to complete the survey were not provided. Data collection was done during a 6-month period.

Development of the Questionnaire

The original HSPSC contains 42 items organized in 12 dimensions. It was developed by Westat, under contract with AHRQ, with questions derived from a review of existing safety culture literature and instruments, including the Veterans Health Administration’s Patient Safety Questionnaire and the Medical Event Reporting System for Transfusion Medicine. The AHRQ instrument was piloted in 20 hospitals, and the results were used to generate a list of 12 factors, which displayed high internal consistency. Most items on patient safety culture can be answered by using a five-point scale reflecting the agreement rate: from “strongly disagree” (1) to “strongly agree” (5), with a neutral category “neither” (3). Other items can be answered by using a five-point frequency scale from “never” (1) to “always” (5). In addition, there are two mono-item outcome variables, i.e., (a) patient safety grade, measured with a five-point scale from “excellent” (1) to “failing” (5) and (b) number of events reported, how often the respondent has submitted an event report in the past 12 months (answer categories: “none”; “1–2 event reports”; “3–5 event reports”; “6–10 event reports”; and “11–20 event reports”). (Supplemental Digital Content, http://links.lww.com/JPS/A259).

We considered and revised in detail a previous translation and validation into Spanish (Castilian from Spain) developed by the Sistema Nacional de Salud Español. Some items were incompressible in Latin American Colombian Spanish and others had translation issues due to cultural and environmental differences. Therefore, we translated the original survey into Latin American Colombian Spanish by following the AHRQ guidelines for translating surveys on patient safety culture and combined those results with the previous Spanish version. These guidelines propose a team approach based on current best practices for survey translations. To develop a well-translated HSPSC-LA, the original survey was translated into Latin American Spanish, then it was compared and adjusted with the Spanish version and, finally, translated back into English. The entire process was done by a research team, along with a bilingual translator with professional work experience in developing surveys. Environmental, cultural, and local issues present in the questions were actively discussed by the team to reach consensus.

Work-related information and primary work area were not included in this study because all the participants were active OR members. Other related variables collected included how long they had been working in this OR, how many hours a week, and in which function.

Face and Content Validity

We investigated the face and content validity of the HSPSC-LA. To obtain face validity, a group of advisors (three physicians and three nurses from the hospital) conducted an initial review of the questionnaire. They met to review the translation, suggested changes, and decided on the most suitable translation. Thereafter, based on consensus with the research team, together they determined whether the questions from the prefinal HSPSC-LA version suited the Colombian culture and whether the format of the questions was conceptually equivalent to the original English questions (content validity). All information gathered was used to prepare the final version of the HSPSC-LA (Supplemental Digital Content, http://links.lww.com/JPS/A259).

Construct Validity and Factor Analysis

Given that the questionnaire contains positively and negatively worded items, the negatively formulated items were first recoded to make sure that a higher score always means a more positive response. Factor analysis defines which items are closely linked and refer jointly to an underlying dimension (or factor). Thus, the items can be reduced to the smallest possible number of concepts that still explain the largest possible part of the variance. In line with other validation related studies, first a confirmatory factor analysis (CFA) was performed to investigate whether the factor structure of the original questionnaire can be used with Latin American data. First, the χ² goodness-of-fit statistic was examined. For χ² statistics, lower and nonsignificant χ² values indicate good fit. χ², however, is influenced by sample size such that the larger the sample size the more likely it is that the χ² will be significant. A large χ² may emerge even when the model fits the data well; therefore, the following fit measures were used: comparative fit index, nonnormalized fit index (also known as Tucker-Lewis Index), root mean square error of approximation, standardized root mean square residual, goodness-of-fit index, adjusted goodness of fit index, and normalized fit index. These measures range from poor fit to perfect fit and details about recommended criteria are presented in Table 1. The data were also studied with explorative factor analysis (EFA) to examine whether another composition of items and factors would best fit the data. We checked whether the item correlation matrix were sufficient through an exam of the correlation matrix by using Bartlett test. Questions belonging to the same underlying dimension will correlate, given that they measure the same aspect of patient safety culture. Items that do not correlate, or correlate with only a few other variables, are not suited for factor analysis. We also checked whether the opposite occurred: too much correlation between the items. Ideally, every aspect of patient safety culture uniquely contributes toward the concept of patient safety culture. A high correlation between two items means that patient safety culture...
aspects overlap to a large extent.\textsuperscript{37} Finally, the Kaiser-Meyer-Olkin of greater than 0.5 (Kaiser criterion) was used as a measure of sampling adequacy. This value can range from 0 to 1. A value near 1 indicates hardly any spread in the correlation pattern, enabling reliable and distinctive dimensions by factor analysis.\textsuperscript{29}

Initially, the eigenvalue (eigenvalue >1: Kaiser criterion) was taken into account, besides the extent of variance explained, the shape of the scree plot, and the possibility of interpreting the factors. Then, an oblique rotation was performed to determine which items loaded most highly on which factor. Using a conservative approach, an item was considered to have sufficient contribution to the particular factor if its loading was 0.4 or greater. Items with low-factor loadings (<0.4) or cross-loading on multiple factors (>0.3) were removed.

The internal consistency of the factors was calculated with Cronbach \( \alpha \), a value between 0 and 1. If different items are supposed to measure the same concept, the internal consistency (reliability) should be greater than or equal to 0.6.\textsuperscript{37}

Construct validity was also studied by calculating scale scores for every factor and subsequently, calculating Pearson correlation coefficients between the scale scores. The construct validity of each factor is reflected in moderately related scale scores. High correlations (\( r > 0.7 \)), however, would indicate that factors measure the same concept and these factors may be combined and/or some items could be removed. In addition, correlations of the scale scores were calculated with the outcome variable: patient safety grade.

Data were summarized as proportions, means, and SD values considering their distribution. \( T \) tests were applied to compare the mean values, and \( P < 0.05 \) was considered statistically significant. For each positively worded item, the proportion of positive responses was calculated, i.e., the percentage of respondents answering the question by checking “strongly agree” and “agree” or “always” and “most of the time.”\textsuperscript{23} All statistical analyses were performed using SPSS Statistics for Windows, (Version 24.0; IBM Corp., Armonk, NY) and Lavaan package in R Statistics.\textsuperscript{38,39}

RESULTS

All 159 members from the OR were asked to participate from August 2016 to January 2017 and 150 completed the survey. Nine participants (all temporary personnel) did not complete the questionnaire and were excluded from the analysis. We did not identify missing data. Therefore, 150 participants yielded a 94% response rate.

Confirmatory Factor Analysis

A CFA of the original model was run (\( \chi^2 = 1349.32, df = 753, P < 0.000 \)). The full range of fit indices suggested a level of poor fit with the original version of the HSPSC. All details of CFA fit indices, results of other validation studies, and recommended criteria for good fit are presented in Table 1. This led to carrying out an EFA to investigate whether a factor structure exists that best fits the Latin American data.

### TABLE 1. Confirmatory Factor Analysis of the HSPSC in This Study and Other Published Sources

|                | This Study | Original Study | Other Validation Studies | Recommended Criteria of Good Fit |
|----------------|-----------|----------------|--------------------------|----------------------------------|
| Comparative fit index | 0.752     | 0.94           | Range: 0.89-0.99, Median: 0.91 | \( \gt 0.90 \), \( \gt 0.95 \) |
| Nonnormalized fit index | 0.716     | 0.93           | Range: 0.88-0.98, Median: 0.90 | \( \gt 0.90 \), \( \gt 0.95 \) |
| Root mean square error of approximation | 0.073     | 0.04           | Range: 0.033-0.047, Median: 0.043 | \( \lt 0.10 \), \( \lt 0.06 \) |
| Standardized root mean square residual | 0.086     | 0.04           | Range: 0.044-0.05, Median: 0.047 | \( \lt 0.06 \), \( \lt 0.08 \) |
| Goodness of fit index | 0.717     | —              | Range: 0.88-0.99, Median: 0.94 | \( \gt 0.95 \) |
| Adjusted goodness of fit index | 0.661     |                |                           | \( \gt 0.90 \) |
| Normalized fit index | 0.687     |                |                           | \( \gt 0.90 \) |

### Exploratory Factor Analysis

After analyzing the initial correlation matrix, we excluded one item (C6) because of poor intercorrelations (<0.3) with all items. Bartlett test demonstrated that the interitem correlations were sufficient for analysis (\( \chi^2 = 2920.2, df = 861, P < 0.001 \)). The Kaiser-Meyer-Olkin value was 0.81. These preanalyses demonstrated that the data could be suitable for EFA.

Eleven factors were drawn by exploratory factor analysis (eigenvalues >1.0). Two were deleted because one did not include items after rotation and another only contained one item. Five items had low-factor loadings (<0.4) and were not included in the final structure (A15, A17, F2, F4, C4). Finally, a version with 9 factors and 36 items was the best solution that explained 60.5% of the variance in the responses.

Table 2 shows the factor loadings after rotation. Internal consistency was calculated for every factor (Cronbach \( \alpha \)). Overall, it was variable (0.60 \( \lt \alpha \lt 0.84 \)), but all the HSPSC-LA factors have values of greater than 0.6.

One of the nine factors was similar to the original HSPSC questionnaire: “Frequency of events reported” (Cronbach \( \alpha = 0.78 \)). Four factors were used as in the original with the addition of one item to each: “Teamwork within units” (A2) (Cronbach \( \alpha = 0.77 \)), “Nonpunitive response to errors” (A7) (Cronbach \( \alpha = 0.66 \)), “Hospital handoffs and transitions” (F6) (Cronbach \( \alpha = 0.80 \)), “Feedback and communication about errors” (C2) (Cronbach \( \alpha = 0.80 \)).

One factor was adjusted containing two original items in addition to two new ones. It was titled: “Staffing and work pressure” (B3, F9) (Cronbach \( \alpha = 0.72 \)). One factor, “Supervisor/manager expectations & actions promoting patient safety” was created with less items than the original (Cronbach \( \alpha = 0.74 \)).

The factors “Organizational learning – Continuous improvement” and “Hospital management support for safety” were brought together to a single new factor labeled “Organizational learning, continuous improvement, and hospital support for safety” including seven items (Cronbach \( \alpha = 0.84 \)). Finally, item A10 – included in the original factor, “Overall perceptions of safety” – was combined with B4 and named “Repeated errors and perception of safety” (Cronbach \( \alpha = 0.60 \)).

Table 3 presents the correlation between mean values, scale scores, and intercorrelations among factors prepared to assess construct validity. The highest correlations were those between factor 1 and factor 6 (\( r = 0.547 \)), but no exceptionally high correlations were noted. The highest correlation with patient safety grade was for the...
### TABLE 2. Characteristics of the HSPSC-LA Factors After Exploratory Factor Analysis

| Factor/Items and Cronbach α | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   |
|-----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| **Factor 1. Organizational learning, continuous improvement, and hospital support for safety (α = 0.77)** |     |     |     |     |     |     |     |     |     |
| F8. Actions of hospital management show that patient safety is a top priority. | 0.706 |     |     |     |     |     |     |     |     |
| A9. Mistakes have led to positive changes here. | 0.646 |     |     |     |     |     |     |     |     |
| F10. Hospital units work well together to provide the best care for patients. | 0.622 |     |     |     |     |     |     |     |     |
| A13. After we make changes to improve patient safety, we evaluate their effectiveness. | 0.584 |     |     |     |     |     |     |     |     |
| A18. Our procedures and systems are good at preventing errors from happening. | 0.557 |     |     |     |     |     |     |     |     |
| F1. Hospital management provides a work climate that promotes patient safety. | 0.533 |     |     |     |     |     |     |     |     |
| A6. We are actively doing things to improve patient safety. | 0.471 |     |     |     |     |     |     |     |     |
| **Factor 2. Hospital handoffs and transitions (α = 0.80)** |     |     |     |     |     |     |     |     |     |
| F11n. Shift changes are problematic for patients in this hospital. | 0.746 |     |     |     |     |     |     |     |     |
| F7n. Problems often occur in the exchange of information across hospital units. | 0.692 |     |     |     |     |     |     |     |     |
| F5n. Important patient care information is often lost during shift changes. | 0.600 |     |     |     |     |     |     |     |     |
| F6n. It is often unpleasant to work with staff from other hospital units. | 0.562 |     |     |     |     |     |     |     |     |
| F3n. Things “fall between the cracks” when transferring patients from one unit to another. | 0.537 |     |     |     |     |     |     |     |     |
| **Factor 3. Staffing and work pressure (α = 0.72)** |     |     |     |     |     |     |     |     |     |
| A14n. We work in “crisis mode,” trying to do too much, too quickly. | 0.616 |     |     |     |     |     |     |     |     |
| B3n. Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts. | 0.553 |     |     |     |     |     |     |     |     |
| A5n. Staff in this unit work longer hours than is best for patient care. | 0.525 |     |     |     |     |     |     |     |     |
| F9n. Hospital management seems interested in patient safety only after an adverse event happens. | 0.488 |     |     |     |     |     |     |     |     |
| **Factor 4. Teamwork within units (α = 0.77)** |     |     |     |     |     |     |     |     |     |
| A. People support one another in this unit. | 0.757 |     |     |     |     |     |     |     |     |
| A3. When a lot of work needs to be done quickly, we work together as a team to get the work done. | 0.712 |     |     |     |     |     |     |     |     |
| A4. In this unit, people treat each other with respect. | 0.606 |     |     |     |     |     |     |     |     |
| A11. When one area in this unit gets really busy, others help out. | 0.518 |     |     |     |     |     |     |     |     |
| A2. We have enough staff to handle the workload. | 0.423 |     |     |     |     |     |     |     |     |
| **Factor 5. Nonpunitive response to error (α = 0.66)** |     |     |     |     |     |     |     |     |     |
| A12n. When an event is reported, it feels like the person is being written up, not the problem. | 0.571 |     |     |     |     |     |     |     |     |
| A16n. Staff worry that mistakes they make are kept in their personnel file. | 0.569 |     |     |     |     |     |     |     |     |
| A8n. Staff feel like their mistakes are held against them. | 0.494 |     |     |     |     |     |     |     |     |
| A7n. We use more agency/temporary staff than is best for patient care. | 0.448 |     |     |     |     |     |     |     |     |
| **Factor 6. Feedback and communication about error (α = 0.80)** |     |     |     |     |     |     |     |     |     |
| C2. Staff will freely speak up if they see something that may negatively affect patient care. | 0.687 |     |     |     |     |     |     |     |     |
| C3. We are informed about errors that happen in this unit. | 0.655 |     |     |     |     |     |     |     |     |
| C1. We are given feedback about changes put into place based on event reports. | 0.596 |     |     |     |     |     |     |     |     |
| C5. In this unit, we discuss ways to prevent errors from happening again. | 0.442 |     |     |     |     |     |     |     |     |
| **Factor 7. Frequency of events reported (α = 0.78)** |     |     |     |     |     |     |     |     |     |
| D3. When a mistake is made that could harm the patient, but does not, how often is this reported? | 0.960 |     |     |     |     |     |     |     |     |
| D2. When a mistake is made, but has no potential to harm the patient, how often is this reported? | 0.631 |     |     |     |     |     |     |     |     |
| D1. When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported? | 0.416 |     |     |     |     |     |     |     |     |
| **Factor 8. Supervisor/manager expectations & actions promoting patient safety (α = 0.74)** |     |     |     |     |     |     |     |     |     |
| B1. My supervisor/manager says a good word when he/she sees a job done, according to established patient safety procedures. | 0.939 |     |     |     |     |     |     |     |     |

(Continued next page)
### TABLE 2. (Continued)

| Factor/Items and Cronbach α |
|-----------------------------|
| **B2.** My supervisor/manager seriously considers staff suggestions for improving patient safety. | 0.483 |
| **B4n.** My supervisor/manager overlooks patient safety problems that happen over and over. | 0.472 |

* Underlines represent modifications of the factor’s titles from the original.

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### DISCUSSION

This study examined the psychometric properties of the HSPSC-LA. The original U.S. 12-factor survey is not directly applicable to Colombian personnel in a surgical setting. Rather, a 9-factor, 36-item instrument showed acceptable factor loadings and internal consistency. Our results suggest that with appropriate translation into Latin American Spanish, slight modifications, and adaptation, the HSPSC performs adequately in surgical settings in Colombia. The construct validity was satisfactory for all factors and moderate correlations among them show that no two factors measure the same construct. In addition, all factors correlated positively with the outcome variable patient safety grade. Our findings are consistent with previous studies supporting that the HSPSC requires adaptation and setting adjustments to meet minimum psychometric criteria.14,30,31

The internal consistency of the nine factors exhibited good to satisfactory Cronbach α scores (>0.60). Small shifts of items were noted across factors; two original factor titles were modified to improve their understandability and six questions were excluded from the original HSPSC. These changes could be explained by underlying differences with the original language, cultural environment, and specific setting of use of the questionnaire. This HSPSC-LA version has been developed and evaluated in a surgical setting, whereas the original one included all areas in hospitals in the United States. This could alter the importance of some items that describe interaction among units and teamwork across units. Five original factors received items from other ones, suggesting a simplification of the original domains in the HSPSC-LA. Internal similarities in personnel from a single hospital area could explain this

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### TABLE 3. Mean Values, Correlation With Patient Safety Grade, and Intercorrelations of the Factors

| Factor | Mean | SD  | Patient Safety Grade | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  |
|--------|------|-----|----------------------|----|----|----|----|----|----|----|----|----|
| Factor 1. Organizational learning, continuous improvement, and hospital support for safety | 3.62 | 0.63 | 0.492 | 1  |    |    |    |    |    |    |    |    |
| Factor 2. Hospital handoffs and transitions | 3.12 | 0.71 | 0.392 | 0.421 | 1  |    |    |    |    |    |    |    |
| Factor 3. Staffing and work pressure | 2.95 | 0.80 | 0.382 | 0.388 | 0.446 | 1  |    |    |    |    |    |    |
| Factor 4. Teamwork within units | 3.53 | 0.65 | 0.347 | 0.520 | 0.232 | 0.376 | 1  |    |    |    |    |    |
| Factor 5. Nonpunitive response to error | 2.96 | 0.73 | 0.223 | 0.126* | 0.325 | 0.452 | 0.265 | 1  |    |    |    |    |
| Factor 6. Feedback and communication about error | 3.19 | 0.81 | 0.445 | 0.547 | 0.316 | 0.334 | 0.334 | 0.243 | 1  |    |    |    |
| Factor 7. Frequency of events reported | 3.21 | 0.80 | 0.369 | 0.471 | 0.245 | 0.247 | 0.251 | 0.159* | 0.495 | 1  |    |    |
| Factor 8. Supervisor/manager expectations & actions promoting patient safety | 3.35 | 0.87 | 0.348 | 0.412 | 0.199 | 0.406 | 0.400 | 0.203 | 0.402 | 0.266 | 1  |    |
| Factor 9. Repeated errors and perception of safety | 3.51 | 0.81 | 0.261 | 0.274 | 0.337 | 0.410 | 0.343 | 0.385 | 0.192 | 0.172 | 0.171 | 1  |

All correlations were below $r^2 = 0.7$. Correlation between factors 2 and 8, 5 and 8, 6 and 9, 7 and 9, and 8 and 9 are significant at $P < 0.05$. The remaining correlations are significant at $P < 0.01$.

*Not significant.
The factor “Supervisor/manager expectations and actions promoting patient safety” lost question B3, which refers mainly to work pressure and working fast. In the HSPSC-LA, B3 was included with items of “Staffing.” We interpret that personnel consider that work pressure is quite related with the number of people available in the OR. This may be the case of this hospital, and certainly, limited staff is a situation present in some hospitals in developing countries. This perception is consistent with its potential effect on safe care.45,46

A new factor was formed by items B4 and A10. The first one referred to repeated errors by manager/supervisor and the second one to the effect of chance on more serious mistakes. Personnel perceive a close relationship between repetitive errors—as a source of unsafe practices—and the manager/manager responsibility in the response to them. Parand et al47 systematically reviewed the literature to assess the role of hospital managers in quality and patient safety. They found evidence that managers’ time spent and work can influence quality and safety clinical outcomes, processes, and performance at hospital level.48 In addition, poor relationships between doctors and managers affect staff and patients’ care and seem to be associated with the long-term failure of organizations to thrive.49

The percentage of positive scores for individual domains was higher than U.S. results.50 “Teamwork across units” had low positive responses (48%). This agrees with others, suggesting that interaction between units/departments could be perceived as a source of unsafe practices.50,51 Personnel seemed unhappy to work with colleagues in other units but reported good teamwork within their own units.52 The OR has strong interactions and communication with areas such as intensive care units or the emergency department. Teamwork is a crucial part for the improvement of patient safety, and personnel should be encouraged and supported in their efforts to establish good relationships with people working in other units.15

An important finding was the low rate of reporting of incidents. Participants without any report during the past year exceeded 50%. This estimate was lower than the 84% described in Turkey,15 but much higher than 40% reported in Dutch hospitals.7 Fear of retribution in a punitive system has been identified as a determinant of reluctance to report adverse events.20 Recently, Elmontsri et al53 presented a systematic review about the status of patient safety culture in Arab countries in which they identified that nonpunitive response to error is seen as a serious issue that needs to be improved. Healthcare professionals in Arab countries tend to think that a “culture of blame” still exists that prevents them from reporting incidents.52 This situation is similar in Latin America where only few report events and still staff feel that their mistakes and reported events could be used against them.53–56

We present a first tool, which can help assess safety culture in the perioperative setting in Latin America. We hope that the availability of this version will promote its further validation and application by others, and we look forward to cooperating and benchmarking with them.

CONCLUSIONS

We present a first tool, which can help assess safety culture in the perioperative setting in Latin America. We hope that the availability of this version will promote its further validation and application by others, and we look forward to cooperating and benchmarking with them.

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